The e-catalog 2024

Cutting tools and clamping technology

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

Tooling a Sustainable Future

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CERATIZIT GROUP

Tooling a Sustainable Future

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

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

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

For more than 100 years, CERATIZIT has been a pioneer in developing exceptional hard material solutions for machining and protection against wear. Our customers receive the highest level of quality and access to the latest developments in the carbide sector. CERATIZIT is your all around cutting tool expert.

The e-catalog

This catalog contains one of the most unique ranges of tools you'll find on the market. Toolfinder, located at the beginning of every tool chapter, helps you quickly find the ideal tool.

Using our video tutorial

Use our video tutorial to help you get the most out of your e-catalog. Use it to help you simplify your search allowing you to navigate to the right tool even faster or save your favorites so that you can easily find them again.

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

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6 Taps and thread formers
7 Circular and Thread Milling
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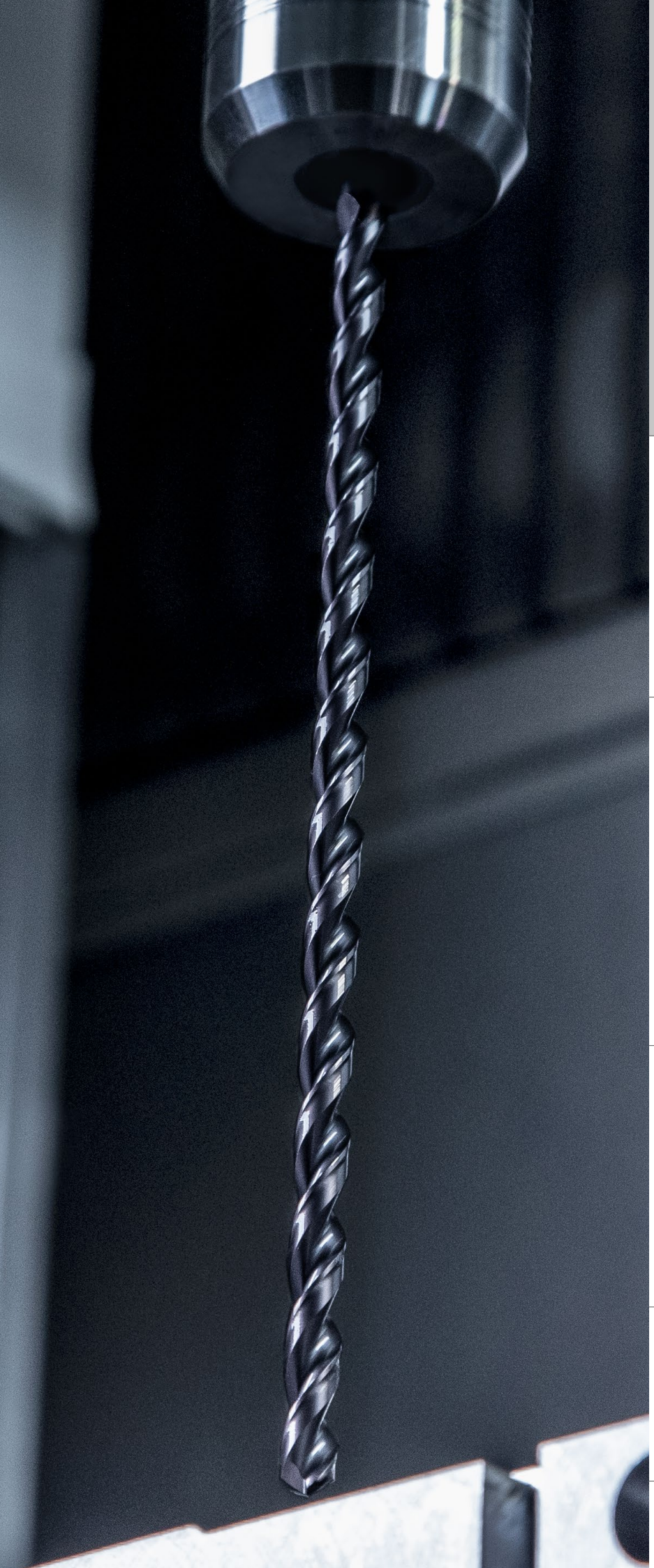

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WNT \ Performance

Premium quality tools for high performance.

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

Symbol explanation

Shank

Plain cylindrical shank

Cylindrical shank with lateral driving face „Weldon“

Morse taper

Version

Int. coolant supply

self-centering

● = **Main Application**

○ = Extended application

Toolfinder

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

HSS Drills Overview

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

HSS Drills Overview

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

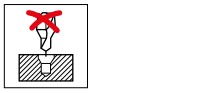
HSS Drills Overview

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

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

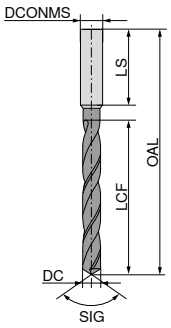
- ▲ Shank to DIN 1835 A
- ▲ Special point thinning
- ▲ Very good centering behaviour
- ▲ 4 facet
- ▲ Highest Performance

≤ 3xD



VX

TiN



SIG 118°
HSS-E

10 122 ...

DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	
2,00	44	12	3	28	020
2,10	44	12	3	28	021
2,20	45	13	3	28	022
2,30	45	13	3	28	023
2,40	46	14	3	28	024
2,50	46	14	3	28	025
2,60	46	14	3	28	026
2,70	48	16	3	28	027
2,80	48	16	3	28	028
2,90	48	16	3	28	029
3,00	48	16	3	28	030
3,10	50	18	4	28	031
3,20	50	18	4	28	032
3,30	50	18	4	28	033
3,40	52	20	4	28	034
3,50	52	20	4	28	035
3,60	52	20	4	28	036
3,70	52	20	4	28	037
3,80	54	22	4	28	038
3,90	54	22	4	28	039
4,00	54	22	4	28	040
4,10	66	22	6	36	041
4,20	66	22	6	36	042
4,30	68	24	6	36	043
4,40	68	24	6	36	044
4,50	68	24	6	36	045
4,60	68	24	6	36	046
4,70	68	24	6	36	047
4,80	70	26	6	36	048
4,90	70	26	6	36	049
5,00	70	26	6	36	050
5,10	70	26	6	36	051
5,20	70	26	6	36	052
5,30	70	26	6	36	053
5,40	72	28	6	36	054
5,50	72	28	6	36	055
5,55	72	28	6	36	555
5,60	72	28	6	36	056
5,70	72	28	6	36	057
5,80	72	28	6	36	058
5,90	72	28	6	36	059
6,00	72	28	6	36	060
6,10	75	31	8	36	061
6,20	75	31	8	36	062
6,30	75	31	8	36	063
6,40	75	31	8	36	064
6,50	75	31	8	36	065
6,60	75	31	8	36	066
6,70	75	31	8	36	067
6,80	78	34	8	36	068
6,90	78	34	8	36	069
7,00	78	34	8	36	070
7,10	78	34	8	36	071

10 122 ...

DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	
7,20	78	34	8	36	072
7,30	78	34	8	36	073
7,40	78	34	8	36	074
7,45	78	34	8	36	745
7,50	78	34	8	36	075
7,60	81	37	8	36	076
7,70	81	37	8	36	077
7,80	81	37	8	36	078
7,90	81	37	8	36	079
8,00	81	37	8	36	080
8,10	87	37	10	40	081
8,20	87	37	10	40	082
8,30	87	37	10	40	083
8,40	87	37	10	40	084
8,50	87	37	10	40	085
8,60	91	40	10	40	086
8,70	91	40	10	40	087
8,80	91	40	10	40	088
8,90	91	40	10	40	089
9,00	91	40	10	40	090
9,10	91	40	10	40	091
9,20	91	40	10	40	092
9,30	91	40	10	40	093
9,35	91	40	10	40	935
9,40	91	40	10	40	094
9,50	91	40	10	40	095
9,60	93	43	10	40	096
9,70	93	43	10	40	097
9,80	93	43	10	40	098
9,90	93	43	10	40	099
10,00	93	43	10	40	100
10,20	100	43	12	45	102
10,30	100	43	12	45	103
10,50	100	43	12	45	105
10,70	104	47	12	45	107
10,80	104	47	12	45	108
11,00	104	47	12	45	110
11,10	104	47	12	45	111
11,50	104	47	12	45	115
11,70	104	47	12	45	117
11,80	104	47	12	45	118
11,90	108	51	12	45	119
12,00	108	51	12	45	120
12,10	111	51	16	48	121
12,30	111	51	16	48	123
12,50	111	51	16	48	125
12,70	111	51	16	48	127
12,80	111	51	16	48	128
13,00	111	51	16	48	130
13,50	114	54	16	48	135
14,00	114	54	16	48	140
14,50	116	56	16	48	145
15,00	116	56	16	48	150
15,50	118	58	16	48	155
16,00	118	58	16	48	160
16,50	126	60	20	50	165
17,00	126	60	20	50	170
17,50	128	62	20	50	175
18,00	128	62	20	50	180
18,50	130	64	20	50	185
19,00	130	64	20	50	190
19,50	132	66	20	50	195
20,00	132	66	20	50	200

P	●
M	●
K	●
N	○
S	○
H	
O	○

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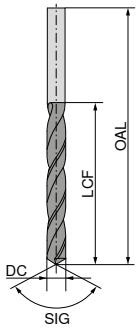
High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD



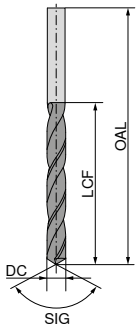
UNI	UNI	N	VA	WNX	WT	WT
TiN	TiN	vap.			vap.	TiN

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

| DC $_{h8}$ mm | DC inch | OAL mm | LCF mm | | |

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

≤ 3xD

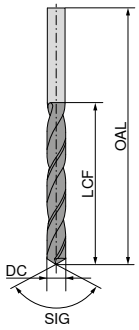


	UNI	UNI	N	VA	WNX	WT	WT
	TiN	TiN	vap.			vap.	TiN
	SIG 130°	SIG 118°	SIG 118°	SIG 130°	SIG 130°	SIG 130°	SIG 130°
	HSS-E-PM	HSS-E	HSS	HSS-E	HSS-E	HSS-E	HSS-E
	10 113 ...	10 107 ...	10 105 ...	10 130 ...	10 106 ...	10 109 ...	10 110 ...

| DC $_{h8}$ mm | DC inch | OAL mm | LCF mm | | |

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

≤ 3xD



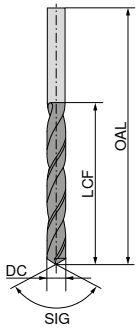
UNI	UNI	N	VA	WNX	WT	WT
TiN	TiN	vap.			vap.	TiN

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

| DC $_{h8}$ mm | DC inch | OAL mm | LCF mm | | |

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

≤ 3xD



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

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

DC $_{h8}$ mm	DC inch	OAL mm	LCF mm													
7,94	5/16	79	37,0	794 [2]		794 [2]										
8,00		79	37,0	080 [2]		080 [2]		080		080		080		08000		080
8,05		79	37,0											08050		
8,10		79	37,0	081 [2]		081 [2]		081								
8,15		79	37,0											08150		
8,20		79	37,0	082 [2]		082 [2]		082								082
8,30		79	37,0	083 [2]		083 [2]		083								
8,40		79	37,0	084 [2]		084 [2]		084		084		084		08400		084
8,50		79	37,0	085 [2]		085 [2]		085		085		085		08500		085
8,55		84	40,0											08550		
8,60		84	40,0			086 [2]		086		086						
8,70		84	40,0			087 [2]		087		087						087
8,73	11/32	84	40,0	873 [2]		873 [2]										
8,80		84	40,0	088 [2]		088 [2]		088				088		08800		088
8,90		84	40,0			089 [2]		089								
9,00		84	40,0	090 [2]		090 [2]		090		090		090		09000		090
9,10		84	40,0			091 [2]		091								
9,20		84	40,0			092 [2]		092		092		092		09200		092
9,30		84	40,0	093 [2]		093 [2]		093		093		093		09300		093
9,40		84	40,0			094 [2]		094				094		09400		094
9,50		84	40,0	095 [2]		095 [2]		095		095		095		09500		095
9,60		89	43,0			096 [2]		096				096		09600		096
9,65		89	43,0											09650		
9,70		89	43,0			097 [2]		097				097		09700		097
9,75		89	43,0											09750		
9,80		89	43,0	098 [2]		098 [2]		098		098		098		09800		098
9,90		89	43,0			099 [2]		099				099		09900		099
10,00		89	43,0	100 [2]		100 [2]		100		100		100		10000		100
10,10		89	43,0			101 [2]		101								
10,20		89	43,0	102 [2]		102 [2]		102		102		102		10200		102
10,30		89	43,0			103 [2]		103						10300		
10,40		89	43,0			104 [2]		104								
10,50		89	43,0	105 [2]		105 [2]		105		105		105		10500		105
10,60		95	47,0					106								
10,70		95	47,0					107						10700		
10,80		95	47,0					108								108
10,90		95	47,0					109								
11,00		95	47,0	110 [2]		110 [2]		110		110		110		11000		110
11,10		95	47,0					111								
11,11	7/16	95	47,0	111 [2]		111 [2]										
11,20		95	47,0					112						11200		
11,30		95	47,0					113						11300		
11,40		95	47,0					114						11400		
11,50		95	47,0	115 [2]		115 [2]		115		115		115		11500		115
11,60		95	47,0					116								
11,70		95	47,0					117		117				11700		
11,75		95	47,0											11750		
11,80		95	47,0					118				118		11800		118

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

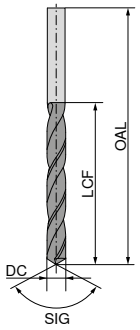
1) uncoated
2) self-centering

→ v_c Page 44+45

Continued on next page

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

≤ 3xD



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

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

DC $_{h8}$ mm	DC inch	OAL mm	LCF mm												
11,90		102	51,0					119							
12,00		102	51,0	120	2)	120	2)	120	120	120	12000		120		
12,10		102	51,0					121							
12,20		102	51,0					122							
12,30		102	51,0	123	2)	123	2)	123		123	12300		123		
12,40		102	51,0					124							
12,50		102	51,0	125	2)	125	2)	125		125	12500		125		
12,60		102	51,0					126							
12,70		102	51,0	127	2)	127	2)	127			12700				
12,80		102	51,0					128		128	12800		128		
12,90		102	51,0					129							
13,00		102	51,0	130	2)	130	2)	130		130	13000		130		
13,20		102	51,0					132							
13,30		107	54,0					133							
13,50		107	54,0	135	2)	135	2)	135		135	13500		135		
13,80		107	54,0					138		138					
14,00		107	54,0	140	2)	140	2)	140		140	14000		140		
14,50		111	56,0					145		145	14500		145		
14,75		111	56,0					147							
15,00		111	56,0					150		150	15000		150		
15,25		115	58,0					152							
15,50		115	58,0					155		155	15500		155		
15,75		115	58,0										157		
16,00		115	58,0					160		160	16000		160		
16,50		119	60,0					165		165	16500		165		
17,00		119	60,0					170		170	17000		170		
17,50		123	62,0					175		175	17500		175		
17,75		123	62,0										177		
18,00		123	62,0					180		180	18000		180		
18,50		127	64,0					185			18500		185		
19,00		127	64,0					190		190	19000		190		
19,50		131	66,0					195			19500		195		
20,00		131	66,0					200		200	20000		200		
20,50		136	68,0								20500				
21,00		136	68,0								21000				
21,50		141	70,0								21500				
22,00		141	70,0								22000				
23,00		146	72,0								23000				
24,00		151	75,0								24000				
25,00		151	75,0								25000				

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

1) uncoated
2) self-centering

→ v_c Page 44+45

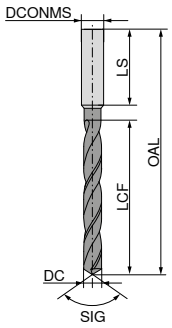
High-performance twist drill similar to DIN 338, short

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

≤ 5xD

VX

TiN



SIG 118°
HSS-E

10 124 ...

DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	
2,00	56	24	3	28	020
2,10	56	24	3	28	021
2,20	59	27	3	28	022
2,30	59	27	3	28	023
2,40	62	30	3	28	024
2,50	62	30	3	28	025
2,60	62	30	3	28	026
2,70	65	33	3	28	027
2,80	65	33	3	28	028
2,90	65	33	3	28	029
3,00	65	33	3	28	030
3,10	68	36	4	28	031
3,20	68	36	4	28	032
3,30	68	36	4	28	033
3,40	71	39	4	28	034
3,50	71	39	4	28	035
3,60	71	39	4	28	036
3,70	71	39	4	28	037
3,80	75	43	4	28	038
3,90	75	43	4	28	039
4,00	75	43	4	28	040
4,10	87	43	6	36	041
4,20	87	43	6	36	042
4,30	91	47	6	36	043
4,40	91	47	6	36	044
4,50	91	47	6	36	045
4,60	91	47	6	36	046
4,65	91	47	6	36	465
4,70	91	47	6	36	047
4,80	96	52	6	36	048
4,90	96	52	6	36	049
5,00	96	52	6	36	050
5,10	96	52	6	36	051
5,20	96	52	6	36	052
5,30	96	52	6	36	053
5,40	101	57	6	36	054
5,50	101	57	6	36	055
5,55	101	57	6	36	555
5,60	101	57	6	36	056
5,70	101	57	6	36	057
5,80	101	57	6	36	058
5,90	101	57	6	36	059
6,00	101	57	6	36	060
6,10	107	63	8	36	061
6,20	107	63	8	36	062
6,30	107	63	8	36	063
6,40	107	63	8	36	064
6,50	107	63	8	36	065
6,60	107	63	8	36	066
6,70	107	63	8	36	067
6,80	113	69	8	36	068
6,90	113	69	8	36	069
7,00	113	69	8	36	070
7,10	113	69	8	36	071
7,20	113	69	8	36	072
7,30	113	69	8	36	073

10 124 ...

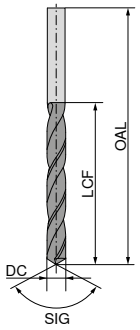
DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	
7,40	113	69	8	36	074
7,50	113	69	8	36	075
7,55	119	75	8	36	755
7,60	119	75	8	36	076
7,70	119	75	8	36	077
7,80	119	75	8	36	078
7,90	119	75	8	36	079
8,00	119	75	8	36	080
8,10	125	75	10	40	081
8,20	125	75	10	40	082
8,30	125	75	10	40	083
8,40	125	75	10	40	084
8,50	125	75	10	40	085
8,60	131	81	10	40	086
8,70	131	81	10	40	087
8,80	131	81	10	40	088
8,90	131	81	10	40	089
9,00	131	81	10	40	090
9,10	131	81	10	40	091
9,20	131	81	10	40	092
9,30	131	81	10	40	093
9,40	131	81	10	40	094
9,50	131	81	10	40	095
9,55	137	87	10	40	955
9,60	137	87	10	40	096
9,70	137	87	10	40	097
9,80	137	87	10	40	098
9,90	137	87	10	40	099
10,00	137	87	10	40	100
10,10	144	87	12	45	101
10,20	144	87	12	45	102
10,30	144	87	12	45	103
10,40	144	87	12	45	104
10,50	144	87	12	45	105
10,70	151	94	12	45	107
10,80	151	94	12	45	108
11,00	151	94	12	45	110
11,20	151	94	12	45	112
11,30	151	94	12	45	113
11,40	151	94	12	45	114
11,50	151	94	12	45	115
11,60	151	94	12	45	116
11,70	151	94	12	45	117
11,80	151	94	12	45	118
11,90	158	101	12	45	119
12,00	158	101	12	45	120
12,20	161	101	16	48	122
12,30	161	101	16	48	123
12,50	161	101	16	48	125
12,70	161	101	16	48	127
12,80	161	101	16	48	128
13,00	161	101	16	48	130
13,50	166	106	16	48	135
14,00	166	106	16	48	140
14,50	169	109	16	48	145
15,00	169	109	16	48	150
15,50	172	112	16	48	155
16,00	172	112	16	48	160
16,50	181	115	20	50	165
17,00	181	115	20	50	170
17,50	184	118	20	50	175
18,00	184	118	20	50	180
18,50	188	122	20	50	185
19,00	188	122	20	50	190
19,50	191	125	20	50	195
20,00	191	125	20	50	200

P	●
M	●
K	●
N	○
S	○
H	
O	○

→ v_c Page 46

Twist drill to DIN 338, short

≤ 5xD



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

DC h8 mm	DC inch	OAL mm	LCF mm																
0,20		19	2,5						00200[1]			00200							
0,25		19	3,0						00250[1]			00250							
0,30		19	3,0						00300[1]			00300							
0,35		19	4,0						00350[1]			00350							
0,40		20	5,0						00400[1]			00400							
0,45		20	5,0						00450[1]			00450							
0,50		22	6,0						00500[1]			00500							
0,55		24	7,0						00550[1]			00550							
0,60		24	7,0						00600[1]			00600							
0,65		26	8,0						00650[1]			00650							
0,70		28	9,0						00700[1]			00700							
0,75		28	9,0						00750[1]			00750							
0,80		30	10,0						00800[1]			00800							
0,85		30	10,0						00850[1]			00850							
0,90		32	11,0			009[2]			00900[1]			00900							
0,95		32	11,0						00950[1]			00950							
1,00		34	12,0	010[2]		010[2]			01000[1]		010	01000			010[1]			010	
1,05		34	12,0						01050[1]			01050							
1,10		36	14,0	011[2]		011[2]			01100[1]		011	01100			011[1]			011	
1,15		36	14,0						01150[1]			01150							
1,20		38	16,0	012[2]		012[2]			01200[1]		012	01200			012[1]			012	
1,25		38	16,0			125[2]			01250[1]			01250							
1,30		38	16,0	013[2]		013[2]			01300[1]		013	01300			013[1]			013	
1,35		40	18,0						01350[1]			01350							
1,40		40	18,0	014[2]		014[2]			01400[1]		014	01400			014[1]			014	
1,45		40	18,0			145[2]			01450[1]			01450						901	
1,50		40	18,0	015[2]		015[2]			01500[1]		015	01500			015[1]			015	
1,55		43	20,0			155[2]			01550[1]			01550						902	
1,60		43	20,0	016[2]		016[2]			01600[1]		016	01600			016[1]			016	
1,65		43	20,0			165[2]			01650[1]			01650						903	
1,70		43	20,0	017[2]		017[2]			01700[1]		017	01700			017[1]			017	
1,75		46	22,0						01750[1]			01750							
1,80		46	22,0	018[2]		018[2]			01800[1]		018	01800			018[1]			018	
1,85		46	22,0						01850[1]			01850						904	
1,90		46	22,0	019[2]		019[2]			01900[1]		019	01900			019[1]			019	
1,95		49	24,0						01950[1]			01950							
2,00		49	24,0	020[2]		020[2]			02000[1]		020	02000			020[1]			020	
2,05		49	24,0						02050[1]			02050						905	
2,10		49	24,0	021[2]		021[2]			02100[1]		021	02100			021[1]			021	
2,15		53	27,0						02150[1]			02150							
2,20		53	27,0	022[2]		022[2]			02200[1]		022	02200			022[1]			022	
2,25		53	27,0						02250[1]			02250							
2,30		53	27,0	023[2]		023[2]			02300[1]		023	02300			023[1]			023	
2,35		53	27,0						02350[1]			02350							
2,38	3/32	57	30,0	238[2]		238[2]													
2,40		57	30,0	024[2]		024[2]			02400		024	02400			024			024	

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

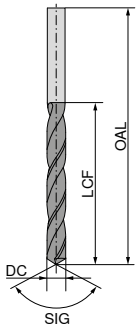
1) uncoated
2) self-centering

→ v_c Page 46+47

Continued on next page

Twist drill to DIN 338, short

≤ 5xD



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

DC h8 mm	DC inch	OAL mm	LCF mm														
2,45		57	30,0						02450			02450					
2,50		57	30,0		025 2)		025 2)		02500		025	02500		025		025	
2,55		57	30,0				255 2)		02550			02550					
2,60		57	30,0		026 2)		026 2)		02600		026	02600		026		026	
2,65		57	30,0						02650			02650					
2,70		61	33,0		027 2)		027 2)		02700		027	02700		027		027	
2,75		61	33,0						02750			02750					
2,78	7/64	61	33,0		278 2)		278 2)										
2,80		61	33,0		028 2)		028 2)		02800		028	02800		028		028	
2,85		61	33,0						02850			02850					
2,90		61	33,0		029 2)		029 2)		02900		029	02900		029		029	
2,95		61	33,0						02950			02950					
3,00		61	33,0		030 2)		030 2)		03000		030	03000		030		030	
3,05		65	36,0						03050			03050					
3,10		65	36,0		031 2)		031 2)		03100		031	03100		031		031	
3,15		65	36,0						03150			03150					
3,17	1/8	65	36,0		317 2)		317 2)										
3,20		65	36,0		032 2)		032 2)		03200		032	03200		032		032	
3,25		65	36,0				325 2)		03250			03250					
3,30		65	36,0		033 2)		033 2)		03300		033	03300		033		033	
3,35		65	36,0						03350			03350					
3,40		70	39,0		034 2)		034 2)		03400		034	03400		034		034	
3,45		70	39,0						03450			03450					
3,50		70	39,0		035 2)		035 2)		03500		035	03500		035		035	
3,55		70	39,0						03550			03550					
3,57	9/64	70	39,0		357 2)		357 2)										
3,60		70	39,0		036 2)		036 2)		03600		036	03600		036		036	
3,65		70	39,0						03650			03650					
3,70		70	39,0		037 2)		037 2)		03700		037	03700		037		037	
3,75		70	39,0						03750			03750					
3,80		75	43,0		038 2)		038 2)		03800		038	03800		038		038	
3,85		75	43,0						03850			03850					
3,90		75	43,0		039 2)		039 2)		03900		039	03900		039		039	
3,95		75	43,0						03950			03950					
3,97	5/32	75	43,0		397 2)		397 2)										
4,00		75	43,0		040 2)		040 2)		04000		040	04000		040		040	
4,05		75	43,0						04050			04050					
4,10		75	43,0		041 2)		041 2)		04100		041	04100		041		041	
4,15		75	43,0						04150			04150					
4,20		75	43,0		042 2)		042 2)		04200		042	04200		042		042	
4,25		75	43,0				425 2)		04250			04250					
4,30		80	47,0		043 2)		043 2)		04300		043	04300		043		043	
4,35		80	47,0						04350			04350					
4,37	11/64	80	47,0		437 2)		437 2)										
4,40		80	47,0		044 2)		044 2)		04400		044	04400		044		044	
4,45		80	47,0						04450								

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

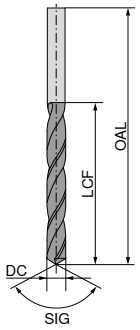
1) uncoated
2) self-centering

→ v_c Page 46+47

Continued on next page

Twist drill to DIN 338, short

≤ 5xD



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

DC h8 mm	DC inch	OAL mm	LCF mm														
4,50		80	47,0		045 2)		045 2)		04500		045		04500		045		045
4,55		80	47,0						04550				04550				
4,60		80	47,0		046 2)		046 2)		04600		046		04600		046		046
4,65		80	47,0				465 2)		04650				04650				
4,70		80	47,0		047 2)		047 2)		04700		047		04700		047		047
4,75		80	47,0						04750				04750				
4,76	3/16	86	52,0		476 2)		476 2)										
4,80		86	52,0		048 2)		048 2)		04800		048		04800		048		048
4,85		86	52,0						04850				04850				
4,90		86	52,0		049 2)		049 2)		04900		049		04900		049		049
4,95		86	52,0				495 2)		04950				04950				
5,00		86	52,0		050 2)		050 2)		05000		050		05000		050		050
5,05		86	52,0				505 2)		05050				05050				
5,10		86	52,0		051 2)		051 2)		05100		051		05100		051		
5,15		86	52,0						05150								
5,16	13/64	86	52,0		516 2)		516 2)										
5,20		86	52,0		052 2)		052 2)		05200		052		05200		052		052
5,25		86	52,0						05250				05250				
5,30		86	52,0		053 2)		053 2)		05300		053		05300				
5,35		93	57,0						05350								
5,40		93	57,0		054 2)		054 2)		05400				05400				
5,45		93	57,0						05450				05450				
5,50		93	57,0		055 2)		055 2)		05500		055		05500		055		055
5,55		93	57,0				555 2)		05550				05550				
5,56	7/32	93	57,0		556 2)		556 2)										
5,60		93	57,0		056 2)		056 2)		05600		056		05600		056		056
5,65		93	57,0						05650				05650				
5,70		93	57,0		057 2)		057 2)		05700		057		05700		057		057
5,75		93	57,0				575 2)		05750				05750				
5,80		93	57,0		058 2)		058 2)		05800		058		05800		058		058
5,85		93	57,0						05850				05850				
5,90		93	57,0		059 2)		059 2)		05900		059		05900		059		059
5,95	15/64	93	57,0		595 2)		595 2)		05950				05950				
6,00		93	57,0		060 2)		060 2)		06000		060		06000		060		060
6,05		101	63,0						06050				06050				
6,10		101	63,0		061 2)		061 2)		06100				06100				
6,15		101	63,0						06150				06150				
6,20		101	63,0		062 2)		062 2)		06200		062		06200				062
6,25		101	63,0						06250				06250				
6,30		101	63,0		063 2)		063 2)		06300				06300				
6,35	1/4	101	63,0		635 2)		635 2)		06350				06350				
6,40		101	63,0		064 2)		064 2)		06400				06400				
6,45		101	63,0						06450								
6,50		101	63,0		065 2)		065 2)		06500		065		06500		065		065
6,55		101	63,0						06550				06550				
6,60		101	63,0		066 2)		066 2)		06600				06600				

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

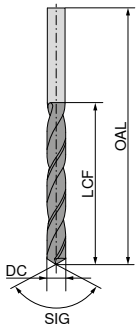
1) uncoated
2) self-centering

→ v_c Page 46+47

Continued on next page

Twist drill to DIN 338, short

≤ 5xD



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

DC $_{h8}$ mm	DC inch	OAL mm	LCF mm																
6,65		101	63,0					06650			06650								
6,70		101	63,0	067 [2]		067 [2]		06700			06700								
6,75		109	69,0	675 [2]		675 [2]		06750			06750								
6,80		109	69,0	068 [2]		068 [2]		06800		068	06800		068		068				
6,85		109	69,0					06850			06850								
6,90		109	69,0	069 [2]		069 [2]		06900		069	06900								
6,95		109	69,0					06950			06950								
7,00		109	69,0	070 [2]		070 [2]		07000		070	07000		070		070				
7,05		109	69,0					07050			07050								
7,10		109	69,0	071 [2]		071 [2]		07100			07100								
7,14	9/32	109	69,0	714 [2]		714 [2]													
7,15		109	69,0					07150											
7,20		109	69,0	072 [2]		072 [2]		07200		072	07200		072		072				
7,25		109	69,0					07250			07250								
7,30		109	69,0	073 [2]		073 [2]		07300			07300								
7,35		109	69,0					07350											
7,40		109	69,0	074 [2]		074 [2]		07400		074	07400		074		074				
7,45		109	69,0			745 [2]		07450											
7,50		109	69,0	075 [2]		075 [2]		07500		075	07500		075		075				
7,55		117	75,0					07550											
7,60		117	75,0	076 [2]		076 [2]		07600		076	07600		076		076				
7,65		117	75,0					07650											
7,70		117	75,0	077 [2]		077 [2]		07700		077	07700		077		077				
7,75		117	75,0					07750			07750								
7,80		117	75,0	078 [2]		078 [2]		07800		078	07800		078		078				
7,85		117	75,0					07850											
7,90		117	75,0	079 [2]		079 [2]		07900		079	07900		079		079				
7,94	5/16	117	75,0	794 [2]		794 [2]													
7,95		117	75,0					07950											
8,00		117	75,0	080 [2]		080 [2]		08000		080	08000		080		080				
8,05		117	75,0					08050			08050								
8,10		117	75,0	081 [2]		081 [2]		08100			08100								
8,15		117	75,0					08150			08150								
8,20		117	75,0	082 [2]		082 [2]		08200			08200								
8,25		117	75,0					08250			08250								
8,30		117	75,0	083 [2]		083 [2]		08300			08300								
8,35		117	75,0					08350											
8,40		117	75,0	084 [2]		084 [2]		08400		084	08400		084		084				
8,45		117	75,0					08450			08450								
8,50		117	75,0	085 [2]		085 [2]		08500		085	08500		085		085				
8,55		125	81,0					08550			08550								
8,60		125	81,0			086 [2]		08600		086	08600				086				
8,65		125	81,0					08650											
8,70		125	81,0			087 [2]		08700			08700								
8,73	11/32	125	81,0	873 [2]		873 [2]													
8,75		125	81,0					08750			08750								

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

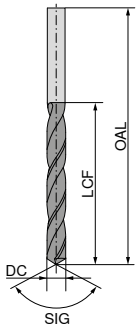
1) uncoated
2) self-centering

→ v_c Page 46+47

Continued on next page

Twist drill to DIN 338, short

≤ 5xD



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

DC h8 mm	DC inch	OAL mm	LCF mm																
8,80		125	81,0		088 2)		088 2)		08800		088		08800		088		088
8,90		125	81,0				089 2)		08900				08900				
8,95		125	81,0						08950								
9,00		125	81,0		090 2)		090 2)		09000		090		09000		090		090
9,05		125	81,0						09050								
9,10		125	81,0				091 2)		09100				09100				
9,15		125	81,0						09150								
9,20		125	81,0				092 2)		09200		092		09200		092		092
9,25		125	81,0						09250				09250				
9,30		125	81,0		093 2)		093 2)		09300		093		09300		093		093
9,35		125	81,0				935 2)		09350								
9,40		125	81,0				094 2)		09400		094		09400		094		094
9,45		125	81,0						09450								
9,50		125	81,0		095 2)		095 2)		09500		095		09500		095		095
9,55		133	87,0						09550								
9,60		133	87,0				096 2)		09600		096		09600		096		096
9,65		133	87,0						09650								
9,70		133	87,0				097 2)		09700		097		09700		097		097
9,75		133	87,0						09750								
9,80		133	87,0		098 2)		098 2)		09800		098		09800		098		098
9,85		133	87,0						09850								
9,90		133	87,0				099 2)		09900		099		09900		099		099
9,95		133	87,0						09950								
10,00		133	87,0		100 2)		100 2)		10000		100		10000		100		100
10,05		133	87,0						10050				10050				
10,10		133	87,0				101 2)		10100				10100				
10,15		133	87,0						10150								
10,20		133	87,0		102 2)		102 2)		10200		102		10200		102		102
10,25		133	87,0						10250				10250				
10,30		133	87,0				103 2)		10300		103		10300		103		103
10,35		133	87,0						10350								
10,40		133	87,0				104 2)		10400				10400				
10,45		133	87,0						10450								
10,50		133	87,0		105 2)		105 2)		10500		105		10500		105		105
10,55		133	87,0				955 2)		10550								
10,60		133	87,0						10600				10600				
10,70		142	94,0						10700		107		10700		107		
10,75		142	94,0						10750				10750				
10,80		142	94,0						10800				10800				
10,90		142	94,0						10900				10900				
11,00		142	94,0		110 2)		110 2)		11000		110		11000		110		110
11,10		142	94,0						11100				11100				
11,11	7/16	142	94,0		111 2)		111 2)										
11,20		142	94,0				112 2)		11200		112		11200		112		112
11,30		142	94,0				113 2)				113				113		
11,40		142	94,0				114 2)		11400		114		11400		114		

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

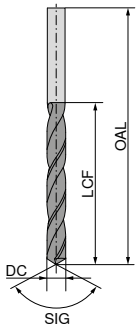
1) uncoated
2) self-centering

→ v_c Page 46+47

Continued on next page

Twist drill to DIN 338, short

≤ 5xD



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

DC $_{h8}$ mm	DC inch	OAL mm	LCF mm																
11,50		142	94,0		115 2)		115 2)		11500		115		11500		115		115
11,60		142	94,0				116 2)		11600		116		11600		116		
11,70		142	94,0						11700		117		11700		117		117
11,80		142	94,0						11800		118		11800		118		118
11,90		151	101,0						11900		119		11900				
12,00		151	101,0		120 2)		120 2)		12000		120		12000		120		120
12,15		151	101,0				121 2)										
12,20		151	101,0						12200				12200				
12,25		151	101,0						12250								
12,30		151	101,0		123 2)		123 2)										
12,50		151	101,0		125 2)		925 2)		12500				12500		125		125
12,70		151	101,0		127 2)		127 2)		12700				12700				
12,80		151	101,0						12800				12800		128		128
13,00		151	101,0		130 2)		130 2)		13000				13000		130		130
13,10		151	101,0				131 2)										
13,20		151	101,0						13200				13200				
13,30		160	108,0				133 2)										
13,50		160	108,0		135 2)		135 2)		13500				13500		135		135
13,80		160	108,0						13800				13800		138		138
14,00		160	108,0		140 2)		140 2)		14000				14000		140		140
14,50		169	114,0						14500				14500		145		145
14,80		169	114,0												148		
15,00		169	114,0						15000				15000		150		150
15,25		178	120,0						15250								
15,50		178	120,0						15500				15500		155		155
15,80		178	120,0						15800								
16,00		178	120,0						16000				16000		160		160
16,50		184	125,0						16500				16500				
17,00		184	125,0						17000				17000				
17,50		191	130,0						17500				17500				
18,00		191	130,0						18000				18000				
18,50		198	135,0						18500								
19,00		198	135,0						19000				19000				
19,50		205	140,0						19500								
20,00		205	140,0						20000				20000				

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

1) uncoated
2) self-centering

→ v_c Page 46+47

Twist drill sets DIN 338, short

▲ In a box
▲ In 0.1 mm steps

≤ 5xD

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

1) self-centering

→ v_c Page 46

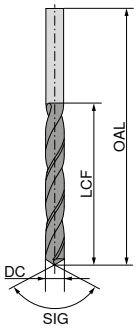
Set of type N vap. contains the drills of Art. No. 10 152 ...
Set of type UNI TiN contains the drills of Art. No. 10 171 ...

Twist drills with coolant hole, factory standard, long

≤ 10xD

NC

TiAlN



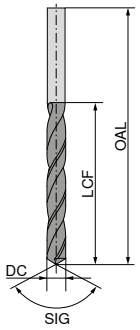
SIG 130°
HSS

DC h8 mm	OAL mm	LCF mm	10 224 ...
3,0	100	66	030
3,3	106	69	033
3,5	112	73	035
3,8	119	78	038
4,0	119	78	040
4,2	119	78	042
4,5	126	82	045
4,8	132	87	048
5,0	132	87	050
5,5	139	91	055
5,8	139	91	058
6,0	139	91	060
6,5	148	97	065
6,8	156	102	068
7,0	156	102	070
7,5	156	102	075
7,8	165	109	078
8,0	165	109	080
8,5	165	109	085
8,8	175	115	088
9,0	175	115	090
9,5	175	115	095
9,8	184	121	098
10,0	184	121	100
10,2	184	121	102
10,5	184	121	105
10,8	195	128	108
11,0	195	128	110
11,5	195	128	115
11,8	205	134	118
12,0	205	134	120
12,8	205	134	128
13,0	205	134	130
P			○
M			○
K			●
N			○
S			
H			
O			○

→ v_c Page 48

Twist drills, DIN 340, long

≤ 10xD



	UNI	WTL	WTL	WTW
	TiN	F.-nit	TiN	
	SIG 118° HSS-E	SIG 130° HSS-E	SIG 130° HSS	SIG 130° HSS
DC h8 mm	10 270 ...	10 225 ...	10 210 ...	10 200 ...
1,0	56	33	010	010 1)	010	010
1,1	60	37	011	011 1)	011	011
1,2	65	41	012	012 1)		012
1,3	65	41	013	013 1)		
1,4	70	45	014	014 1)		014
1,5	70	45	015	015 1)	015	015
1,6	76	50	016	016 1)	016	016
1,7	76	50	017	017 1)		
1,8	80	53	018	018 1)		018
1,9	80	53	019	019 1)	019	019
2,0	85	56	020	020 1)	020	020
2,1	85	56	021	021 1)	021	021
2,2	90	59	022	022 1)		
2,3	90	59	023	023 1)	023	023
2,4	95	62	024	024	024	024
2,5	95	62	025	025	025	025
2,6	95	62	026	026	026	026
2,7	100	66	027	027	027	027
2,8	100	66	028	028	028	028
2,9	100	66	029	029	029	029
3,0	100	66	030	030	030	030
3,1	106	69	031	031		
3,2	106	69	032	032		
3,3	106	69	033	033	033	033
3,4	112	73	034	034		
3,5	112	73	035	035	035	035
3,6	112	73	036	036	036	036
3,7	112	73	037	037	037	037
3,8	119	78	038	038	038	038
3,9	119	78	039	039	039	039
4,0	119	78	040	040	040	040
4,1	119	78	041	041		
4,2	119	78	042	042	042	042
4,3	126	82	043	043	043	043
4,4	126	82	044	044		
4,5	126	82	045	045	045	045
4,6	126	82	046	046	046	046
4,7	126	82	047	047	047	047
4,8	132	87	048	048	048	048
4,9	132	87	049	049	049	049
5,0	132	87	050	050	050	050
5,1	132	87	051	051		
P			●	●	○	
M			●	○		
K			●	●	●	
N			○	●	○	●
S			○	○		
H				○		
O			○	○	○	

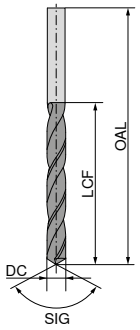
1) uncoated

→ v_c Page 48+49

Continued on next page

Twist drills, DIN 340, long

≤ 10xD



	UNI	WTL	WTL	WTW
	TiN	F.-nit	TiN	
	SIG 118° HSS-E	SIG 130° HSS-E	SIG 130° HSS	SIG 130° HSS
DC h8 mm	10 270 ...	10 225 ...	10 210 ...	10 200 ...
5,2	132	87	052	052	052	052
5,3	132	87	053	053	053	053
5,4	139	91	054	054		
5,5	139	91	055	055	055	055
5,6	139	91	056	056	056	056
5,7	139	91	057	057	057	057
5,8	139	91	058	058	058	058
5,9	139	91	059	059	059	059
6,0	139	91	060	060	060	060
6,1	148	97	061	061		
6,2	148	97	062	062		
6,3	148	97	063	063	063	063
6,4	148	97	064	064		
6,5	148	97	065	065	065	065
6,6	148	97	066	066		
6,7	148	97	067	067		
6,8	156	102	068	068	068	068
6,9	156	102	069	069		
7,0	156	102	070	070	070	070
7,1	156	102	071	071		
7,2	156	102	072	072	072	072
7,3	156	102	073	073		
7,4	156	102	074	074	074	074
7,5	156	102	075	075	075	075
7,6	165	109	076		076	076
7,7	165	109	077	077		077
7,8	165	109	078	078	078	078
7,9	165	109	079	079	079	079
8,0	165	109	080	080	080	080
8,1	165	109	081	081		
8,2	165	109	082	082		
8,3	165	109	083	083		
8,4	165	109	084	084	084	084
8,5	165	109	085	085	085	085
8,6	175	115	086	086		
8,7	175	115	087	087		
8,8	175	115	088	088	088	088
8,9	175	115	089	089		
9,0	175	115	090	090	090	090
9,1	175	115	091	091		
9,2	175	115	092	092		092
9,3	175	115	093	093		093
P			●	●	○	
M			●	○		
K			●	●	●	
N			○	●	○	●
S			○	○		
H				○		
O			○	○	○	

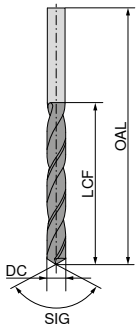
1) uncoated

→ v_c Page 48+49

Continued on next page

Twist drills, DIN 340, long

≤ 10xD



	UNI	WTL	WTL	WTW
	TiN	F.-nit	TiN	
	SIG 118° HSS-E	SIG 130° HSS-E	SIG 130° HSS	SIG 130° HSS
DC h8 mm / OAL mm / LCF mm	10 270 ...	10 225 ...	10 210 ...	10 200 ...
9,4 / 175 / 115	094	094		094
9,5 / 175 / 115	095	095	095	095
9,6 / 184 / 121	096			096
9,7 / 184 / 121	097	097	097	
9,8 / 184 / 121	098	098	098	098
9,9 / 184 / 121	099	099	099	
10,0 / 184 / 121	100	100	100	100
10,1 / 184 / 121	101			
10,2 / 184 / 121	102	102	102	102
10,3 / 184 / 121	103			103
10,4 / 184 / 121	104			
10,5 / 184 / 121	105	105	105	105
10,8 / 195 / 128		108		
11,0 / 195 / 128	110	110	110	110
11,5 / 195 / 128	115	115	115	115
11,6 / 195 / 128				116
11,8 / 195 / 128		118		118
12,0 / 205 / 134	120	120	120	120
12,2 / 205 / 134				122
12,3 / 205 / 134				123
12,5 / 205 / 134	125		125	125
13,0 / 205 / 134	130		130	130
13,5 / 214 / 140	135			
14,0 / 214 / 140	140		140	140
P	●	●	○	
M	●	○		
K	●	●	●	
N	○	●	○	●
S	○	○		
H		○		
O	○	○	○	

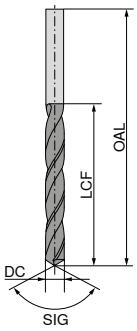
1) uncoated

→ v_c Page 48+49

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

▲ Up to diameter DC of 2.30 mm in uncoated version

> 10xD



SIG 130°
HSS-E

SIG 130°
HSS

DC h8 mm	OAL mm	LCF mm	10 236 ...	10 235 ...
2,0	125	85		020 1)
2,1	125	85		021 1)
2,2	135	90		022 1)
2,3	135	90		023 1)
2,4	140	95		024
2,5	140	95		025
2,6	140	95		026
2,7	150	100		027
2,8	150	100		028
2,9	150	100		029
3,0	150	100	03000	030
3,1	155	105		031
3,2	155	105		032
3,3	155	105	03300	033
3,4	165	115		034
3,5	165	115	03500	035
3,6	165	115		036
3,7	165	115		037
3,8	175	120		038
3,9	175	120		039
4,0	175	120	04000	040
4,1	175	120		041
4,2	175	120	04200	042
4,3	185	125		043
4,4	185	125		044
4,5	185	125	04500	045
4,6	185	125		046
4,7	185	125		047
4,8	195	135		048
4,9	195	135		049
5,0	195	135	05000	050
5,1	195	135		051
5,2	195	135		052
5,3	195	135		053
5,4	205	140		054
5,5	205	140	05500	055
5,6	205	140		056
5,7	205	140		057
5,8	205	140		058
5,9	205	140		059
6,0	205	140	06000	060
6,1	215	150		061
6,2	215	150		062
6,3	215	150		063
6,4	215	150		064
6,5	215	150	06500	065
6,6	215	150		066
6,7	215	150		067
6,8	225	155	06800	068
6,9	225	155		069
7,0	225	155	07000	070
7,1	225	155		071
7,3	225	155		073
7,4	225	155		074
7,5	225	155	07500	075
7,7	240	165		077
7,8	240	165		078
7,9	240	165		079
8,0	240	165	08000	080
8,1	240	165		081
8,2	240	165		082
8,3	240	165		083
8,4	240	165		084
8,5	240	165	08500	085
8,6	250	175		086
8,7	250	175		087
8,8	250	175		088
9,0	250	175	09000	090
9,2	250	175		092
9,4	250	175		094
9,5	250	175	09500	095
9,6	265	185		096
9,7	265	185		097
9,8	265	185		098
9,9	265	185		099
10,0	265	185	10000	100
10,2	265	185	10200	
10,5	265	185		105
11,0	280	195		110
11,5	280	195		115
12,0	295	205		120
12,5	295	205		125
13,0	295	205		130
P			●	●
M				
K			●	●
N			●	●
S				
H				
O			○	○

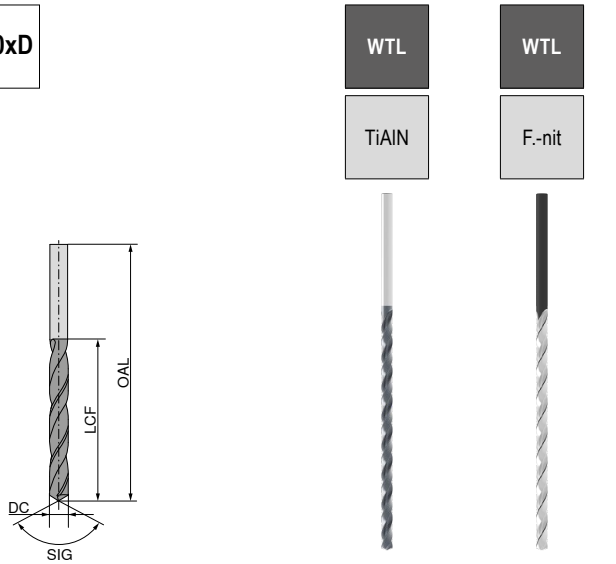
1) uncoated

→ v_c Page 50

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

▲ Up to diameter DC of 2.00 mm in uncoated version

> 10xD



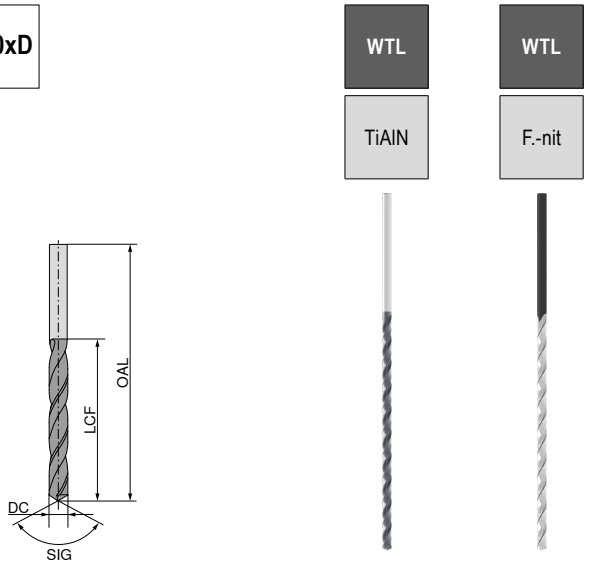
DC h8 mm	OAL mm	LCF mm	10 246 ...	10 245 ...
2,0	160	110		020 [1]
2,5	180	120		025
3,0	190	130	03000	030
3,5	210	145	03500	035
4,0	220	150	04000	040
4,5	235	160	04500	045
5,0	245	170	05000	050
5,5	260	180	05500	055
6,0	260	180	06000	060
6,5	275	190	06500	065
7,0	290	200	07000	070
7,5	290	200	07500	075
8,0	305	210	08000	080
8,5	305	210	08500	085
9,0	320	220	09000	090
9,5	320	220	09500	095
10,0	340	235	10000	100
10,2	340	235	10200	
10,5	340	235		105
11,0	365	250		110
11,5	365	250		115
12,0	375	260	12000	120
12,5	375	260		125
13,0	375	260		130
P			●	●
M				
K			●	●
N			●	●
S				
H				
O			○	○

1) uncoated

→ v_c Page 50+51

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

> 10xD



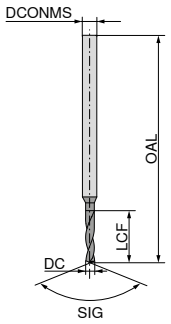
DC h8 mm	OAL mm	LCF mm	10 256 ...	10 255 ...
2,5	225	150		025
3,0	240	160		030
3,5	265	180		035
4,0	280	190	04000	040
4,5	295	200		045
5,0	315	210	05000	050
5,5	330	225		055
6,0	330	225	06000	060
6,5	350	235		065
7,0	370	250		070
7,5	370	250		075
8,0	390	265	08000	080
8,5	390	265		085
9,0	410	280		090
9,5	410	280		095
10,0	430	295	10000	100
10,5	430	295		105
11,0	455	310		110
11,5	455	310		115
12,0	480	330		120
12,5	480	330		125
13,0	480	330		130
P			●	●
M				
K			●	●
N			●	●
S				
H				
O			○	○

→ v_c Page 50+51

Twist drills, DIN 1899

▲ 4 facet
▲ with reinforced shank

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



N

SIG 118°
HSS-E-PM

10 103 ...

DC -0,004 mm	OAL mm	LCF mm	DCONMS h8 mm	
0,15	25	0,8	1,0	00150
0,20	25	1,5	1,0	00200
0,25	25	1,9	1,0	00250
0,30	25	1,9	1,0	00300
0,35	25	2,4	1,0	00350
0,40	25	3,0	1,0	00400
0,45	25	3,0	1,0	00450
0,50	25	3,4	1,0	00500
0,55	25	3,9	1,0	00550
0,60	25	3,9	1,0	00600
0,65	25	4,2	1,0	00650
0,70	25	4,8	1,0	00700
0,75	25	4,8	1,0	00750
0,80	25	5,3	1,5	00800
0,85	25	5,3	1,5	00850
0,90	25	6,0	1,5	00900
0,95	25	6,0	1,5	00950
1,00	25	6,8	1,5	01000
1,05	25	6,8	1,5	01050
1,10	25	7,6	1,5	01100
1,15	25	7,6	1,5	01150
1,20	25	8,5	1,5	01200
1,25	25	8,5	1,5	01250
1,30	25	8,5	1,5	01300
1,35	25	9,5	1,5	01350
1,40	25	9,5	1,5	01400
1,45	25	9,5	1,5	01450

P	●
M	○
K	●
N	●
S	○
H	
O	○

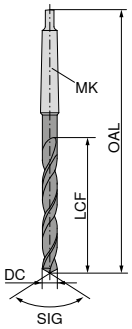
→ v_c Page 52

Twist drill, factory standard, short

≤ 3xD

WT

vap.



SIG 130°
HSS-E

10 285 ...

DC h8 mm	OAL mm	LCF mm	MK	
13,0	147	66	1	130
13,5	168	70	2	135
14,0	168	70	2	140
14,5	172	74	2	145
15,0	172	74	2	150
15,5	176	78	2	155
16,0	176	78	2	160
16,5	179	81	2	165
17,0	179	81	2	170
17,5	183	85	2	175
18,0	183	85	2	180
18,5	186	88	2	185
19,0	186	88	2	190
19,5	212	91	3	195
20,0	212	91	3	200
21,0	216	95	3	210
22,0	219	98	3	220
23,0	222	101	3	230
24,0	225	104	3	240
25,0	225	104	3	250
26,0	256	107	4	260
27,0	259	110	4	270
28,0	259	110	4	280
30,0	263	114	4	300

P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c Page 45

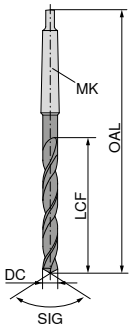
Twist drills, DIN 345

≤ 5xD

N

vap.

WTL



SIG 118°
HSS

SIG 130°
HSS-E

DC h8 mm	OAL mm	LCF mm	MK	10 265 ...	10 280 ...
10,00	168	87	1	100	100 1)
10,20	168	87	1	102	102 1)
10,50	168	87	1	105	105 1)
10,80	175	94	1	108	108 1)
11,00	175	94	1	110	110 1)
11,20	175	94	1	112	
11,50	175	94	1	115	115 1)
11,80	175	94	1	118	
12,00	182	101	1	120	120 1)
12,20	182	101	1	122	122 1)
12,50	182	101	1	125	125 1)
12,80	182	101	1	128	
13,00	182	101	1	130	130 1)
13,20	182	101	1	132	
13,50	189	108	1	135	135 1)
13,80	189	108	1	138	
14,00	189	108	1	140	140 1)
14,25	212	114	2	142	142 1)
14,50	212	114	2	145	145 1)
14,75	212	114	2	147	
15,00	212	114	2	150	150 1)
15,25	218	120	2	152	152 1)
15,50	218	120	2	155	155 1)
15,75	218	120	2	157	157 1)
16,00	218	120	2	160	160 1)
16,25	223	125	2	162	
16,50	223	125	2	165	165 2)
16,75	223	125	2	167	
17,00	223	125	2	170	170 2)
17,25	228	130	2	172	172 2)
17,50	228	130	2	175	175 2)
17,75	228	130	2	177	177 2)
18,00	228	130	2	180	180 2)
18,25	233	135	2	182	
18,50	233	135	2	185	185 2)
18,75	233	135	2	187	
19,00	233	135	2	190	190 2)
19,25	238	140	2	192	
19,50	238	140	2	195	
19,75	238	140	2	197	
20,00	238	140	2	200	200 2)
20,25	243	145	2	202	
20,50	243	145	2	205	
20,75	243	145	2	207	
21,00	243	145	2	210	210 2)
21,25	248	150	2	212	
21,50	248	150	2	215	
21,75	248	150	2	217	
22,00	248	150	2	220	220 2)
22,25	248	150	2	222	
22,50	253	155	2	225	225 2)
22,75	253	155	2	227	
23,00	253	155	2	230	230 2)
23,50	276	155	3	235	
23,75	281	160	3	237	
24,00	281	160	3	240	240 2)
24,50	281	160	3	245	
24,75	281	160	3	247	
25,00	281	160	3	250	250 2)
25,50	286	165	3	255	
25,75	286	165	3	257	
26,00	286	165	3	260	260 2)
26,50	286	165	3	265	
26,75	291	170	3	267	
27,00	291	170	3	270	270 2)
27,50	291	170	3	275	
27,75	291	170	3	277	
28,00	291	170	3	280	
28,50	296	175	3	285	
28,75	296	175	3	287	
29,00	296	175	3	290	
29,50	296	175	3	295	
29,75	296	175	3	297	
30,00	296	175	3	300	
30,50	301	180	3	305	
31,00	301	180	3	310	
31,50	301	180	3	315	
32,00	334	185	4	320	
32,50	334	185	4	325	
33,00	334	185	4	330	
33,50	334	185	4	335	
34,00	339	190	4	340	
34,50	339	190	4	345	
35,00	339	190	4	350	
35,50	339	190	4	355	
36,00	344	195	4	360	
36,50	344	195	4	365	
37,00	344	195	4	370	
37,50	344	195	4	375	
38,00	349	200	4	380	
38,50	349	200	4	385	
39,00	349	200	4	390	
39,50	349	200	4	395	
40,00	349	200	4	400	
41,00	354	205	4	410	
42,00	354	205	4	420	
43,00	359	210	4	430	
44,00	359	210	4	440	
45,00	359	210	4	450	
46,00	364	215	4	460	
47,00	364	215	4	470	
48,00	369	220	4	480	
49,00	369	220	4	490	
50,00	369	220	4	500	
51,00	412	225	5	510	
52,00	412	225	5	520	
53,00	412	225	5	530	
54,00	417	230	5	540	
55,00	417	230	5	550	

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

1) nitrided chamfer
2) vaporised

→ v_c Page 47

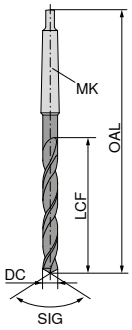
Twist drills, DIN 341, long

≤ 10xD

N

vap.

WTL



SIG 118°
HSS

SIG 130°
HSS-E

DC h8 mm	OAL mm	LCF mm	MK	10 295 ...	10 297 ...
10,00	197	116	1	100	100 1)
10,20	197	116	1	102	102 1)
10,50	197	116	1	105	105 1)
10,80	206	125	1	108	
11,00	206	125	1	110	110 1)
11,20	206	125	1	112	112 1)
11,50	206	125	1	115	115 1)
11,80	206	125	1	118	118 1)
12,00	215	134	1	120	120 1)
12,20	215	134	1	122	122 1)
12,50	215	134	1	125	125 1)
12,80	215	134	1	128	128 1)
13,00	215	134	1	130	130 1)
13,20	215	134	1	132	
13,50	223	142	1	135	135 1)
13,80	223	142	1	138	138 1)
14,00	223	142	1	140	140 1)
14,25	245	147	2	142	
14,50	245	147	2	145	145 1)
14,75	245	147	2	147	
15,00	245	147	2	150	150 1)
15,25	251	153	2	152	
15,50	251	153	2	155	155 1)
15,75	251	153	2	157	
16,00	251	153	2	160	160 1)
16,25	257	159	2	162	
16,50	257	159	2	165	165 2)
16,75	257	159	2	167	
17,00	257	159	2	170	170 2)
17,50	263	165	2	175	175 2)
17,75	263	165	2	177	
18,00	263	165	2	180	180 2)
18,50	269	171	2	185	185 2)
19,00	269	171	2	190	190 2)
19,50	275	177	2	195	195 2)
20,00	275	177	2	200	200 2)
20,50	282	184	2	205	205 2)
21,00	282	184	2	210	210 2)
21,50	289	191	2	215	
22,00	289	191	2	220	220 2)
22,50	296	198	2	225	
23,00	296	198	2	230	
23,50	319	198	3	235	
24,00	327	206	3	240	240 2)
24,50	327	206	3	245	
25,00	327	206	3	250	250 2)
25,50	335	214	3	255	
26,00	335	214	3	260	
26,50	335	214	3	265	
27,00	343	222	3	270	
27,50	343	222	3	275	
28,00	343	222	3	280	
29,00	351	230	3	290	
29,50	351	230	3	295	
30,00	351	230	3	300	
30,50	360	239	3	305	
31,00	360	239	3	310	
31,50	360	239	3	315	
32,00	397	248	4	320	
33,00	397	248	4	330	
33,50	397	248	4	335	
34,00	406	257	4	340	
35,00	406	257	4	350	
36,00	416	267	4	360	
37,00	416	267	4	370	
37,50	416	267	4	375	
38,00	426	277	4	380	
39,00	426	277	4	390	
40,00	426	277	4	400	
42,00	436	287	4	420	
43,00	447	298	4	430	
44,00	447	298	4	440	
45,00	447	298	4	450	
50,00	470	321	4	500	

	10 295 ...	10 297 ...
P	○	●
M		○
K	●	●
N	○	●
S		○
H		○
O	○	○

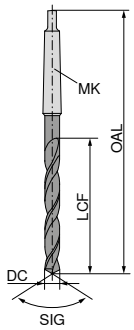
1) nitrided chamfer
2) vaporised

→ v_c Page 49

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

> 10xD

WTL



SIG 130°
HSS

10 305 ...

DC h8 mm	OAL mm	LCF mm	MK	
10,0	285	185	1	100 1)
10,5	285	185	1	105 1)
11,0	300	195	1	110 1)
11,5	300	195	1	115 1)
12,0	310	205	1	120 1)
12,5	310	205	1	125 1)
13,0	310	205	1	130 1)
13,5	325	220	1	135 1)
14,0	325	220	1	140 1)
14,5	340	220	2	145 1)
15,0	340	220	2	150 1)
15,5	355	230	2	155 1)
16,0	355	230	2	160 1)
16,5	355	230	2	165 2)
17,0	355	230	2	170 2)
17,5	370	245	2	175 2)
18,0	370	245	2	180 2)
18,5	370	245	2	185 2)
19,0	370	245	2	190 2)
19,5	385	260	2	195 2)
20,0	385	260	2	200 2)
21,0	385	260	2	210 2)
22,0	405	270	2	220 2)
23,0	405	270	2	230 2)
24,0	440	290	3	240 2)
25,0	440	290	3	250 2)
26,0	440	290	3	260 2)
28,0	460	305	3	280 2)
30,0	460	305	3	300 2)

P	●
M	
K	●
N	●
S	
H	
O	○

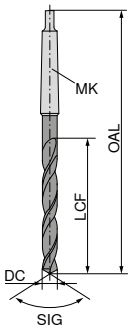
1) nitrided chamfer
2) vaporised

→ v_c Page 51

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

> 10xD

WTL



SIG 130°
HSS

10 315 ...

DC h8 mm	OAL mm	LCF mm	MK	
10,0	360	235	1	100 1)
10,5	360	235	1	105 1)
11,0	375	250	1	110 1)
11,5	375	250	1	115 1)
12,0	395	260	1	120 1)
13,0	395	260	1	130 1)
13,5	410	275	1	135 1)
14,0	410	275	1	140 1)
14,5	425	275	2	145 1)
15,0	425	275	2	150 1)
15,5	445	295	2	155 1)
16,0	445	295	2	160 1)
16,5	445	295	2	165 2)
17,0	445	295	2	170 2)
17,5	465	310	2	175 2)
18,0	465	310	2	180 2)
18,5	465	310	2	185 2)
19,0	465	310	2	190 2)
19,5	490	325	2	195 2)
20,0	490	325	2	200 2)
21,0	490	325	2	210 2)
22,0	515	345	2	220 2)
23,0	515	345	2	230 2)
24,0	555	365	3	240 2)
25,0	555	365	3	250 2)
26,0	555	365	3	260 2)
28,0	580	385	3	280 2)
30,0	580	385	3	300 2)

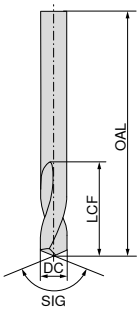
P	●
M	
K	●
N	●
S	
H	
O	○

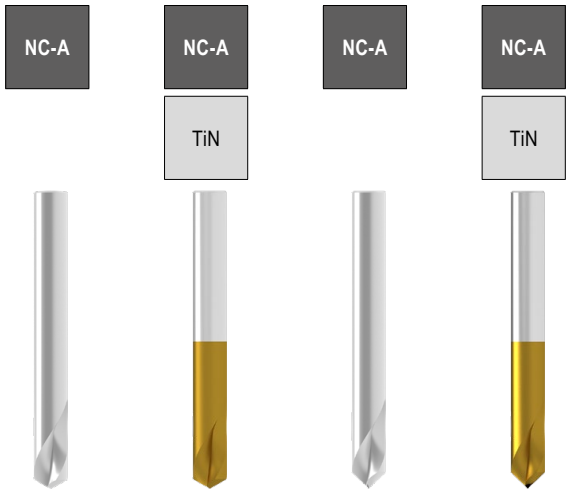
1) nitrided chamfer
2) vaporised

→ v_c Page 51

NC spot drills, factory standard

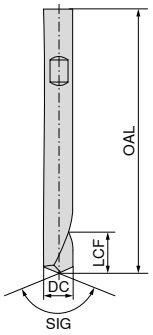
▲ helical flutes

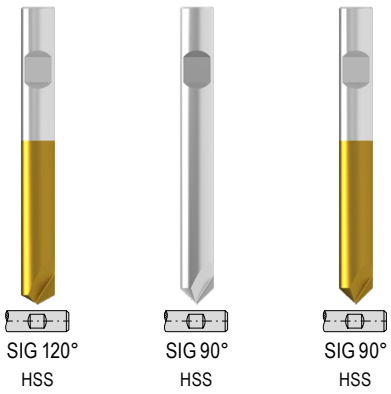




DC h6 mm	OAL mm	LCF mm	SIG 120° HSS 10 510 ...	SIG 120° HSS 10 512 ...	SIG 90° HSS 10 520 ...	SIG 90° HSS 10 522 ...
3	46	12,0	030	030	030	030
4	55	12,0	040	040	040	040
5	62	14,0	050	050	050	050
6	66	16,0	060	060	060	060
8	79	21,0	080	080	080	080
10	89	25,0	100	100	100	100
12	102	30,0	120	120	120	120
16	115	37,5	160	160	160	160
20	131	45,0	200	200	200	200

▲ with clamping flat to DIN 1835 B





DC h6 mm	OAL mm	LCF mm	SIG 120° HSS 10 513 ...	SIG 90° HSS 10 521 ...	SIG 90° HSS 10 523 ...
6	66	7,0	060	060	060
8	79	9,0	080	080	080
10	89	11,5	100	100	100
12	102	14,0	120	120	120
16	115	18,0	160	160	160
20	131	23,0	200	200	200

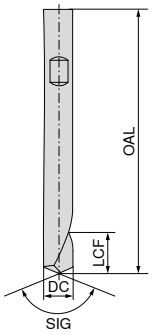
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

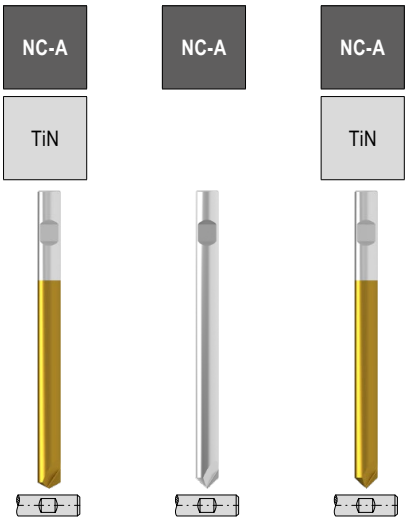
→ v_c Page 53

Suitable only for spot drilling!

NC spot drill factory standard long

▲ with clamping flat to DIN 1835 B





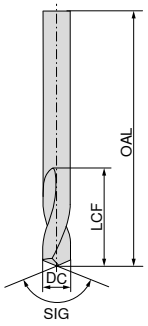
DC h6 mm	OAL mm	LCF mm	SIG 120° HSS 10 532 ...	SIG 90° HSS 10 526 ...	SIG 90° HSS 10 528 ...
6	93	7,0	060	060	060
8	117	9,0	080	080	080
10	133	11,5	100	100	100
12	151	14,0	120	120	120
16	178	18,0	160	160	160
20	205	23,0	200	200	200
P			●	●	●
M			○	○	○
K			●	●	●
N			○	○	○
S			○	○	○
H					
O			○	○	○

→ v_c Page 53

Suitable only for spot drilling!

NC spot drills, factory standard, long

▲ helical flutes



NC-A

SIG 90°
HSS

10 525 ...

DC h6 mm	OAL mm	LCF mm	
6,35	105	17	**025**
8,00	118	21	**030**
9,52	132	25	**040**
12,70	159	30	**050**
15,87	186	37	**060**

P	●
M	○
K	●
N	○
S	○
H	
O	○

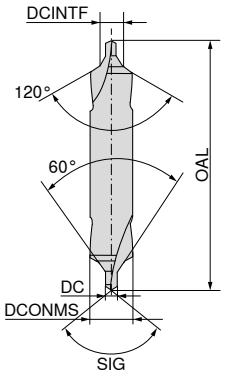
→ v_c Page 53

Suitable only for spot drilling!

Centre drills, DIN 333, form B

▲ with protective countersink 120°

ZB



Right-hand
SIG 118°
HSS

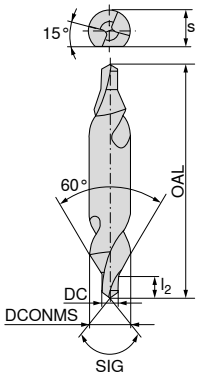
10 480 ...

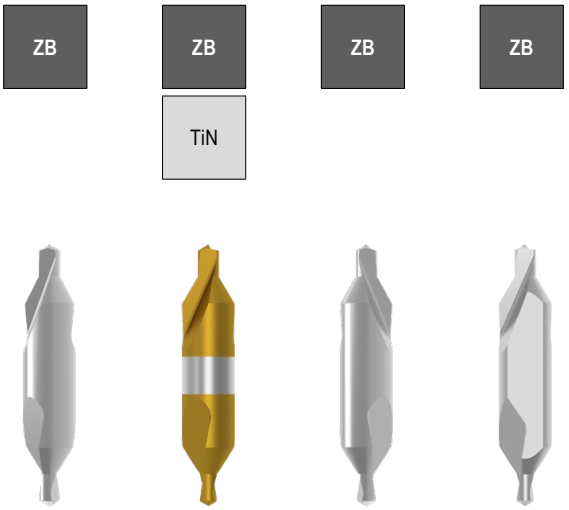
DC mm	DCONMS h8 mm	DCINTF k12 mm	OAL mm	
1,00	4,0	2,12	35,5	**100**
1,25	5,0	2,65	40,0	**125**
1,60	6,3	3,35	45,0	**160**
2,00	8,0	4,25	50,0	**200**
2,50	10,0	5,30	56,0	**250**
3,15	11,2	6,70	62,0	**315**
4,00	14,0	8,50	69,0	**400**
5,00	18,0	10,60	77,0	**500**

P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c Page 53

Centre drills, DIN 333, form A





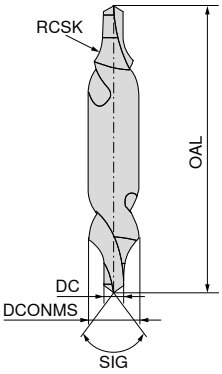
DC	s	DCONMS $_{h8}$	OAL	l_2	Right-hand SIG 118° HSS 10 415 ...		Right-hand SIG 118° HSS 10 425 ...		Left-hand SIG 118° HSS 10 435 ...		Right-hand SIG 118° HSS-E 10 445 ...	
mm	mm	mm	mm	mm								
0,50		3,15	25,0	0,8	**050** [2]		**050** [2]		**050** [2]			
0,80		3,15	25,0	1,1	**080** [2]		**080** [2]		**080** [2]			
1,00		3,15	31,5	1,3	**100**		**100**		**100**			
1,25		3,15	31,5	1,6	**125**		**125**		**125**			
1,60		4,00	35,5	2,0	**160**		**160**		**160**			
1,60	3,25	4,00	35,5	2,0							**160** [1]	
2,00		5,00	40,0	2,5	**200**		**200**		**200**			
2,00	4,20	5,00	40,0	2,5							**200** [1]	
2,50		6,30	45,0	3,1	**250**		**250**		**250**			
2,50	5,35	6,30	45,0	3,1							**250** [1]	
3,15		8,00	50,0	3,9	**315**		**315**		**315**			
3,15	6,95	8,00	50,0	3,9							**315** [1]	
4,00		10,00	56,0	5,0	**400**		**400**		**400**			
4,00	8,40	10,00	56,0	5,0							**400** [1]	
5,00		12,50	63,0	6,3	**500**		**500**		**500**			
5,00	10,95	12,50	63,0	6,3							**500** [1]	
6,30		16,00	71,0	8,0	**630**		**630**		**630**			
6,30	14,00	16,00	71,0	8,0							**630** [1]	
P					●		●		●		●	
M					○		○		○		○	
K					●		●		●		●	
N					○		○		○		○	
S					○		○		○		○	
H												
O					○		○		○		○	

1) with flat
2) Single ended

→ v_c Page 53

Centre drills, DIN 333, form R

ZB ZB

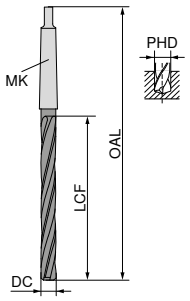


DC mm	DCONMS h8 mm	OAL mm	RCSK mm	Right-hand SIG 118° HSS 10 455 ...	Left-hand SIG 118° HSS 10 475 ...
0,50	3,15	25,0	2,00	**050** [1]	
0,80	3,15	25,0	2,50	**080** [1]	**080** [1]
1,00	3,15	31,5	2,90	**100**	**100**
1,25	3,15	31,5	3,15	**125**	**125**
1,60	4,00	35,5	4,00	**160**	**160**
2,00	5,00	40,0	5,00	**200**	**200**
2,50	6,30	45,0	6,30	**250**	**250**
3,15	8,00	50,0	8,00	**315**	**315**
4,00	10,00	56,0	10,00	**400**	**400**
5,00	12,50	63,0	12,50	**500**	**500**
6,30	16,00	71,0	16,00	**630**	
P				●	●
M				○	○
K				●	●
N				○	○
S				○	○
H					
O				○	○

1) Single ended

→ v_c Page 53

Core drills (spiral countersinks)



N

vap.

SIG 120°
HSS

DC h8 mm	OAL mm	LCF mm	PHD mm	MK	10 228 ...
12,00	182	101	8,4	1	120
12,75	182	101	9,1	1	127
13,00	182	101	9,1	1	130
13,75	189	108	9,8	1	137
14,00	189	108	9,8	1	140
14,75	212	114	10,5	2	147
15,00	212	114	10,5	2	150
15,75	218	120	11,2	2	157
16,00	218	120	11,2	2	160
16,75	223	125	11,9	2	167
17,00	223	125	11,9	2	170
17,75	228	130	12,6	2	177
18,00	228	130	12,6	2	180
18,70	233	135	13,3	2	187
19,00	233	135	13,3	2	190
19,70	238	140	14,0	2	197
20,00	238	140	14,0	2	200
20,70	243	145	14,6	2	207
21,00	243	145	14,6	2	210
21,70	248	150	15,3	2	217
22,00	248	150	15,3	2	220
22,70	253	155	16,0	2	227
23,00	253	155	16,0	2	230
23,70	281	160	16,6	3	237
24,00	281	160	16,6	3	240
24,70	281	160	17,3	3	247
25,00	281	160	17,3	3	250
25,70	286	165	18,0	3	257
26,00	286	165	18,0	3	260
26,70	291	170	18,6	3	267
27,00	291	170	18,6	3	270
27,70	291	170	19,3	3	277
28,00	291	170	19,3	3	280
28,70	296	175	20,0	3	287
29,00	296	175	20,0	3	290
29,70	296	175	20,5	3	297
30,00	296	175	20,5	3	300

P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c Page 53

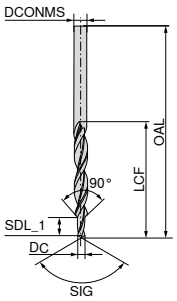
Stepped drills, DIN 8378

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

DIN 8378

SB

vap.



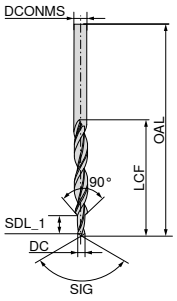
SIG 118°
HSS

10 365 ...

For threads	DC h9 mm	DCONMS h8 mm	OAL mm	SDL_1 mm	LCF mm	
M3	2,5	3,4	70	8,8	39	030
M4	3,3	4,5	80	11,4	47	040
M5	4,2	5,5	93	13,6	57	050
M6	5,0	6,6	101	16,5	63	060
M8	6,8	9,0	125	21,0	81	080
M10	8,5	11,0	142	25,5	94	100
M12	10,2	13,5	160	30,0	108	120

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

DIN 8374



SIG 118°
HSS

10 355 ...

For threads	DC h9 mm	DCONMS h8 mm	OAL mm	SDL_1 mm	LCF mm	
M3	3,2	6,0	93	9	57	030
M4	4,3	8,0	117	11	75	040
M5	5,3	10,0	133	13	87	050
M6	6,4	11,5	142	15	94	060
M8	8,4	15,0	169	19	114	080
M10	10,5	19,0	198	23	135	100

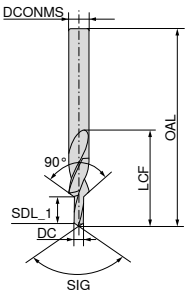
P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c Page 53

Stepped drills, overall length to DIN 1897

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

SB



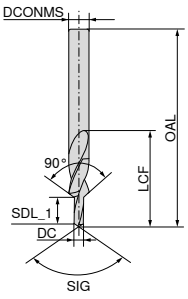
SIG 118°
HSS

10 320 ...

For threads	DC h6 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	
M3	2,5	3,4	52	8,8	20	030
M4	3,3	4,5	58	11,4	24	040
M5	4,2	5,5	66	13,6	28	050
M6	5,0	6,6	70	16,5	31	060
M8	6,8	9,0	84	21,0	40	080
M10	8,5	11,0	95	25,5	47	100
M12	10,2	13,5	107	30,0	54	120

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

DIN 8374



SIG 118°
HSS

10 330 ...

For threads	DC h6 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	
M3	3,2	6,0	66	9	28	030
M4	4,3	8,0	79	11	37	040
M5	5,3	10,0	89	13	43	050
M6	6,4	11,5	95	15	47	060
M8	8,4	15,0	111	19	56	080
M10	10,5	19,0	127	23	64	100

P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c Page 53

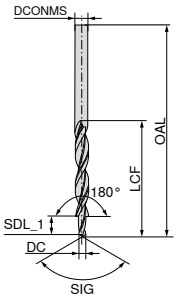
Stepped drills, DIN 8376

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

DIN 8376

SB

vap.



SIG 118°
HSS

10 375 ...

For threads	DC h9 mm	DCONMS h8 mm	OAL mm	SDL_1 mm	LCF mm	
M3	3,4	6	93	9	57	**030** 1)
M4	4,5	8	117	11	75	**040**
M5	5,5	10	133	13	87	**050**
M6	6,6	11	142	15	94	**060**
M8	9,0	15	169	19	114	**080**
M10	11,0	18	191	23	130	**100**

P	●
M	○
K	●
N	○
S	○
H	
O	○

1) DCONMS not according to DIN 974-1

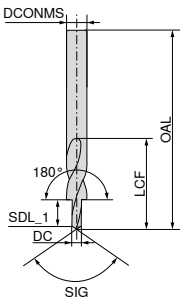
→ v_c Page 53

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

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

DIN 8376

SB



SIG 118°
HSS

10 340 ...

For threads	DC h6 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	
M3	3,4	6	66	9	28	**030** 1)
M4	4,5	8	79	11	37	**040**
M5	5,5	10	89	13	43	**050**
M6	6,6	11	95	15	47	**060**
M8	9,0	15	111	19	56	**080**
M10	11,0	18	123	23	62	**100**

P	●
M	○
K	●
N	○
S	○
H	
O	○

1) DCONMS not according to DIN 974-1

→ v_c Page 53

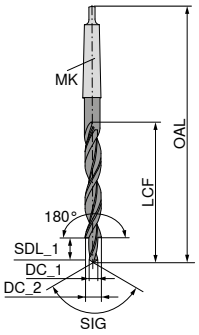
Stepped drills, DIN 8377

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

DIN 8377

SB

vap.



SIG 118°
HSS

For threads	DC_1 h9 mm	DC_2 mm	OAL mm	SDL_1 mm	LCF mm	MK	10 405 ...
M6	6,6	11	175	15	94	1	**060**
M8	9,0	15	212	19	114	2	**080**
M10	11,0	18	228	23	130	2	**100**
M12	13,5	20	238	27	140	2	**120**
M14	15,5	24	281	31	160	3	**140**
M16	17,5	26	286	35	165	3	**160**

P	●
M	○
K	●
N	○
S	○
H	
O	○

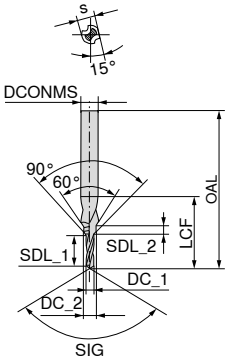
→ v_c Page 53

Stepped drills for centring, factory standard

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

SB

vap.



SIG 118°
HSS

10 350 ...

For threads	DC_1 h8 mm	DCONMS h7 mm	DC_2 mm	s mm	OAL mm	SDL_1 mm	LCF mm	SDL_2 mm	
M4	3,3	8,0	4,3	6,75	63	11,0	23	1,60	**040**
M5	4,2	10,0	5,3	8,45	67	13,0	27	2,15	**050**
M6	5,0	12,5	6,4	10,45	71	16,0	33	2,90	**060**
M8	6,8	14,0	8,4	12,50	88	19,5	41	3,50	**080**
M10	8,5	16,0	10,5	14,85	94	23,0	47	4,70	**100**
M12	10,2	20,0	13,0	18,45	105	28,0	59	6,50	**120**
M16	14,0	25,0	17,0	23,40	132	33,0	67	8,30	**160**
M20	17,5	31,5	21,0	29,35	145	38,0	77	10,35	**200**

P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c Page 53

Material examples for cutting data tables

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

*** Tensile strength**

Cutting data standard values – Hole depth 3xD

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

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

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

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

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

Cutting data standard values – Hole depth 5xD

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

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

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

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

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

Cutting data standard values – Hole depth 10xD

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

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

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

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

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

Cutting data standard values – hole depth greater than 10xD

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

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

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

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

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

Cutting data standard values – micro drills

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

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

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

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

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

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

Feed rate guide values for HSS twist drills

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

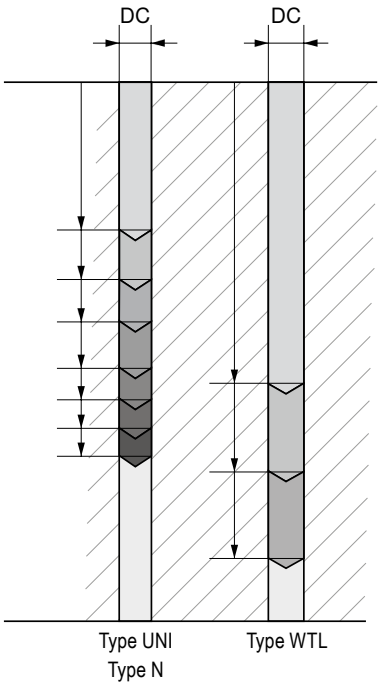
All the indicated data are guide values only and represent average values.

Speed for HSS drills

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

Peck frequency for deep drilling

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



Coatings

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

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

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

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

Cutting materials

HSS
- Conventional high speed steel
- Universal cutting material

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

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

New products for machining technicians

NEW WPC – Change

≤ 3xD | ≤ 5xD

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

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

→ Page 104+105

Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

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Milling

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WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Shank

Plain cylindrical shank

Cylindrical shank with lateral driving face „Weldon“

Cylindrical shank with angled clamping flat „Whistle Notch“

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

Tool types

HFDS

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

Version

Int. coolant supply

self-centering

▲ Pilot hole necessary
▲ min. 2xD

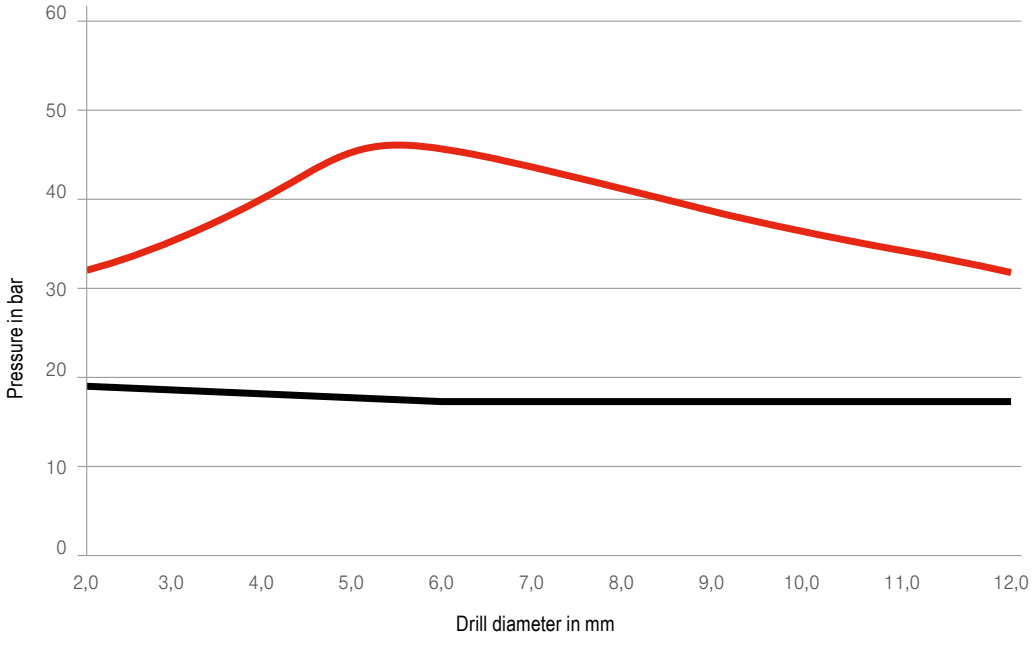
● = **Main Application**
○ = Extended application

Recommended application – WTX Performance Tools

● = Main Application
○ = Extended application

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

Coolant diagram



Recommended coolant pressure
Minimum coolant Pressure

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

Toolfinder

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

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

Toolfinder

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

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

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

Overview Solid Carbide Drills

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

Overview Solid Carbide Drills

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

Overview Solid Carbide Drills

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

Overview Solid Carbide Drills

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

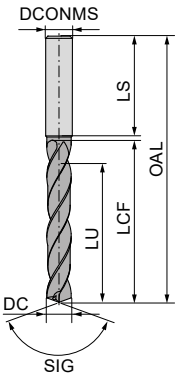
Overview Solid Carbide Drills

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

WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2



SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 777 ...	11 778 ...	11 776 ...	10 731 ...
2,00	6	58	16	11	36				020
2,10	6	58	16	11	36				021
2,20	6	58	16	11	36				022
2,30	6	58	16	11	36				023
2,33	6	58	16	11	36				823
2,40	6	58	16	11	36				024
2,43	6	58	16	11	36				824
2,50	6	58	16	11	36				025
2,55	6	58	16	11	36				825
2,60	6	58	16	11	36				026
2,62	6	58	16	11	36				826
2,70	6	58	16	11	36				027
2,80	6	58	16	11	36				028
2,90	6	58	16	11	36				029
3,00	6	62	20	14	36	03000	03000	03000	030
3,10	6	62	20	14	36	03100	03100	03100	031
3,15	6	62	20	14	36	03150	03150	03150	831
3,20	6	62	20	14	36	03200	03200	03200	032
3,22	6	62	20	14	36	03220	03220	03220	832
3,25	6	62	20	14	36	03250	03250	03250	890
3,30	6	62	20	14	36	03300	03300	03300	033
3,40	6	62	20	14	36	03400	03400	03400	034
3,50	6	62	20	14	36	03500	03500	03500	035
3,60	6	62	20	14	36	03600	03600	03600	036
3,70	6	62	20	14	36	03700	03700	03700	037
3,80	6	66	24	17	36	03800	03800	03800	038
3,85	6	66	24	17	36	03850	03850	03850	838
3,90	6	66	24	17	36	03900	03900	03900	039
4,00	6	66	24	17	36	04000	04000	04000	040
4,10	6	66	24	17	36	04100	04100	04100	041
4,20	6	66	24	17	36	04200	04200	04200	042
4,25	6	66	24	17	36	04250	04250	04250	
4,30	6	66	24	17	36	04300	04300	04300	043
4,35	6	66	24	17	36	04350	04350	04350	843
4,40	6	66	24	17	36	04400	04400	04400	044
4,45	6	66	24	17	36	04450	04450	04450	844
4,50	6	66	24	17	36	04500	04500	04500	045
4,60	6	66	24	17	36	04600	04600	04600	046
4,65	6	66	24	17	36	04650	04650	04650	900
4,70	6	66	24	17	36	04700	04700	04700	047
4,80	6	66	28	20	36	04800	04800	04800	048
P						●	●	●	○
M									●
K						●	●	●	○
N									○
S									●
H						○	○	○	
O									

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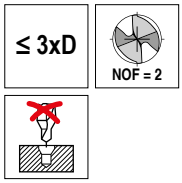
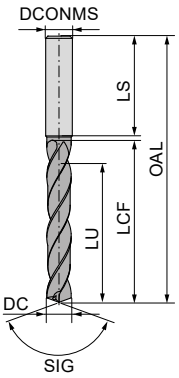
WTX – High Performance Drill, DIN 6537





						SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide
						11 777 ...	**11 778 ...**	**11 776 ...**	**10 731 ...**
DC_{m7} mm	$DCONMS_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm				
4,90	6	66	28	20	36	**04900**	**04900**	**04900**	**049**
4,95	6	66	28	20	36	**04950**	**04950**	**04950**	
5,00	6	66	28	20	36	**05000**	**05000**	**05000**	**050**
5,05	6	66	28	20	36	**05050**	**05050**	**05050**	
5,10	6	66	28	20	36	**05100**	**05100**	**05100**	**051**
5,20	6	66	28	20	36	**05200**	**05200**	**05200**	**052**
5,30	6	66	28	20	36	**05300**	**05300**	**05300**	**053**
5,40	6	66	28	20	36	**05400**	**05400**	**05400**	**054**
5,50	6	66	28	20	36	**05500**	**05500**	**05500**	**055**
5,55	6	66	28	20	36	**05550**	**05550**	**05550**	**902**
5,60	6	66	28	20	36	**05600**	**05600**	**05600**	**056**
5,70	6	66	28	20	36	**05700**	**05700**	**05700**	**057**
5,75	6	66	28	20	36	**05750**	**05750**	**05750**	**916**
5,80	6	66	28	20	36	**05800**	**05800**	**05800**	**058**
5,90	6	66	28	20	36	**05900**	**05900**	**05900**	**059**
5,95	6	66	28	20	36	**05950**	**05950**	**05950**	**959**
6,00	6	66	28	20	36	**06000**	**06000**	**06000**	**060**
6,10	8	79	34	24	36	**06100**	**06100**	**06100**	**061**
6,20	8	79	34	24	36	**06200**	**06200**	**06200**	**062**
6,30	8	79	34	24	36	**06300**	**06300**	**06300**	**063**
6,40	8	79	34	24	36	**06400**	**06400**	**06400**	**064**
6,50	8	79	34	24	36	**06500**	**06500**	**06500**	**065**
6,60	8	79	34	24	36	**06600**	**06600**	**06600**	**066**
6,70	8	79	34	24	36	**06700**	**06700**	**06700**	**067**
6,80	8	79	34	24	36	**06800**	**06800**	**06800**	**068**
6,90	8	79	34	24	36	**06900**	**06900**	**06900**	**069**
7,00	8	79	34	24	36	**07000**	**07000**	**07000**	**070**
7,10	8	79	41	29	36	**07100**	**07100**	**07100**	**071**
7,20	8	79	41	29	36	**07200**	**07200**	**07200**	**072**
7,30	8	79	41	29	36	**07300**	**07300**	**07300**	**073**
7,40	8	79	41	29	36	**07400**	**07400**	**07400**	**074**
7,45	8	79	41	29	36	**07450**	**07450**	**07450**	**924**
7,50	8	79	41	29	36	**07500**	**07500**	**07500**	**075**
7,60	8	79	41	29	36	**07600**	**07600**	**07600**	**076**
7,70	8	79	41	29	36	**07700**	**07700**	**07700**	**077**
7,80	8	79	41	29	36	**07800**	**07800**	**07800**	**078**
7,90	8	79	41	29	36	**07900**	**07900**	**07900**	**079**
8,00	8	79	41	29	36	**08000**	**08000**	**08000**	**080**
8,10	10	89	47	35	40	**08100**	**08100**	**08100**	**081**
8,20	10	89	47	35	40	**08200**	**08200**	**08200**	**082**
8,30	10	89	47	35	40	**08300**	**08300**	**08300**	**083**
P						●	●	●	○
M									●
K						●	●	●	○
N									○
S									●
H						○	○	○	
O									

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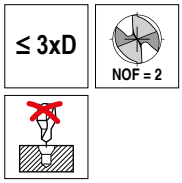
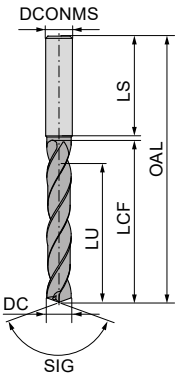
WTX – High Performance Drill, DIN 6537





SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 777 ...	11 778 ...	11 776 ...	10 731 ...
8,40	10	89	47	35	40	08400	08400	08400	084
8,50	10	89	47	35	40	08500	08500	08500	085
8,60	10	89	47	35	40	08600	08600	08600	086
8,70	10	89	47	35	40	08700	08700	08700	087
8,80	10	89	47	35	40	08800	08800	08800	088
8,90	10	89	47	35	40	08900	08900	08900	089
9,00	10	89	47	35	40	09000	09000	09000	090
9,10	10	89	47	35	40	09100	09100	09100	091
9,20	10	89	47	35	40	09200	09200	09200	092
9,30	10	89	47	35	40	09300	09300	09300	093
9,35	10	89	47	35	40	09350	09350	09350	930
9,40	10	89	47	35	40	09400	09400	09400	094
9,45	10	89	47	35	40	09450	09450	09450	994
9,50	10	89	47	35	40	09500	09500	09500	095
9,60	10	89	47	35	40	09600	09600	09600	096
9,70	10	89	47	35	40	09700	09700	09700	097
9,80	10	89	47	35	40	09800	09800	09800	098
9,90	10	89	47	35	40	09900	09900	09900	099
10,00	10	89	47	35	40	10000	10000	10000	100
10,10	12	102	55	40	45	10100	10100	10100	101
10,20	12	102	55	40	45	10200	10200	10200	102
10,30	12	102	55	40	45	10300	10300	10300	103
10,40	12	102	55	40	45	10400	10400	10400	104
10,50	12	102	55	40	45	10500	10500	10500	105
10,55	12	102	55	40	45	10550	10550	10550	932
10,60	12	102	55	40	45	10600	10600	10600	106
10,70	12	102	55	40	45	10700	10700	10700	107
10,75	12	102	55	40	45	10750	10750	10750	
10,80	12	102	55	40	45	10800	10800	10800	108
10,90	12	102	55	40	45	10900	10900	10900	109
11,00	12	102	55	40	45	11000	11000	11000	110
11,10	12	102	55	40	45	11100	11100	11100	111
11,20	12	102	55	40	45	11200	11200	11200	112
11,25	12	102	55	40	45	11250	11250	11250	912
11,30	12	102	55	40	45	11300	11300	11300	113
11,35	12	102	55	40	45	11350	11350	11350	913
11,40	12	102	55	40	45	11400	11400	11400	114
11,45	12	102	55	40	45	11450	11450	11450	914
11,50	12	102	55	40	45	11500	11500	11500	115
11,60	12	102	55	40	45	11600	11600	11600	116
11,70	12	102	55	40	45	11700	11700	11700	117
P						●	●	●	○
M									●
K						●	●	●	○
N									○
S									●
H						○	○	○	
O									

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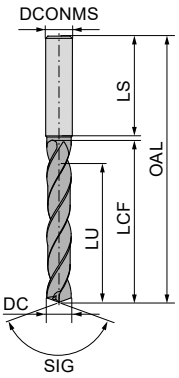
WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2



SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

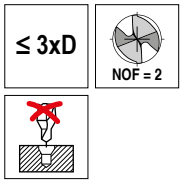
SIG 140°
Solid carbide

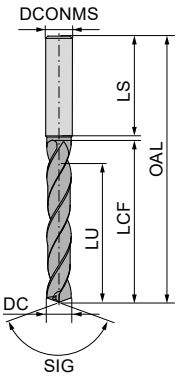
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 777 ...	11 778 ...	11 776 ...	10 731 ...
11,80	12	102	55	40	45	11800	11800	11800	118
11,90	12	102	55	40	45	11900	11900	11900	119
12,00	12	102	55	40	45	12000	12000	12000	120
12,15	14	107	60	43	45	12150	12150	12150	921
12,25	14	107	60	43	45	12250	12250	12250	
12,50	14	107	60	43	45	12500	12500	12500	125
12,55	14	107	60	43	45	12550	12550	12550	925
12,70	14	107	60	43	45	12700	12700	12700	
12,80	14	107	60	43	45	12800	12800	12800	128
12,90	14	107	60	43	45	12900	12900	12900	
13,00	14	107	60	43	45	13000	13000	13000	130
13,10	14	107	60	43	45	13100	13100	13100	
13,30	14	107	60	43	45	13300	13300	13300	
13,35	14	107	60	43	45	13350	13350	13350	933
13,50	14	107	60	43	45	13500	13500	13500	135
13,70	14	107	60	43	45	13700	13700	13700	
13,80	14	107	60	43	45	13800	13800	13800	138
14,00	14	107	60	43	45	14000	14000	14000	140
14,20	16	115	65	45	48	14200	14200	14200	
14,50	16	115	65	45	48	14500	14500	14500	145
14,80	16	115	65	45	48	14800	14800	14800	148
15,00	16	115	65	45	48	15000	15000	15000	150
15,10	16	115	65	45	48	15100	15100	15100	
15,25	16	115	65	45	48	15250	15250	15250	
15,30	16	115	65	45	48	15300	15300	15300	
15,35	16	115	65	45	48	15350	15350	15350	953
15,50	16	115	65	45	48	15500	15500	15500	155
15,60	16	115	65	45	48	15600	15600	15600	
15,80	16	115	65	45	48	15800	15800	15800	158
16,00	16	115	65	45	48	16000	16000	16000	160
16,05	18	123	73	51	48	16050	16050	16050	960
16,50	18	123	73	51	48	16500	16500	16500	165
16,80	18	123	73	51	48	16800	16800	16800	168
16,90	18	123	73	51	48	16900	16900	16900	
17,00	18	123	73	51	48	17000	17000	17000	170
17,50	18	123	73	51	48	17500	17500	17500	175
17,60	18	123	73	51	48	17600	17600	17600	
17,80	18	123	73	51	48	17800	17800	17800	178
18,00	18	123	73	51	48	18000	18000	18000	180
18,50	20	131	79	55	50	18500	18500	18500	185
18,80	20	131	79	55	50	18800	18800	18800	188
P						●	●	●	○
M									●
K						●	●	●	○
N									○
S									●
H						○	○	○	
O									

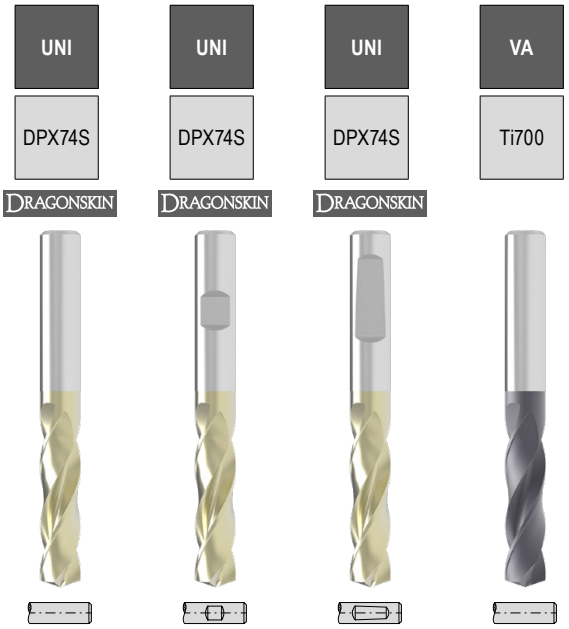
→ v_c Page 110+112

Continued on next page

WTX – High Performance Drill, DIN 6537



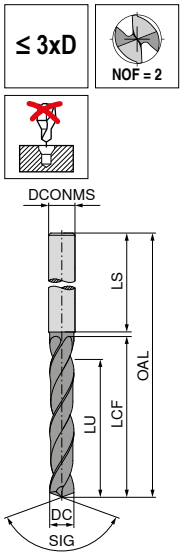


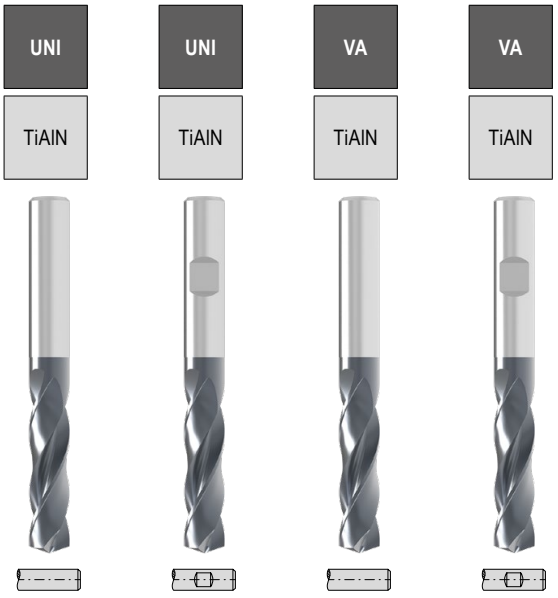


						SIG 140°		SIG 140°		SIG 140°		SIG 140°			
						Solid carbide		Solid carbide		Solid carbide		Solid carbide			
						11 777 ...		11 778 ...		11 776 ...		10 731 ...			
DC $_{m7}$ **mm**	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm										
18,90	20	131	79	55	50	**18900**		**18900**		**18900**					
19,00	20	131	79	55	50	**19000**		**19000**		**19000**		**190**			
19,35	20	131	79	55	50	**19350**		**19350**		**19350**		**993**			
19,50	20	131	79	55	50	**19500**		**19500**		**19500**		**195**			
19,60	20	131	79	55	50	**19600**		**19600**		**19600**					
19,80	20	131	79	55	50	**19800**		**19800**		**19800**		**198**			
20,00	20	131	79	55	50	**20000**		**20000**		**20000**		**200**			
20,50	25	151	93	66	56	**20500**		**20500**		**20500**					
21,00	25	151	93	66	56	**21000**		**21000**		**21000**					
21,50	25	151	93	66	56	**21500**		**21500**		**21500**					
22,00	25	151	93	66	56	**22000**		**22000**		**22000**					
22,50	25	153	96	72	56	**22500**		**22500**		**22500**					
23,00	25	153	96	72	56	**23000**		**23000**		**23000**					
23,50	25	153	96	72	56	**23500**		**23500**		**23500**					
24,00	25	153	96	72	56	**24000**		**24000**		**24000**					
24,50	25	153	96	75	56	**24500**		**24500**		**24500**					
25,00	25	153	96	75	56	**25000**		**25000**		**25000**					
P						●		●		●		○			
M												●			
K						●		●		●		○			
N												○			
S												●			
H						○		○		○					
O															

→ v_c Page 110+112

High Performance Drill, DIN 6537





SIG 140° Solid carbide

SIG 140° Solid carbide

SIG 140° Solid carbide

SIG 140° Solid carbide

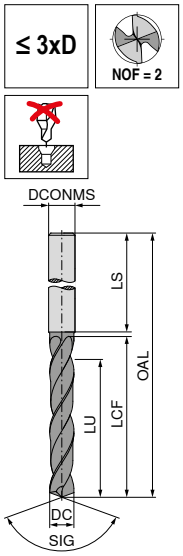
DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 706 ...		11 707 ...		11 711 ...		11 712 ...	
1,00	4	45	7	5,5	28	01000				01000			
1,10	4	45	7	5,3	28	01100				01100			
1,20	4	45	7	5,2	28	01200				01200			
1,30	4	45	7	5,0	28	01300				01300			
1,40	4	45	7	4,9	28	01400				01400			
1,50	4	55	14	11,7	28	01500				01500			
1,60	4	55	14	11,6	28	01600				01600			
1,70	4	55	14	11,4	28	01700				01700			
1,80	4	55	14	11,3	28	01800				01800			
1,90	4	55	14	11,1	28	01900				01900			
2,00	4	55	20	17,0	28	02000				02000			
2,10	4	55	20	16,8	28	02100				02100			
2,20	4	55	20	16,7	28	02200				02200			
2,30	4	55	20	16,5	28	02300				02300			
2,40	4	55	20	16,4	28	02400				02400			
2,50	4	55	20	16,2	28	02500				02500			
2,60	4	55	20	16,1	28	02600				02600			
2,70	4	55	20	15,9	28	02700				02700			
2,80	4	55	20	15,8	28	02800				02800			
2,90	4	55	20	15,6	28	02900				02900			
3,00	6	62	20	15,5	36	03000		03000		03000		03000	
3,10	6	62	20	15,3	36	03100		03100		03100		03100	
3,20	6	62	20	15,2	36	03200		03200		03200		03200	
3,25	6	62	20	15,1	36	03250		03250					
3,30	6	62	20	15,0	36	03300		03300		03300		03300	
3,40	6	62	20	14,9	36	03400		03400		03400		03400	
3,50	6	62	20	14,7	36	03500		03500		03500		03500	
3,60	6	62	20	14,6	36	03600		03600		03600		03600	
3,70	6	62	20	14,4	36	03700		03700		03700		03700	
3,80	6	66	24	18,3	36	03800		03800		03800		03800	
3,90	6	66	24	18,1	36	03900		03900		03900		03900	
4,00	6	66	24	18,0	36	04000		04000		04000		04000	
4,10	6	66	24	17,8	36	04100		04100		04100		04100	
4,20	6	66	24	17,7	36	04200		04200		04200		04200	
4,30	6	66	24	17,5	36	04300		04300		04300		04300	
4,40	6	66	24	17,4	36	04400		04400		04400		04400	
4,50	6	66	24	17,2	36	04500		04500		04500		04500	
4,60	6	66	24	17,1	36	04600		04600		04600		04600	
4,65	6	66	24	17,0	36	04650		04650					
4,70	6	66	24	16,9	36	04700		04700		04700		04700	
P						●		●		○		○	
M										●		●	
K						●		●					
N										○		○	
S										○		○	
H													
O										○		○	

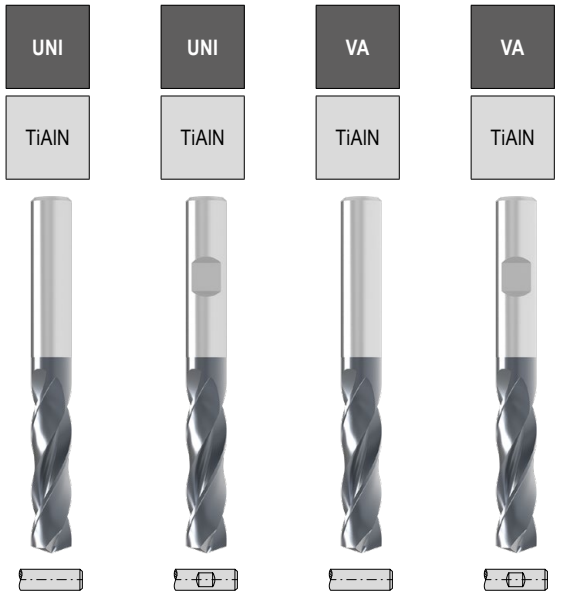
→ v_c Page 128+132

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

Continued on next page

High Performance Drill, DIN 6537





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

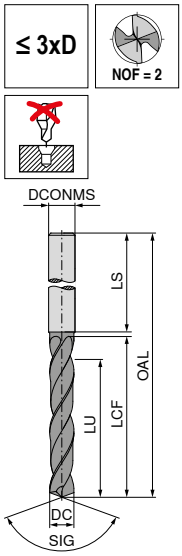
DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 706 ...	11 707 ...	11 711 ...	11 712 ...
4,80	6	66	28	20,8	36	04800	04800	04800	04800
4,90	6	66	28	20,6	36	04900	04900	04900	04900
5,00	6	66	28	20,5	36	05000	05000	05000	05000
5,10	6	66	28	20,3	36	05100	05100	05100	05100
5,20	6	66	28	20,2	36	05200	05200	05200	05200
5,30	6	66	28	20,0	36	05300	05300	05300	05300
5,40	6	66	28	19,9	36	05400	05400	05400	05400
5,50	6	66	28	19,7	36	05500	05500	05500	05500
5,55	6	66	28	19,6	36	05550	05550		
5,60	6	66	28	19,6	36	05600	05600	05600	05600
5,65	6	66	28	19,5	36	05650	05650		
5,70	6	66	28	19,4	36	05700	05700	05700	05700
5,80	6	66	28	19,3	36	05800	05800	05800	05800
5,90	6	66	28	19,1	36	05900	05900	05900	05900
6,00	6	66	28	19,0	36	06000	06000	06000	06000
6,10	8	79	34	24,8	36	06100	06100	06100	06100
6,20	8	79	34	24,7	36	06200	06200	06200	06200
6,30	8	79	34	24,5	36	06300	06300	06300	06300
6,40	8	79	34	24,4	36	06400	06400	06400	06400
6,50	8	79	34	24,2	36	06500	06500	06500	06500
6,60	8	79	34	24,1	36	06600	06600	06600	06600
6,70	8	79	34	23,9	36	06700	06700	06700	06700
6,80	8	79	34	23,8	36	06800	06800	06800	06800
6,90	8	79	34	23,6	36	06900	06900	06900	06900
7,00	8	79	34	23,5	36	07000	07000	07000	07000
7,10	8	79	41	30,3	36	07100	07100	07100	07100
7,20	8	79	41	30,2	36	07200	07200	07200	07200
7,30	8	79	41	30,0	36	07300	07300	07300	07300
7,40	8	79	41	29,9	36	07400	07400	07400	07400
7,50	8	79	41	29,7	36	07500	07500	07500	07500
7,55	8	79	41	29,6	36	07550	07550		
7,60	8	79	41	29,6	36	07600	07600	07600	07600
7,65	8	79	41	29,5	36	07650	07650		
7,70	8	79	41	29,4	36	07700	07700	07700	07700
7,80	8	79	41	29,3	36	07800	07800	07800	07800
7,90	8	79	41	29,1	36	07900	07900	07900	07900
8,00	8	79	41	29,0	36	08000	08000	08000	08000
8,10	10	89	47	34,8	40	08100	08100	08100	08100
8,20	10	89	47	34,7	40	08200	08200	08200	08200
8,30	10	89	47	34,5	40	08300	08300	08300	08300
P						●	●	○	○
M								●	●
K						●	●		
N								○	○
S								○	○
H									
O								○	○

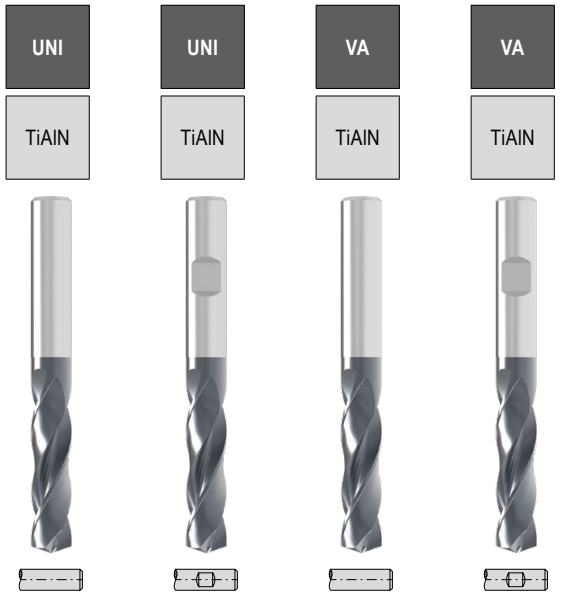
→ v_c Page 128+132

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

Continued on next page

High Performance Drill, DIN 6537





SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

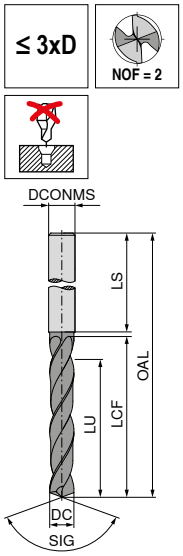
DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	11 706 ...	11 707 ...	11 711 ...	11 712 ...
8,40	10	89	47	34,4	40	08400	08400	08400	08400
8,50	10	89	47	34,2	40	08500	08500	08500	08500
8,60	10	89	47	34,1	40	08600	08600	08600	08600
8,70	10	89	47	33,9	40	08700	08700	08700	08700
8,80	10	89	47	33,8	40	08800	08800	08800	08800
8,90	10	89	47	33,6	40	08900	08900	08900	08900
9,00	10	89	47	33,5	40	09000	09000	09000	09000
9,10	10	89	47	33,3	40	09100	09100	09100	09100
9,20	10	89	47	33,2	40	09200	09200	09200	09200
9,30	10	89	47	33,0	40	09300	09300	09300	09300
9,40	10	89	47	32,9	40	09400	09400	09400	09400
9,50	10	89	47	32,7	40	09500	09500	09500	09500
9,60	10	89	47	32,6	40	09600	09600	09600	09600
9,70	10	89	47	32,4	40	09700	09700	09700	09700
9,80	10	89	47	32,3	40	09800	09800	09800	09800
9,90	10	89	47	32,1	40	09900	09900	09900	09900
10,00	10	89	47	32,0	40	10000	10000	10000	10000
10,10	12	102	55	39,8	45	10100	10100	10100	10100
10,20	12	102	55	39,7	45	10200	10200	10200	10200
10,30	12	102	55	39,5	45	10300	10300	10300	10300
10,40	12	102	55	39,4	45	10400	10400	10400	10400
10,50	12	102	55	39,2	45	10500	10500	10500	10500
10,60	12	102	55	39,1	45	10600	10600	10600	10600
10,70	12	102	55	38,9	45	10700	10700	10700	10700
10,80	12	102	55	38,8	45	10800	10800	10800	10800
10,90	12	102	55	38,6	45	10900	10900	10900	10900
11,00	12	102	55	38,5	45	11000	11000	11000	11000
11,10	12	102	55	38,3	45	11100	11100	11100	11100
11,20	12	102	55	38,2	45	11200	11200	11200	11200
11,30	12	102	55	38,0	45	11300	11300	11300	11300
11,40	12	102	55	37,9	45	11400	11400	11400	11400
11,50	12	102	55	37,7	45	11500	11500	11500	11500
11,60	12	102	55	37,6	45	11600	11600	11600	11600
11,70	12	102	55	37,4	45	11700	11700	11700	11700
11,80	12	102	55	37,3	45	11800	11800	11800	11800
11,90	12	102	55	37,1	45	11900	11900	11900	11900
12,00	12	102	55	37,0	45	12000	12000	12000	12000
12,20	14	107	60	41,7	45	12200	12200	12200	12200
12,50	14	107	60	41,2	45	12500	12500	12500	12500
12,70	14	107	60	40,9	45	12700	12700	12700	12700
P						●	●	○	○
M								●	●
K						●	●		
N								○	○
S								○	○
H									
O								○	○

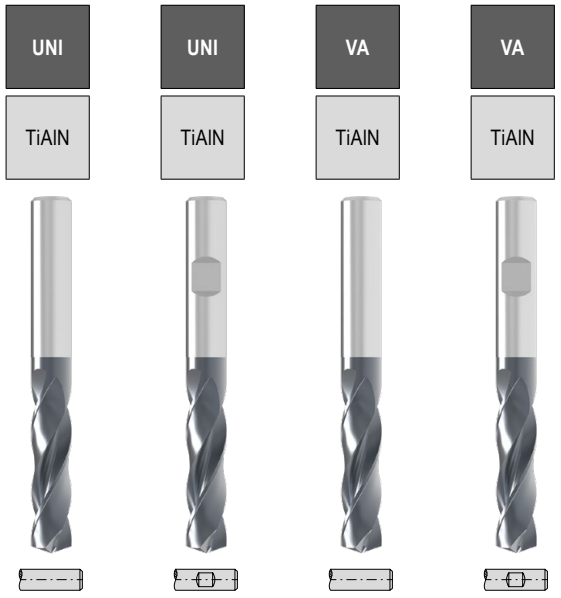
→ v_c Page 128+132

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

Continued on next page

High Performance Drill, DIN 6537





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

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	11 706 ...	11 707 ...	11 711 ...	11 712 ...
12,80	14	107	60	40,8	45	12800	12800	12800	12800
13,00	14	107	60	40,5	45	13000	13000	13000	13000
13,10	14	107	60	40,3	45	13100	13100	13100	13100
13,50	14	107	60	39,7	45	13500	13500	13500	13500
13,70	14	107	60	39,4	45			13700	13700
13,80	14	107	60	39,3	45	13800	13800	13800	13800
14,00	14	107	60	39,0	45	14000	14000	14000	14000
14,20	16	115	65	43,7	48	14200	14200	14200	14200
14,40	16	115	65	43,4	48	14400	14400	14400	14400
14,50	16	115	65	43,2	48	14500	14500	14500	14500
14,70	16	115	65	42,9	48			14700	14700
14,80	16	115	65	42,8	48	14800	14800	14800	14800
15,00	16	115	65	42,5	48	15000	15000	15000	15000
15,10	16	115	65	42,3	48	15100	15100	15100	15100
15,20	16	115	65	42,2	48	15200	15200	15200	15200
15,50	16	115	65	41,7	48	15500	15500	15500	15500
15,70	16	115	65	41,4	48			15700	15700
15,80	16	115	65	41,3	48	15800	15800	15800	15800
16,00	16	115	65	41,0	48	16000	16000	16000	16000
16,50	18	123	73	48,2	48	16500	16500	16500	16500
17,00	18	123	73	47,5	48	17000	17000	17000	17000
17,50	18	123	73	46,7	48	17500	17500	17500	17500
18,00	18	123	73	46,0	48	18000	18000	18000	18000
18,50	20	131	79	51,2	50	18500	18500	18500	18500
18,90	20	131	79	50,6	50	18900	18900	18900	18900
19,00	20	131	79	50,5	50	19000	19000	19000	19000
19,50	20	131	79	49,7	50	19500	19500	19500	19500
20,00	20	131	79	49,0	50	20000	20000	20000	20000
P						●	●	○	○
M								●	●
K						●	●		
N								○	○
S								○	○
H									
O								○	○

→ v_c Page 128+132

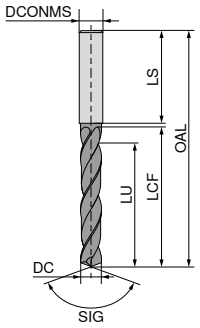
Ø DC_{h7} for Type UNI / **Ø DC_{m7}** for Type VA

WTX – High Performance Drill, factory standard

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

≤ 3xD

NOF = 2



H

DPX64U

DRAGONSKIN

SIG 140°

Solid carbide

10 777 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
2,55	4	55	20	16,1	28	02550
2,60	4	55	20	16,1	28	02600
2,70	4	55	20	15,9	28	02700
2,80	4	55	20	15,8	28	02800
2,90	4	55	20	15,6	28	02900
3,00	6	62	20	15,5	36	03000
3,10	6	62	20	15,3	36	03100
3,20	6	62	20	15,2	36	03200
3,30	6	62	20	15,0	36	03300
3,40	6	62	20	14,9	36	03400
3,50	6	62	20	14,7	36	03500
3,60	6	62	20	14,6	36	03600
3,70	6	62	20	14,4	36	03700
3,80	6	66	24	18,3	36	03800
3,90	6	66	24	18,1	36	03900
4,00	6	66	24	18,0	36	04000
4,10	6	66	24	17,8	36	04100
4,20	6	66	24	17,7	36	04200
4,30	6	66	24	17,5	36	04300
4,40	6	66	24	17,4	36	04400
4,50	6	66	24	17,2	36	04500
4,60	6	66	24	17,1	36	04600
4,70	6	66	24	16,9	36	04700
4,80	6	66	28	20,8	36	04800
4,90	6	66	28	20,6	36	04900
5,00	6	66	28	20,5	36	05000
5,10	6	66	28	20,3	36	05100
5,20	6	66	28	20,2	36	05200
5,30	6	66	28	20,0	36	05300
5,40	6	66	28	19,9	36	05400
5,50	6	66	28	19,7	36	05500
5,60	6	66	28	19,6	36	05600
5,70	6	66	28	19,4	36	05700
5,80	6	66	28	19,3	36	05800
5,90	6	66	28	19,1	36	05900
6,00	6	66	28	19,0	36	06000
6,10	8	79	34	24,8	36	06100
6,20	8	79	34	24,7	36	06200
6,30	8	79	34	24,5	36	06300
6,40	8	79	34	24,4	36	06400
6,50	8	79	34	24,2	36	06500
6,60	8	79	34	24,1	36	06600
6,70	8	79	34	23,9	36	06700
6,80	8	79	34	23,8	36	06800
6,90	8	79	34	23,6	36	06900
7,00	8	79	34	23,5	36	07000
7,10	8	79	41	30,3	36	07100
7,20	8	79	41	30,2	36	07200
7,30	8	79	41	30,0	36	07300
7,40	8	79	41	29,9	36	07400
7,50	8	79	41	29,7	36	07500

10 777 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
7,60	8	79	41	29,6	36	07600
7,70	8	79	41	29,4	36	07700
7,80	8	79	41	29,3	36	07800
7,90	8	79	41	29,1	36	07900
8,00	8	79	41	29,0	36	08000
8,10	10	89	47	34,8	40	08100
8,20	10	89	47	34,7	40	08200
8,30	10	89	47	34,5	40	08300
8,40	10	89	47	34,4	40	08400
8,50	10	89	47	34,2	40	08500
8,60	10	89	47	34,1	40	08600
8,70	10	89	47	33,9	40	08700
8,80	10	89	47	33,8	40	08800
8,90	10	89	47	33,6	40	08900
9,00	10	89	47	33,5	40	09000
9,10	10	89	47	33,3	40	09100
9,20	10	89	47	33,2	40	09200
9,30	10	89	47	33,0	40	09300
9,40	10	89	47	32,9	40	09400
9,50	10	89	47	32,7	40	09500
9,60	10	89	47	32,6	40	09600
9,70	10	89	47	32,4	40	09700
9,80	10	89	47	32,3	40	09800
9,90	10	89	47	32,1	40	09900
10,00	10	89	47	32,0	40	10000
10,10	12	102	55	39,8	45	10100
10,20	12	102	55	39,7	45	10200
10,30	12	102	55	39,5	45	10300
10,40	12	102	55	39,4	45	10400
10,50	12	102	55	39,2	45	10500
10,60	12	102	55	39,1	45	10600
10,70	12	102	55	38,9	45	10700
10,80	12	102	55	38,8	45	10800
10,90	12	102	55	38,6	45	10900
11,00	12	102	55	38,5	45	11000
11,10	12	102	55	38,3	45	11100
11,20	12	102	55	38,2	45	11200
11,30	12	102	55	38,0	45	11300
11,40	12	102	55	37,9	45	11400
11,50	12	102	55	37,7	45	11500
11,60	12	102	55	37,6	45	11600
11,70	12	102	55	37,4	45	11700
11,80	12	102	55	37,3	45	11800
11,90	12	102	55	37,1	45	11900
12,00	12	102	55	37,0	45	12000
12,10	14	107	60	41,8	45	12100
12,20	14	107	60	41,7	45	12200
12,30	14	107	60	41,5	45	12300
12,40	14	107	60	41,4	45	12400
12,50	14	107	60	41,2	45	12500
12,60	14	107	60	41,1	45	12600
12,70	14	107	60	40,9	45	12700
12,80	14	107	60	40,8	45	12800
12,90	14	107	60	40,6	45	12900
13,00	14	107	60	40,5	45	13000
13,10	14	107	60	40,3	45	13100
13,20	14	107	60	40,2	45	13200
13,30	14	107	60	40,0	45	13300
13,40	14	107	60	39,9	45	13400
13,50	14	107	60	39,7	45	13500
13,60	14	107	60	39,6	45	13600
13,70	14	107	60	39,4	45	13700
13,80	14	107	60	39,3	45	13800
13,90	14	107	60	39,1	45	13900
14,00	14	107	60	39,0	45	14000

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

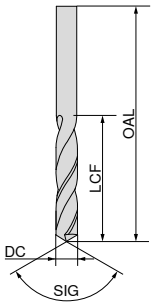
→ v_c Page 119

Twist drill similar to DIN 1897

▲ Helix angle 30°
▲ Shank Ø h7

≤ 3xD

NOF = 2



N

SIG 118°
Solid carbide

10 700 ...

DC h7 mm	OAL mm	LCF mm	
0,5	20	3,0	005
0,6	21	3,5	006
0,7	23	4,5	007
0,8	24	5,0	008
0,9	25	5,5	009
1,0	26	6,0	010
1,2	30	8,0	012
1,3	30	8,0	013
1,4	32	9,0	014
1,5	32	9,0	015
1,6	34	10,0	016
1,7	34	10,0	017
1,8	36	11,0	018
1,9	36	11,0	019
2,0	38	12,0	020
2,1	38	12,0	021
2,2	40	13,0	022
2,3	40	13,0	023
2,4	43	14,0	024
2,5	43	14,0	025
2,6	43	14,0	026
2,7	46	16,0	027
2,8	46	16,0	028
2,9	46	16,0	029
3,0	46	16,0	030
3,1	49	18,0	031
3,2	49	18,0	032
3,3	49	18,0	033
3,4	52	20,0	034
3,5	52	20,0	035
3,6	52	20,0	036
3,7	52	20,0	037
3,8	55	22,0	038
3,9	55	22,0	039
4,0	55	22,0	040
4,1	55	22,0	041
4,2	55	22,0	042
4,3	58	24,0	043
4,4	58	24,0	044
4,5	58	24,0	045
4,6	58	24,0	046
4,7	58	24,0	047
4,8	62	26,0	048
4,9	62	26,0	049
5,0	62	26,0	050
5,1	62	26,0	051
5,2	62	26,0	052
5,3	62	26,0	053
5,4	66	28,0	054
5,5	66	28,0	055
5,6	66	28,0	056
5,7	66	28,0	057

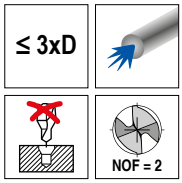
10 700 ...

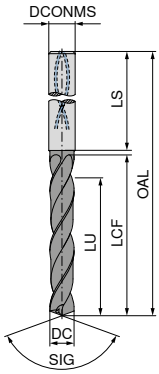
DC h7 mm	OAL mm	LCF mm	
5,8	66	28,0	058
5,9	66	28,0	059
6,0	66	28,0	060
6,1	70	31,0	061
6,2	70	31,0	062
6,3	70	31,0	063
6,4	70	31,0	064
6,5	70	31,0	065
6,6	70	31,0	066
6,7	70	31,0	067
6,8	74	34,0	068
6,9	74	34,0	069
7,0	74	34,0	070
7,1	74	34,0	071
7,2	74	34,0	072
7,3	74	34,0	073
7,4	74	34,0	074
7,5	74	34,0	075
7,6	79	37,0	076
7,7	79	37,0	077
7,8	79	37,0	078
7,9	79	37,0	079
8,0	79	37,0	080
8,1	79	37,0	081
8,2	79	37,0	082
8,3	79	37,0	083
8,4	79	37,0	084
8,5	79	37,0	085
8,6	84	40,0	086
8,7	84	40,0	087
8,8	84	40,0	088
8,9	84	40,0	089
9,0	84	40,0	090
9,1	84	40,0	091
9,2	84	40,0	092
9,3	84	40,0	093
9,4	84	40,0	094
9,5	84	40,0	095
9,6	89	43,0	096
9,7	89	43,0	097
9,8	89	43,0	098
9,9	89	43,0	099
10,0	89	43,0	100
10,2	89	43,0	102
10,5	89	43,0	105
10,8	95	47,0	108
11,0	95	47,0	110
11,2	95	47,0	112
11,5	95	47,0	115
11,8	95	47,0	118
12,0	102	51,0	120
12,5	102	51,0	125
13,0	102	51,0	130
13,5	107	54,0	135
14,0	107	54,0	140
14,5	111	56,0	145
15,0	111	56,0	150
15,5	115	58,0	155
16,0	115	58,0	160
18,0	123	62,0	180
20,0	131	66,0	200

P	○
M	
K	●
N	●
S	○
H	
O	

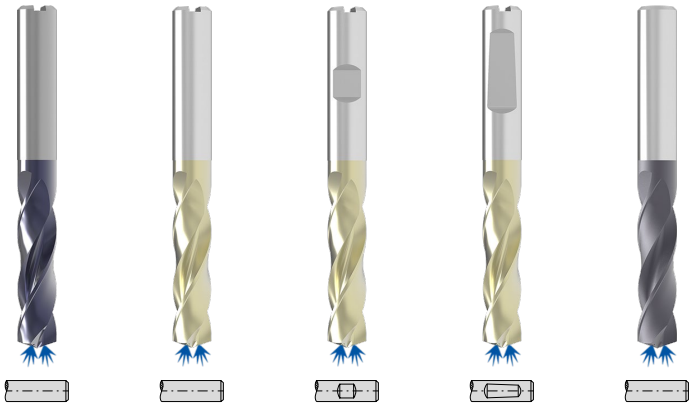
→ v_c Page 134

WTX – High Performance Drill, DIN 6537





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



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

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm									
3,00	6	62	20	14	36	03000		03000		03000		03000		030
3,10	6	62	20	14	36	03100		03100		03100		03100		031
3,15	6	62	20	14	36			03150		03150		03150		831
3,20	6	62	20	14	36	03200		03200		03200		03200		032
3,22	6	62	20	14	36			03220		03220		03220		832
3,25	6	62	20	14	36			03250		03250		03250		890
3,30	6	62	20	14	36	03300		03300		03300		03300		033
3,40	6	62	20	14	36	03400		03400		03400		03400		034
3,50	6	62	20	14	36	03500		03500		03500		03500		035
3,60	6	62	20	14	36	03600		03600		03600		03600		036
3,70	6	62	20	14	36	03700		03700		03700		03700		037
3,80	6	66	24	17	36	03800		03800		03800		03800		038
3,85	6	66	24	17	36			03850		03850		03850		838
3,90	6	66	24	17	36	03900		03900		03900		03900		039
4,00	6	66	24	17	36	04000		04000		04000		04000		040
4,10	6	66	24	17	36	04100		04100		04100		04100		041
4,20	6	66	24	17	36	04200		04200		04200		04200		042
4,25	6	66	24	17	36			04250		04250		04250		
4,30	6	66	24	17	36	04300		04300		04300		04300		043
4,35	6	66	24	17	36			04350		04350		04350		843
4,40	6	66	24	17	36	04400		04400		04400		04400		044
4,45	6	66	24	17	36			04450		04450		04450		844
4,50	6	66	24	17	36	04500		04500		04500		04500		045
4,60	6	66	24	17	36	04600		04600		04600		04600		046
4,65	6	66	24	17	36	04650		04650		04650		04650		900
4,70	6	66	24	17	36	04700		04700		04700		04700		047
4,80	6	66	28	20	36	04800		04800		04800		04800		048
4,90	6	66	28	20	36	04900		04900		04900		04900		049
4,95	6	66	28	20	36			04950		04950		04950		
5,00	6	66	28	20	36	05000		05000		05000		05000		050
5,05	6	66	28	20	36			05050		05050		05050		
5,10	6	66	28	20	36	05100		05100		05100		05100		051
5,20	6	66	28	20	36	05200		05200		05200		05200		052
5,30	6	66	28	20	36	05300		05300		05300		05300		053
5,40	6	66	28	20	36	05400		05400		05400		05400		054
5,50	6	66	28	20	36	05500		05500		05500		05500		055
5,55	6	66	28	20	36	05550		05550		05550		05550		902
5,60	6	66	28	20	36	05600		05600		05600		05600		056
5,70	6	66	28	20	36	05700		05700		05700		05700		057
5,75	6	66	28	20	36			05750		05750		05750		916
5,80	6	66	28	20	36	05800		05800		05800		05800		058
5,90	6	66	28	20	36	05900		05900		05900		05900		059

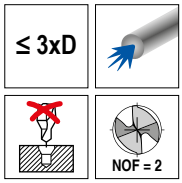
P	●	●	●	●	○
M	●				●
K	●	●	●	●	○
N					○
S					●
H		○	○	○	
O					

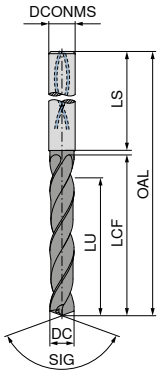
→ v_c Page 110–114

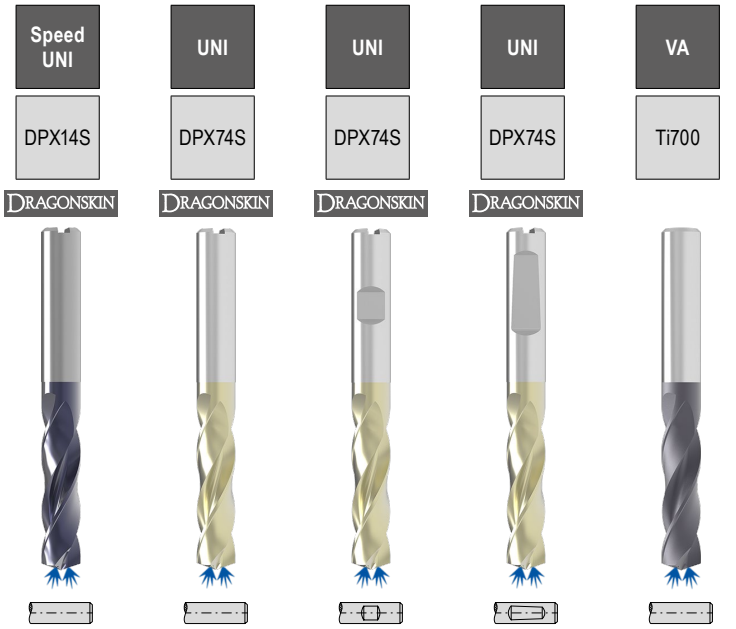
Ø DC_{m7} for Type UNI and VA / Ø DC_{h7} for Type Speed UNI

Continued on next page

WTX – High Performance Drill, DIN 6537







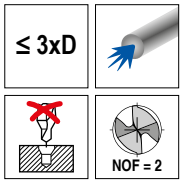
SIG 145° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	
10 781 ...	**11 780 ...**	**11 781 ...**	**11 779 ...**	**10 734 ...**	
DC $_{m7/h7}$ **mm**	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm
5,95	6	66	28	20	36		**05950**	**05950**	**05950**	**959**
6,00	6	66	28	20	36	**06000**	**06000**	**06000**	**06000**	**060**
6,10	8	79	34	24	36	**06100**	**06100**	**06100**	**06100**	**061**
6,20	8	79	34	24	36	**06200**	**06200**	**06200**	**06200**	**062**
6,30	8	79	34	24	36	**06300**	**06300**	**06300**	**06300**	**063**
6,40	8	79	34	24	36	**06400**	**06400**	**06400**	**06400**	**064**
6,50	8	79	34	24	36	**06500**	**06500**	**06500**	**06500**	**065**
6,60	8	79	34	24	36	**06600**	**06600**	**06600**	**06600**	**066**
6,70	8	79	34	24	36	**06700**	**06700**	**06700**	**06700**	**067**
6,80	8	79	34	24	36	**06800**	**06800**	**06800**	**06800**	**068**
6,90	8	79	34	24	36	**06900**	**06900**	**06900**	**06900**	**069**
7,00	8	79	34	24	36	**07000**	**07000**	**07000**	**07000**	**070**
7,10	8	79	41	29	36	**07100**	**07100**	**07100**	**07100**	**071**
7,20	8	79	41	29	36	**07200**	**07200**	**07200**	**07200**	**072**
7,30	8	79	41	29	36	**07300**	**07300**	**07300**	**07300**	**073**
7,40	8	79	41	29	36	**07400**	**07400**	**07400**	**07400**	**074**
7,45	8	79	41	29	36		**07450**	**07450**	**07450**	**924**
7,50	8	79	41	29	36	**07500**	**07500**	**07500**	**07500**	**075**
7,60	8	79	41	29	36	**07600**	**07600**	**07600**	**07600**	**076**
7,70	8	79	41	29	36	**07700**	**07700**	**07700**	**07700**	**077**
7,80	8	79	41	29	36	**07800**	**07800**	**07800**	**07800**	**078**
7,90	8	79	41	29	36	**07900**	**07900**	**07900**	**07900**	**079**
8,00	8	79	41	29	36	**08000**	**08000**	**08000**	**08000**	**080**
8,10	10	89	47	35	40	**08100**	**08100**	**08100**	**08100**	**081**
8,20	10	89	47	35	40	**08200**	**08200**	**08200**	**08200**	**082**
8,30	10	89	47	35	40	**08300**	**08300**	**08300**	**08300**	**083**
8,40	10	89	47	35	40	**08400**	**08400**	**08400**	**08400**	**084**
8,50	10	89	47	35	40	**08500**	**08500**	**08500**	**08500**	**085**
8,60	10	89	47	35	40	**08600**	**08600**	**08600**	**08600**	**086**
8,70	10	89	47	35	40	**08700**	**08700**	**08700**	**08700**	**087**
8,80	10	89	47	35	40	**08800**	**08800**	**08800**	**08800**	**088**
8,90	10	89	47	35	40	**08900**	**08900**	**08900**	**08900**	**089**
9,00	10	89	47	35	40	**09000**	**09000**	**09000**	**09000**	**090**
9,10	10	89	47	35	40	**09100**	**09100**	**09100**	**09100**	**091**
9,20	10	89	47	35	40	**09200**	**09200**	**09200**	**09200**	**092**
9,30	10	89	47	35	40	**09300**	**09300**	**09300**	**09300**	**093**
9,35	10	89	47	35	40		**09350**	**09350**	**09350**	**930**
9,40	10	89	47	35	40	**09400**	**09400**	**09400**	**09400**	**094**
9,45	10	89	47	35	40		**09450**	**09450**	**09450**	**994**
9,50	10	89	47	35	40	**09500**	**09500**	**09500**	**09500**	**095**
9,60	10	89	47	35	40	**09600**	**09600**	**09600**	**09600**	**096**
9,70	10	89	47	35	40	**09700**	**09700**	**09700**	**09700**	**097**
P						●	●	●	●	○
M						●				●
K						●	●	●	●	○
N										○
S										●
H							○	○	○	
O										

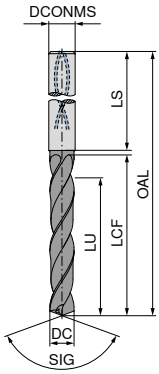
→ v_c Page 110–114

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

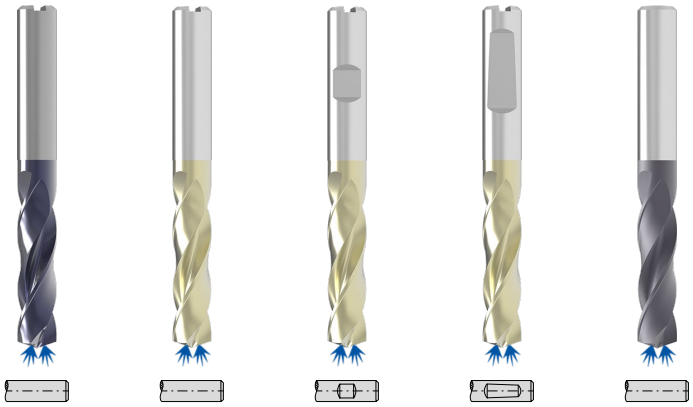
Continued on next page

WTX – High Performance Drill, DIN 6537





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



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

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm										
9,80	10	89	47	35	40	09800		09800		09800		09800		098	
9,90	10	89	47	35	40	09900		09900		09900		09900		099	
10,00	10	89	47	35	40	10000		10000		10000		10000		100	
10,10	12	102	55	40	45	10100		10100		10100		10100		101	
10,20	12	102	55	40	45	10200		10200		10200		10200		102	
10,30	12	102	55	40	45	10300		10300		10300		10300		103	
10,40	12	102	55	40	45	10400		10400		10400		10400		104	
10,50	12	102	55	40	45	10500		10500		10500		10500		105	
10,55	12	102	55	40	45			10550		10550		10550		932	
10,60	12	102	55	40	45	10600		10600		10600		10600		106	
10,70	12	102	55	40	45	10700		10700		10700		10700		107	
10,75	12	102	55	40	45			10750		10750		10750			
10,80	12	102	55	40	45	10800		10800		10800		10800		108	
10,90	12	102	55	40	45	10900		10900		10900		10900		109	
11,00	12	102	55	40	45	11000		11000		11000		11000		110	
11,10	12	102	55	40	45	11100		11100		11100		11100		111	
11,20	12	102	55	40	45	11200		11200		11200		11200		112	
11,25	12	102	55	40	45			11250		11250		11250		912	
11,30	12	102	55	40	45	11300		11300		11300		11300		113	
11,35	12	102	55	40	45			11350		11350		11350		913	
11,40	12	102	55	40	45	11400		11400		11400		11400		114	
11,45	12	102	55	40	45			11450		11450		11450		914	
11,50	12	102	55	40	45	11500		11500		11500		11500		115	
11,60	12	102	55	40	45	11600		11600		11600		11600		116	
11,70	12	102	55	40	45	11700		11700		11700		11700		117	
11,80	12	102	55	40	45	11800		11800		11800		11800		118	
11,90	12	102	55	40	45	11900		11900		11900		11900		119	
12,00	12	102	55	40	45	12000		12000		12000		12000		120	
12,15	14	107	60	43	45			12150		12150		12150		921	
12,25	14	107	60	43	45			12250		12250		12250			
12,50	14	107	60	43	45	12500		12500		12500		12500		125	
12,55	14	107	60	43	45			12550		12550		12550		925	
12,70	14	107	60	43	45			12700		12700		12700			
12,80	14	107	60	43	45	12800		12800		12800		12800		128	
12,90	14	107	60	43	45			12900		12900		12900			
13,00	14	107	60	43	45	13000		13000		13000		13000		130	
13,10	14	107	60	43	45			13100		13100		13100			
13,30	14	107	60	43	45			13300		13300		13300			
13,35	14	107	60	43	45			13350		13350		13350		933	
13,50	14	107	60	43	45	13500		13500		13500		13500		135	
13,70	14	107	60	43	45			13700		13700		13700			
13,80	14	107	60	43	45	13800		13800		13800		13800		138	
P						●		●		●		●		○	
M						●								●	
K						●		●		●		●		○	
N														○	
S														●	
H								○		○		○			
O															

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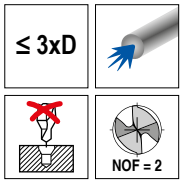
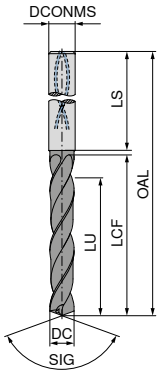
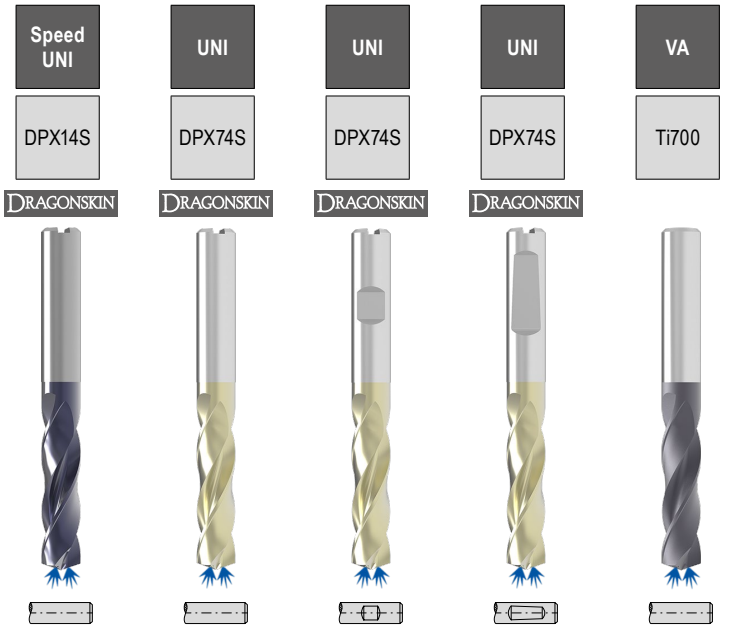
Ø DC_{m7} for Type UNI and VA / Ø DC_{h7} for Type Speed UNI

Continued on next page

WTX – High Performance Drill, DIN 6537





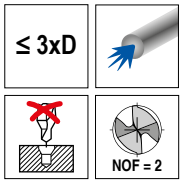


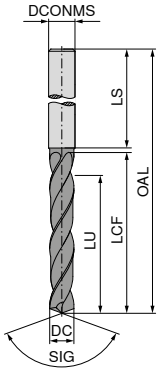
						SIG 145° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide
						10 781 ...	11 780 ...	11 781 ...	11 779 ...	10 734 ...
DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm					
14,00	14	107	60	43	45	14000	14000	14000	14000	140
14,20	16	115	65	45	48		14200	14200	14200	
14,50	16	115	65	45	48	14500	14500	14500	14500	145
14,80	16	115	65	45	48	14800	14800	14800	14800	148
15,00	16	115	65	45	48	15000	15000	15000	15000	150
15,10	16	115	65	45	48		15100	15100	15100	
15,25	16	115	65	45	48		15250	15250	15250	
15,30	16	115	65	45	48		15300	15300	15300	
15,35	16	115	65	45	48		15350	15350	15350	953
15,50	16	115	65	45	48	15500	15500	15500	15500	155
15,60	16	115	65	45	48		15600	15600	15600	
15,80	16	115	65	45	48	15800	15800	15800	15800	158
16,00	16	115	65	45	48	16000	16000	16000	16000	160
16,05	18	123	73	51	48		16050	16050	16050	960
16,50	18	123	73	51	48	16500	16500	16500	16500	165
16,80	18	123	73	51	48	16800	16800	16800	16800	168
16,90	18	123	73	51	48		16900	16900	16900	
17,00	18	123	73	51	48	17000	17000	17000	17000	170
17,50	18	123	73	51	48	17500	17500	17500	17500	175
17,60	18	123	73	51	48		17600	17600	17600	
17,80	18	123	73	51	48	17800	17800	17800	17800	178
18,00	18	123	73	51	48	18000	18000	18000	18000	180
18,50	20	131	79	55	50	18500	18500	18500	18500	185
18,80	20	131	79	55	50	18800	18800	18800	18800	188
18,90	20	131	79	55	50		18900	18900	18900	
19,00	20	131	79	55	50	19000	19000	19000	19000	190
19,35	20	131	79	55	50		19350	19350	19350	993
19,50	20	131	79	55	50	19500	19500	19500	19500	195
19,60	20	131	79	55	50		19600	19600	19600	
19,80	20	131	79	55	50	19800	19800	19800	19800	198
20,00	20	131	79	55	50	20000	20000	20000	20000	200
20,50	25	151	93	66	56		20500	20500	20500	
21,00	25	151	93	66	56		21000	21000	21000	
21,50	25	151	93	66	56		21500	21500	21500	
22,00	25	151	93	66	56		22000	22000	22000	
22,50	25	153	96	72	56		22500	22500	22500	
23,00	25	153	96	72	56		23000	23000	23000	
23,50	25	153	96	72	56		23500	23500	23500	
24,00	25	153	96	72	56		24000	24000	24000	
24,50	25	153	96	75	56		24500	24500	24500	
25,00	25	153	96	75	56		25000	25000	25000	
P						●	●	●	●	○
M						●				●
K						●	●	●	●	○
N										○
S										●
H							○	○	○	
O										

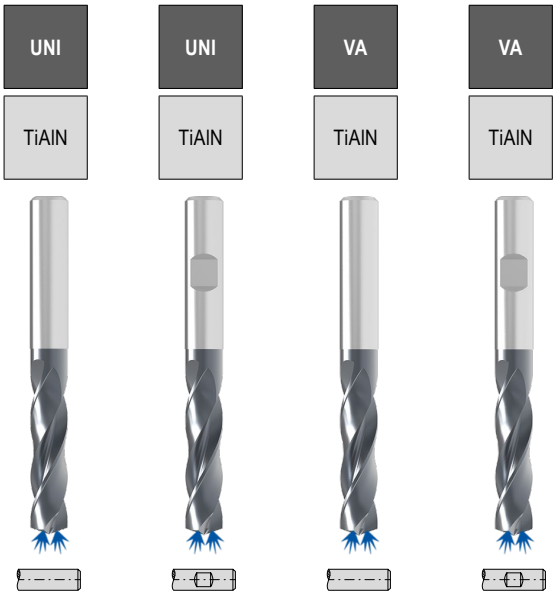
→ v_c Page 110–114

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

High Performance Drill, DIN 6537







SIG 140° Solid carbide

SIG 140° Solid carbide

SIG 140° Solid carbide

SIG 140° Solid carbide

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	11 700 ...	11 701 ...	11 713 ...	11 714 ...
1,00	4	45	7	5,5	28	01000		01000	
1,10	4	45	7	5,3	28	01100		01100	
1,20	4	45	7	5,2	28	01200		01200	
1,30	4	45	7	5,0	28	01300		01300	
1,40	4	45	7	4,9	28	01400		01400	
1,50	4	55	14	11,7	28	01500		01500	
1,60	4	55	14	11,6	28	01600		01600	
1,70	4	55	14	11,4	28	01700		01700	
1,80	4	55	14	11,3	28	01800		01800	
1,90	4	55	14	11,1	28	01900		01900	
2,00	4	55	20	17,0	28	02000		02000	
2,10	4	55	20	16,8	28	02100		02100	
2,20	4	55	20	16,7	28	02200		02200	
2,30	4	55	20	16,5	28	02300		02300	
2,40	4	55	20	16,4	28	02400		02400	
2,50	4	55	20	16,2	28	02500		02500	
2,60	4	55	20	16,1	28	02600		02600	
2,70	4	55	20	15,9	28	02700		02700	
2,80	4	55	20	15,8	28	02800		02800	
2,90	4	55	20	15,6	28	02900		02900	
3,00	6	62	20	15,5	36	03000	03000	03000	03000
3,10	6	62	20	15,3	36	03100	03100	03100	03100
3,20	6	62	20	15,2	36	03200	03200	03200	03200
3,25	6	62	20	15,1	36	03250	03250		
3,30	6	62	20	15,0	36	03300	03300	03300	03300
3,40	6	62	20	14,9	36	03400	03400	03400	03400
3,50	6	62	20	14,7	36	03500	03500	03500	03500
3,60	6	62	20	14,6	36	03600	03600	03600	03600
3,70	6	62	20	14,4	36	03700	03700	03700	03700
3,80	6	66	24	18,3	36	03800	03800	03800	03800
3,90	6	66	24	18,1	36	03900	03900	03900	03900
4,00	6	66	24	18,0	36	04000	04000	04000	04000
4,10	6	66	24	17,8	36	04100	04100	04100	04100
4,20	6	66	24	17,7	36	04200	04200	04200	04200
4,30	6	66	24	17,5	36	04300	04300	04300	04300
4,40	6	66	24	17,4	36	04400	04400	04400	04400
4,50	6	66	24	17,2	36	04500	04500	04500	04500
4,60	6	66	24	17,1	36	04600	04600	04600	04600
4,65	6	66	24	17,0	36	04650	04650		
4,70	6	66	24	16,9	36	04700	04700	04700	04700
4,80	6	66	28	20,8	36	04800	04800	04800	04800

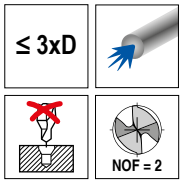
P	●	●	○	○
M	●	●	●	●
K	●	●		
N	○	○	●	●
S			○	○
H				
O			○	○

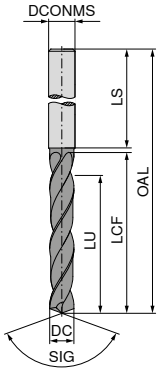
→ v_c Page 129+133

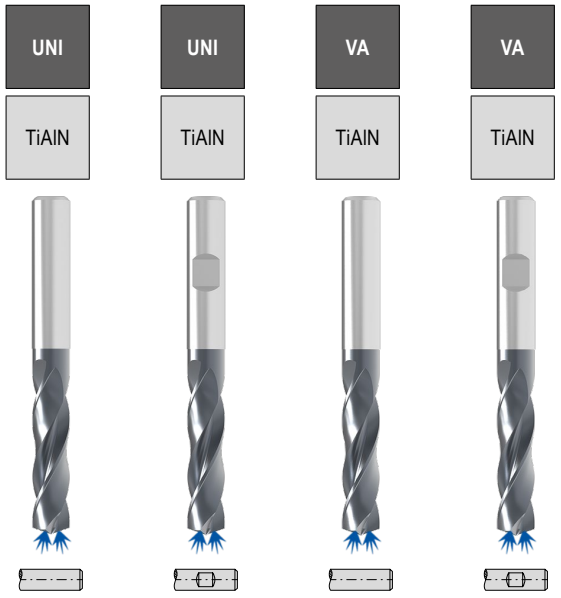
Ø DC_{h7} for Type UNI / Ø DC_{m7} for Type VA

Continued on next page

High Performance Drill, DIN 6537







SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	11 700 ...	11 701 ...	11 713 ...	11 714 ...
4,90	6	66	28	20,6	36	04900	04900	04900	04900
5,00	6	66	28	20,5	36	05000	05000	05000	05000
5,10	6	66	28	20,3	36	05100	05100	05100	05100
5,20	6	66	28	20,2	36	05200	05200	05200	05200
5,30	6	66	28	20,0	36	05300	05300	05300	05300
5,40	6	66	28	19,9	36	05400	05400	05400	05400
5,50	6	66	28	19,7	36	05500	05500	05500	05500
5,55	6	66	28	19,6	36	05550	05550		
5,60	6	66	28	19,6	36	05600	05600	05600	05600
5,65	6	66	28	19,5	36	05650	05650		
5,70	6	66	28	19,4	36	05700	05700	05700	05700
5,80	6	66	28	19,3	36	05800	05800	05800	05800
5,90	6	66	28	19,1	36	05900	05900	05900	05900
6,00	6	66	28	19,0	36	06000	06000	06000	06000
6,10	8	79	34	24,8	36	06100	06100	06100	06100
6,20	8	79	34	24,7	36	06200	06200	06200	06200
6,30	8	79	34	24,5	36	06300	06300	06300	06300
6,40	8	79	34	24,4	36	06400	06400	06400	06400
6,50	8	79	34	24,2	36	06500	06500	06500	06500
6,60	8	79	34	24,1	36	06600	06600	06600	06600
6,70	8	79	34	23,9	36	06700	06700	06700	06700
6,80	8	79	34	23,8	36	06800	06800	06800	06800
6,90	8	79	34	23,6	36	06900	06900	06900	06900
7,00	8	79	34	23,5	36	07000	07000	07000	07000
7,10	8	79	41	30,3	36	07100	07100	07100	07100
7,20	8	79	41	30,2	36	07200	07200	07200	07200
7,30	8	79	41	30,0	36	07300	07300	07300	07300
7,40	8	79	41	29,9	36	07400	07400	07400	07400
7,50	8	79	41	29,7	36	07500	07500	07500	07500
7,55	8	79	41	29,6	36	07550	07550		
7,60	8	79	41	29,6	36	07600	07600	07600	07600
7,65	8	79	41	29,5	36	07650	07650		
7,70	8	79	41	29,4	36	07700	07700	07700	07700
7,80	8	79	41	29,3	36	07800	07800	07800	07800
7,90	8	79	41	29,1	36	07900	07900	07900	07900
8,00	8	79	41	29,0	36	08000	08000	08000	08000
8,10	10	89	47	34,8	40	08100	08100	08100	08100
8,20	10	89	47	34,7	40	08200	08200	08200	08200
8,30	10	89	47	34,5	40	08300	08300	08300	08300
8,40	10	89	47	34,4	40	08400	08400	08400	08400
8,50	10	89	47	34,2	40	08500	08500	08500	08500
P						●	●	○	○
M						●	●	●	●
K						●	●		
N						○	○	●	●
S								○	○
H									
O								○	○

→ v_c Page 129+133

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

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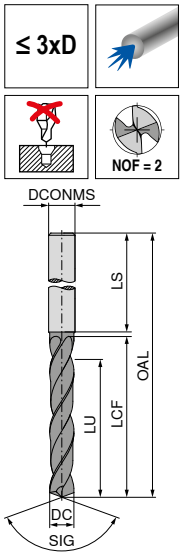
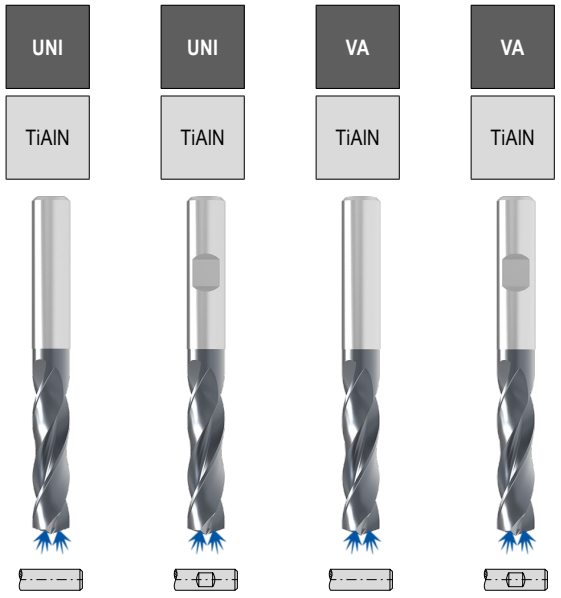
High Performance Drill, DIN 6537





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

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	11 700 ...	11 701 ...	11 713 ...	11 714 ...
8,60	10	89	47	34,1	40	08600	08600	08600	08600
8,70	10	89	47	33,9	40	08700	08700	08700	08700
8,80	10	89	47	33,8	40	08800	08800	08800	08800
8,90	10	89	47	33,6	40	08900	08900	08900	08900
9,00	10	89	47	33,5	40	09000	09000	09000	09000
9,10	10	89	47	33,3	40	09100	09100	09100	09100
9,20	10	89	47	33,2	40	09200	09200	09200	09200
9,30	10	89	47	33,0	40	09300	09300	09300	09300
9,40	10	89	47	32,9	40	09400	09400	09400	09400
9,50	10	89	47	32,7	40	09500	09500	09500	09500
9,60	10	89	47	32,6	40	09600	09600	09600	09600
9,70	10	89	47	32,4	40	09700	09700	09700	09700
9,80	10	89	47	32,3	40	09800	09800	09800	09800
9,90	10	89	47	32,1	40	09900	09900	09900	09900
10,00	10	89	47	32,0	40	10000	10000	10000	10000
10,10	12	102	55	39,8	45	10100	10100	10100	10100
10,20	12	102	55	39,7	45	10200	10200	10200	10200
10,30	12	102	55	39,5	45	10300	10300	10300	10300
10,40	12	102	55	39,4	45	10400	10400	10400	10400
10,50	12	102	55	39,2	45	10500	10500	10500	10500
10,60	12	102	55	39,1	45	10600	10600	10600	10600
10,70	12	102	55	38,9	45	10700	10700	10700	10700
10,80	12	102	55	38,8	45	10800	10800	10800	10800
10,90	12	102	55	38,6	45	10900	10900	10900	10900
11,00	12	102	55	38,5	45	11000	11000	11000	11000
11,10	12	102	55	38,3	45	11100	11100	11100	11100
11,20	12	102	55	38,2	45	11200	11200	11200	11200
11,30	12	102	55	38,0	45	11300	11300	11300	11300
11,40	12	102	55	37,9	45	11400	11400	11400	11400
11,50	12	102	55	37,7	45	11500	11500	11500	11500
11,60	12	102	55	37,6	45	11600	11600	11600	11600
11,70	12	102	55	37,4	45	11700	11700	11700	11700
11,80	12	102	55	37,3	45	11800	11800	11800	11800
11,90	12	102	55	37,1	45	11900	11900	11900	11900
12,00	12	102	55	37,0	45	12000	12000	12000	12000
12,20	14	107	60	41,7	45	12200	12200	12200	12200
12,30	14	107	60	41,5	45	12300	12300	12300	12300
12,50	14	107	60	41,2	45	12500	12500	12500	12500
12,70	14	107	60	40,9	45	12700	12700	12700	12700
12,80	14	107	60	40,8	45	12800	12800	12800	12800
12,90	14	107	60	40,6	45	12900	12900	12900	12900
P						●	●	○	○
M						●	●	●	●
K						●	●		
N						○	○	●	●
S								○	○
H									
O								○	○

→ v_c Page 129+133

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

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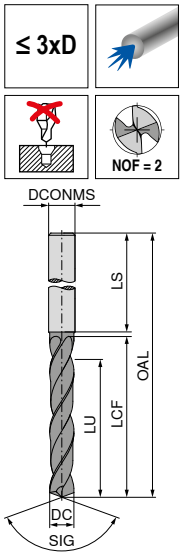
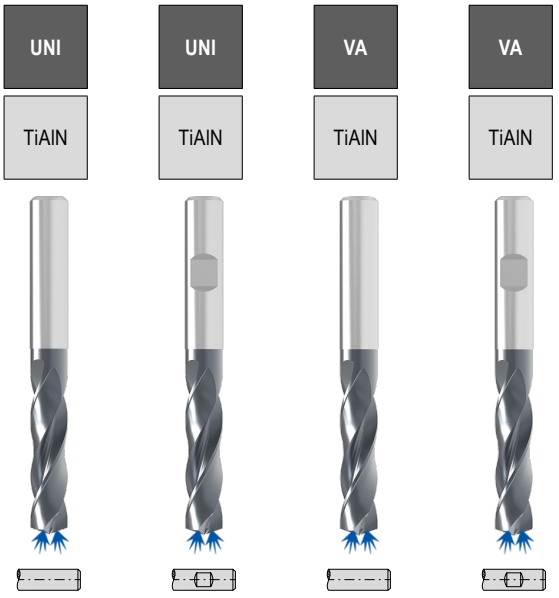
High Performance Drill, DIN 6537





SIG 140° Solid carbide

SIG 140° Solid carbide

SIG 140° Solid carbide

SIG 140° Solid carbide

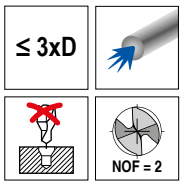
DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	11 700 ...	11 701 ...	11 713 ...	11 714 ...
13,00	14	107	60	40,5	45	13000	13000	13000	13000
13,50	14	107	60	39,7	45	13500	13500	13500	13500
13,70	14	107	60	39,4	45			13700	13700
13,80	14	107	60	39,3	45	13800	13800	13800	13800
14,00	14	107	60	39,0	45	14000	14000	14000	14000
14,20	16	115	65	43,7	48	14200	14200	14200	14200
14,40	16	115	65	43,4	48	14400	14400	14400	14400
14,50	16	115	65	43,2	48	14500	14500	14500	14500
14,70	16	115	65	42,9	48			14700	14700
14,80	16	115	65	42,8	48	14800	14800	14800	14800
15,00	16	115	65	42,5	48	15000	15000	15000	15000
15,10	16	115	65	42,3	48	15100	15100	15100	15100
15,20	16	115	65	42,2	48	15200	15200	15200	15200
15,50	16	115	65	41,7	48	15500	15500	15500	15500
15,70	16	115	65	41,4	48			15700	15700
15,80	16	115	65	41,3	48	15800	15800	15800	15800
16,00	16	115	65	41,0	48	16000	16000	16000	16000
16,50	18	123	73	48,2	48	16500	16500	16500	16500
17,00	18	123	73	47,5	48	17000	17000	17000	17000
17,50	18	123	73	46,7	48	17500	17500	17500	17500
18,00	18	123	73	46,0	48	18000	18000	18000	18000
18,50	20	131	79	51,2	50	18500	18500	18500	18500
18,90	20	131	79	50,6	50	18900	18900	18900	18900
19,00	20	131	79	50,5	50	19000	19000	19000	19000
19,30	20	131	79	50,0	50	19300	19300	19300	19300
19,50	20	131	79	49,7	50	19500	19500	19500	19500
20,00	20	131	79	49,0	50	20000	20000	20000	20000
P						●	●	○	○
M						●	●	●	●
K						●	●		
N						○	○	●	●
S								○	○
H									
O								○	○

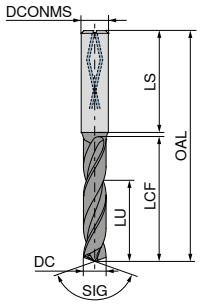
→ v_c Page 129+133

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

WTX – High-performance drill, DIN 6537

▲ Specialist for difficult to machine materials





Ti

DPA54

DRAGONSKIN

SIG 140°

Solid carbide

10 786 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
3,00	6	62	20	14	36	030
3,10	6	62	20	14	36	031
3,20	6	62	20	14	36	032
3,30	6	62	20	14	36	033
3,40	6	62	20	14	36	034
3,50	6	62	20	14	36	035
3,60	6	62	20	14	36	036
3,70	6	62	20	14	36	037
3,80	6	66	24	17	36	038
3,90	6	66	24	17	36	039
3,97	6	66	24	17	36	900
4,00	6	66	24	17	36	040
4,10	6	66	24	17	36	041
4,20	6	66	24	17	36	042
4,23	6	66	24	17	36	901
4,30	6	66	24	17	36	043
4,40	6	66	24	17	36	044
4,50	6	66	24	17	36	045
4,60	6	66	24	17	36	046
4,70	6	66	24	17	36	047
4,80	6	66	28	20	36	048
4,90	6	66	28	20	36	049
5,00	6	66	28	20	36	050
5,10	6	66	28	20	36	051
5,20	6	66	28	20	36	052
5,30	6	66	28	20	36	053
5,40	6	66	28	20	36	054
5,50	6	66	28	20	36	055
5,56	6	66	28	20	36	902
5,60	6	66	28	20	36	056
5,70	6	66	28	20	36	057
5,80	6	66	28	20	36	058
5,90	6	66	28	20	36	059
6,00	6	66	28	20	36	060
6,10	8	79	34	24	36	061
6,20	8	79	34	24	36	062
6,30	8	79	34	24	36	063
6,35	8	79	34	24	36	903
6,40	8	79	34	24	36	064
6,50	8	79	34	24	36	065
6,60	8	79	34	24	36	066
6,70	8	79	34	24	36	067
6,80	8	79	34	24	36	068
6,90	8	79	34	24	36	069
7,00	8	79	34	24	36	070
7,10	8	79	41	29	36	071
7,20	8	79	41	29	36	072
7,30	8	79	41	29	36	073
7,40	8	79	41	29	36	074
7,50	8	79	41	29	36	075
7,60	8	79	41	29	36	076

10 786 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
7,70	8	79	41	29	36	077
7,80	8	79	41	29	36	078
7,90	8	79	41	29	36	079
7,94	8	79	41	29	36	904
8,00	8	79	41	29	36	080
8,10	10	89	47	35	40	081
8,20	10	89	47	35	40	082
8,30	10	89	47	35	40	083
8,40	10	89	47	35	40	084
8,50	10	89	47	35	40	085
8,60	10	89	47	35	40	086
8,70	10	89	47	35	40	087
8,80	10	89	47	35	40	088
8,90	10	89	47	35	40	089
9,00	10	89	47	35	40	090
9,10	10	89	47	35	40	091
9,20	10	89	47	35	40	092
9,30	10	89	47	35	40	093
9,40	10	89	47	35	40	094
9,50	10	89	47	35	40	095
9,53	10	89	47	35	40	905
9,60	10	89	47	35	40	096
9,70	10	89	47	35	40	097
9,80	10	89	47	35	40	098
9,90	10	89	47	35	40	099
10,00	10	89	47	35	40	100
10,10	12	102	55	40	45	101
10,20	12	102	55	40	45	102
10,30	12	102	55	40	45	103
10,40	12	102	55	40	45	104
10,50	12	102	55	40	45	105
10,60	12	102	55	40	45	106
10,70	12	102	55	40	45	107
10,80	12	102	55	40	45	108
10,90	12	102	55	40	45	109
11,00	12	102	55	40	45	110
11,10	12	102	55	40	45	111
11,11	12	102	55	40	45	906
11,20	12	102	55	40	45	112
11,30	12	102	55	40	45	113
11,40	12	102	55	40	45	114
11,50	12	102	55	40	45	115
11,60	12	102	55	40	45	116
11,70	12	102	55	40	45	117
11,80	12	102	55	40	45	118
11,90	12	102	55	40	45	119
12,00	12	102	55	40	45	120
12,10	14	107	60	43	45	121
12,20	14	107	60	43	45	122
12,30	14	107	60	43	45	123
12,40	14	107	60	43	45	124
12,50	14	107	60	43	45	125
12,60	14	107	60	43	45	126
12,70	14	107	60	43	45	907
12,80	14	107	60	43	45	128
12,90	14	107	60	43	45	129
13,00	14	107	60	43	45	130
13,10	14	107	60	43	45	131
13,20	14	107	60	43	45	132
13,30	14	107	60	43	45	133
13,40	14	107	60	43	45	134
13,50	14	107	60	43	45	135
13,60	14	107	60	43	45	136
13,70	14	107	60	43	45	137
13,80	14	107	60	43	45	138
13,90	14	107	60	43	45	139

P	○
M	●
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→ v_c Page 109

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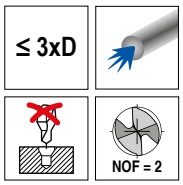
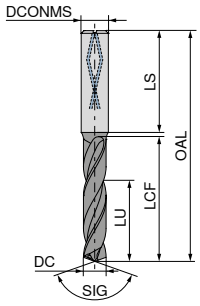
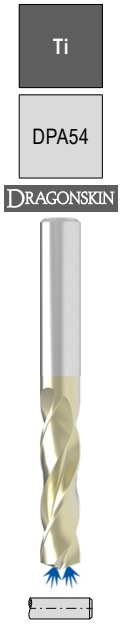
WTX – High-performance drill, DIN 6537

▲ Specialist for difficult to machine materials







SIG 140°
Solid carbide

10 786 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
14,0	14	107	60	43	45	140
14,1	16	115	65	45	48	141
14,2	16	115	65	45	48	142
14,3	16	115	65	45	48	143
14,4	16	115	65	45	48	144
14,5	16	115	65	45	48	145
14,6	16	115	65	45	48	146
14,7	16	115	65	45	48	147
14,8	16	115	65	45	48	148
14,9	16	115	65	45	48	149
15,0	16	115	65	45	48	150
15,1	16	115	65	45	48	151
15,2	16	115	65	45	48	152
15,3	16	115	65	45	48	153
15,4	16	115	65	45	48	154
15,5	16	115	65	45	48	155
15,6	16	115	65	45	48	156
15,7	16	115	65	45	48	157
15,8	16	115	65	45	48	158
15,9	16	115	65	45	48	159
16,0	16	115	65	45	48	160
16,1	18	123	73	51	48	161
16,2	18	123	73	51	48	162
16,3	18	123	73	51	48	163
16,4	18	123	73	51	48	164
16,5	18	123	73	51	48	165
16,6	18	123	73	51	48	166
16,7	18	123	73	51	48	167
16,8	18	123	73	51	48	168
16,9	18	123	73	51	48	169
17,0	18	123	73	51	48	170
17,1	18	123	73	51	48	171
17,2	18	123	73	51	48	172
17,3	18	123	73	51	48	173
17,4	18	123	73	51	48	174
17,5	18	123	73	51	48	175
17,6	18	123	73	51	48	176
17,7	18	123	73	51	48	177
17,8	18	123	73	51	48	178
17,9	18	123	73	51	48	179
18,0	18	123	73	51	48	180
18,1	20	131	79	55	50	181
18,2	20	131	79	55	50	182
18,3	20	131	79	55	50	183
18,4	20	131	79	55	50	184
18,5	20	131	79	55	50	185
18,6	20	131	79	55	50	186
18,7	20	131	79	55	50	187
18,8	20	131	79	55	50	188
18,9	20	131	79	55	50	189
19,0	20	131	79	55	50	190

10 786 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
19,1	20	131	79	55	50	191
19,2	20	131	79	55	50	192
19,3	20	131	79	55	50	193
19,4	20	131	79	55	50	194
19,5	20	131	79	55	50	195
19,6	20	131	79	55	50	196
19,7	20	131	79	55	50	197
19,8	20	131	79	55	50	198
19,9	20	131	79	55	50	199
20,0	20	131	79	55	50	200

P	○
M	●
K	
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S	●
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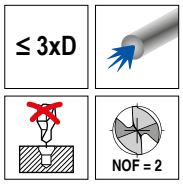
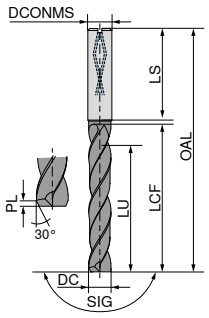
WTX – High Performance Drill, DIN 6537

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





180

Ti800

SIG 180°
Solid carbide

10 720 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	PL mm	
3,00	6	62	20	14	36	0,15	030
3,10	6	62	20	14	36	0,16	031
3,20	6	62	20	14	36	0,16	032
3,30	6	62	20	14	36	0,17	033
3,40	6	62	20	14	36	0,17	034
3,50	6	62	20	14	36	0,18	035
3,60	6	62	20	14	36	0,18	036
3,70	6	62	20	14	36	0,19	037
3,80	6	66	24	17	36	0,19	038
3,90	6	66	24	17	36	0,20	039
4,00	6	66	24	17	36	0,20	040
4,10	6	66	24	17	36	0,21	041
4,20	6	66	24	17	36	0,21	042
4,30	6	66	24	17	36	0,22	043
4,40	6	66	24	17	36	0,22	044
4,50	6	66	24	17	36	0,23	045
4,60	6	66	24	17	36	0,23	046
4,65	6	66	24	17	36	0,23	900
4,70	6	66	24	17	36	0,24	047
4,80	6	66	28	20	36	0,24	048
4,90	6	66	28	20	36	0,25	049
5,00	6	66	28	20	36	0,25	050
5,10	6	66	28	20	36	0,26	051
5,20	6	66	28	20	36	0,26	052
5,30	6	66	28	20	36	0,27	053
5,40	6	66	28	20	36	0,27	054
5,50	6	66	28	20	36	0,28	055
5,55	6	66	28	20	36	0,28	902
5,60	6	66	28	20	36	0,28	056
5,70	6	66	28	20	36	0,29	057
5,80	6	66	28	20	36	0,29	058
5,90	6	66	28	20	36	0,30	059
6,00	6	66	28	20	36	0,30	060
6,10	8	79	34	24	36	0,31	061
6,20	8	79	34	24	36	0,31	062
6,30	8	79	34	24	36	0,32	063
6,40	8	79	34	24	36	0,32	064
6,50	8	79	34	24	36	0,33	065
6,60	8	79	34	24	36	0,33	066
6,70	8	79	34	24	36	0,34	067
6,80	8	79	34	24	36	0,34	068
6,90	8	79	34	24	36	0,35	069
7,00	8	79	34	24	36	0,35	070
7,10	8	79	41	29	36	0,36	071
7,20	8	79	41	29	36	0,36	072
7,30	8	79	41	29	36	0,37	073
7,40	8	79	41	29	36	0,37	074
7,50	8	79	41	29	36	0,38	075
7,60	8	79	41	29	36	0,38	076
7,70	8	79	41	29	36	0,39	077
7,80	8	79	41	29	36	0,39	078
7,90	8	79	41	29	36	0,40	079
8,00	8	79	41	29	36	0,40	080
8,10	10	89	47	35	40	0,41	081

10 720 ...

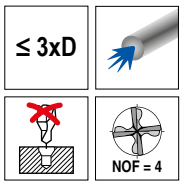
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	PL mm	
8,20	10	89	47	35	40	0,41	082
8,30	10	89	47	35	40	0,42	083
8,40	10	89	47	35	40	0,42	084
8,50	10	89	47	35	40	0,43	085
8,60	10	89	47	35	40	0,43	086
8,70	10	89	47	35	40	0,44	087
8,80	10	89	47	35	40	0,44	088
8,90	10	89	47	35	40	0,45	089
9,00	10	89	47	35	40	0,45	090
9,10	10	89	47	35	40	0,46	091
9,20	10	89	47	35	40	0,46	092
9,30	10	89	47	35	40	0,47	093
9,40	10	89	47	35	40	0,47	094
9,50	10	89	47	35	40	0,48	095
9,60	10	89	47	35	40	0,48	096
9,70	10	89	47	35	40	0,49	097
9,80	10	89	47	35	40	0,49	098
9,90	10	89	47	35	40	0,50	099
10,00	10	89	47	35	40	0,50	100
10,10	12	100	53	38	45	0,51	101
10,20	12	100	53	38	45	0,51	102
10,30	12	100	53	38	45	0,52	103
10,40	12	100	53	38	45	0,52	104
10,50	12	100	53	38	45	0,53	105
10,60	12	100	53	38	45	0,53	106
10,70	12	100	53	38	45	0,54	107
10,80	12	100	53	38	45	0,54	108
10,90	12	100	53	38	45	0,55	109
11,00	12	100	53	38	45	0,55	110
11,10	12	100	53	38	45	0,56	111
11,20	12	100	53	38	45	0,56	112
11,30	12	100	53	38	45	0,57	113
11,40	12	100	53	38	45	0,57	114
11,50	12	100	53	38	45	0,58	115
11,60	12	100	53	38	45	0,58	116
11,70	12	100	53	38	45	0,59	117
11,80	12	100	53	38	45	0,59	118
11,90	12	100	53	38	45	0,60	119
12,00	12	100	53	38	45	0,60	120
12,50	14	105	58	41	45	0,63	125
12,80	14	105	58	41	45	0,64	128
13,00	14	105	58	41	45	0,65	130
13,50	14	105	58	41	45	0,68	135
13,80	14	105	58	41	45	0,69	138
14,00	14	105	58	41	45	0,70	140
14,50	16	113	63	43	48	0,73	145
14,80	16	113	63	43	48	0,74	148
15,00	16	113	63	43	48	0,75	150
15,50	16	113	63	43	48	0,78	155
15,80	16	113	63	43	48	0,79	158
16,00	16	113	63	43	48	0,80	160
16,50	18	121	71	49	48	0,83	165
16,80	18	121	71	49	48	0,84	168
17,00	18	121	71	49	48	0,85	170
17,50	18	121	71	49	48	0,88	175
17,80	18	121	71	49	48	0,89	178
18,00	18	121	71	49	48	0,90	180
18,50	20	129	77	53	50	0,93	185
18,80	20	129	77	53	50	0,94	188
19,00	20	129	77	53	50	0,95	190
19,50	20	129	77	53	50	0,98	195
19,80	20	129	77	53	50	0,99	198
20,00	20	129	77	53	50	1,00	200

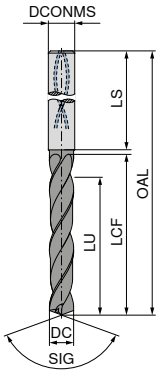
P	●
M	●
K	●
N	
S	
H	
O	

→ v_c Page 126
→ Machining information: Page 127

WTX – High Speed Drill, DIN 6537

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





HFDS

DPX14S

DRAGONSKIN

SIG 130°

Solid carbide

10 797 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
14,0	16	115	65	45	48	**14000**
14,3	18	123	73	51	48	**14300**
14,5	18	123	73	51	48	**14500**
15,0	18	123	73	51	48	**15000**
16,0	18	123	73	51	48	**16000**

P	●
M	○
K	●
N	○
S	
H	
O	○

→ v_c Page 125

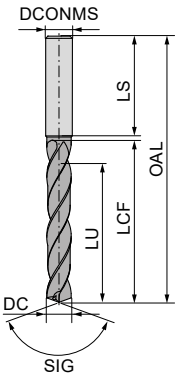
10 797 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
6,0	8	79	41	29	36	**06000**
6,1	10	89	47	35	40	**06100**
6,2	10	89	47	35	40	**06200**
6,3	10	89	47	35	40	**06300**
6,4	10	89	47	35	40	**06400**
6,5	10	89	47	35	40	**06500**
6,6	10	89	47	35	40	**06600**
6,7	10	89	47	35	40	**06700**
6,8	10	89	47	35	40	**06800**
6,9	10	89	47	35	40	**06900**
7,0	10	89	47	35	40	**07000**
7,1	10	89	47	35	40	**07100**
7,2	10	89	47	35	40	**07200**
7,3	10	89	47	35	40	**07300**
7,4	10	89	47	35	40	**07400**
7,5	10	89	47	35	40	**07500**
7,6	10	89	47	35	40	**07600**
7,7	10	89	47	35	40	**07700**
7,8	10	89	47	35	40	**07800**
7,9	10	89	47	35	40	**07900**
8,0	10	89	47	35	40	**08000**
8,1	12	102	55	40	45	**08100**
8,2	12	102	55	40	45	**08200**
8,3	12	102	55	40	45	**08300**
8,4	12	102	55	40	45	**08400**
8,5	12	102	55	40	45	**08500**
8,6	12	102	55	40	45	**08600**
8,7	12	102	55	40	45	**08700**
8,8	12	102	55	40	45	**08800**
8,9	12	102	55	40	45	**08900**
9,0	12	102	55	40	45	**09000**
9,1	12	102	55	40	45	**09100**
9,2	12	102	55	40	45	**09200**
9,3	12	102	55	40	45	**09300**
9,4	12	102	55	40	45	**09400**
9,5	12	102	55	40	45	**09500**
9,6	12	102	55	40	45	**09600**
9,7	12	102	55	40	45	**09700**
9,8	12	102	55	40	45	**09800**
9,9	12	102	55	40	45	**09900**
10,0	12	102	55	40	45	**10000**
10,2	14	107	60	43	45	**10200**
10,5	14	107	60	43	45	**10500**
11,0	14	107	60	43	45	**11000**
11,5	14	107	60	43	45	**11500**
12,0	14	107	60	43	45	**12000**
12,5	16	115	65	45	48	**12500**
13,0	16	115	65	45	48	**13000**

WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2



SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 783 ...	11 784 ...	11 782 ...	10 740 ...
3,00	6	66	28	23	36	03000	03000	03000	030
3,10	6	66	28	23	36	03100	03100	03100	031
3,15	6	66	28	23	36	03150	03150	03150	
3,20	6	66	28	23	36	03200	03200	03200	032
3,22	6	66	28	23	36	03220	03220	03220	
3,25	6	66	28	23	36	03250	03250	03250	
3,30	6	66	28	23	36	03300	03300	03300	033
3,40	6	66	28	23	36	03400	03400	03400	034
3,50	6	66	28	23	36	03500	03500	03500	035
3,60	6	66	28	23	36	03600	03600	03600	036
3,70	6	66	28	23	36	03700	03700	03700	037
3,80	6	74	36	29	36	03800	03800	03800	038
3,85	6	74	36	29	36	03850	03850	03850	
3,90	6	74	36	29	36	03900	03900	03900	039
4,00	6	74	36	29	36	04000	04000	04000	040
4,10	6	74	36	29	36	04100	04100	04100	041
4,20	6	74	36	29	36	04200	04200	04200	042
4,25	6	74	36	29	36	04250	04250	04250	
4,30	6	74	36	29	36	04300	04300	04300	043
4,35	6	74	36	29	36	04350	04350	04350	
4,40	6	74	36	29	36	04400	04400	04400	044
4,45	6	74	36	29	36	04450	04450	04450	
4,50	6	74	36	29	36	04500	04500	04500	045
4,60	6	74	36	29	36	04600	04600	04600	046
4,65	6	74	36	29	36	04650	04650	04650	
4,70	6	74	36	29	36	04700	04700	04700	047
4,80	6	82	44	35	36	04800	04800	04800	048
4,90	6	82	44	35	36	04900	04900	04900	049
4,95	6	82	44	35	36	04950	04950	04950	
5,00	6	82	44	35	36	05000	05000	05000	050
5,05	6	82	44	35	36	05050	05050	05050	
5,10	6	82	44	35	36	05100	05100	05100	051
5,20	6	82	44	35	36	05200	05200	05200	052
5,30	6	82	44	35	36	05300	05300	05300	053
5,40	6	82	44	35	36	05400	05400	05400	054
5,50	6	82	44	35	36	05500	05500	05500	055
5,55	6	82	44	35	36	05550	05550	05550	
5,60	6	82	44	35	36	05600	05600	05600	056
5,70	6	82	44	35	36	05700	05700	05700	057
5,75	6	82	44	35	36	05750	05750	05750	
5,80	6	82	44	35	36	05800	05800	05800	058
5,90	6	82	44	35	36	05900	05900	05900	059
P						●	●	●	○
M									●
K						●	●	●	○
N									○
S									●
H						○	○	○	
O									

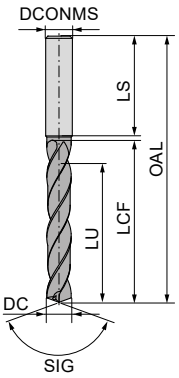
→ v_c Page 111+112

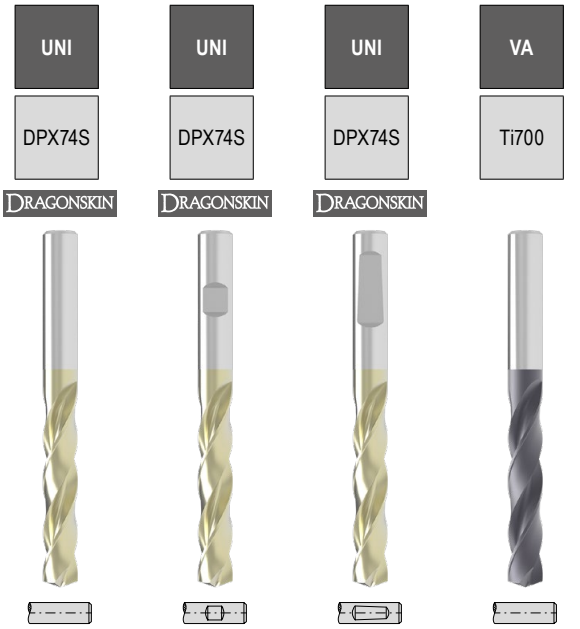
Continued on next page

WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2





SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 783 ...	11 784 ...	11 782 ...	10 740 ...
5,95	6	82	44	35	36	05950	05950	05950	
6,00	6	82	44	35	36	06000	06000	06000	060
6,10	8	91	53	43	36	06100	06100	06100	061
6,20	8	91	53	43	36	06200	06200	06200	062
6,30	8	91	53	43	36	06300	06300	06300	063
6,40	8	91	53	43	36	06400	06400	06400	064
6,50	8	91	53	43	36	06500	06500	06500	065
6,60	8	91	53	43	36	06600	06600	06600	066
6,70	8	91	53	43	36	06700	06700	06700	067
6,80	8	91	53	43	36	06800	06800	06800	068
6,90	8	91	53	43	36	06900	06900	06900	069
7,00	8	91	53	43	36	07000	07000	07000	070
7,10	8	91	53	43	36	07100	07100	07100	071
7,20	8	91	53	43	36	07200	07200	07200	072
7,30	8	91	53	43	36	07300	07300	07300	073
7,40	8	91	53	43	36	07400	07400	07400	074
7,45	8	91	53	43	36	07450	07450	07450	
7,50	8	91	53	43	36	07500	07500	07500	075
7,60	8	91	53	43	36	07600	07600	07600	076
7,70	8	91	53	43	36	07700	07700	07700	077
7,80	8	91	53	43	36	07800	07800	07800	078
7,90	8	91	53	43	36	07900	07900	07900	079
8,00	8	91	53	43	36	08000	08000	08000	080
8,10	10	103	61	49	40	08100	08100	08100	081
8,20	10	103	61	49	40	08200	08200	08200	082
8,30	10	103	61	49	40	08300	08300	08300	083
8,40	10	103	61	49	40	08400	08400	08400	084
8,50	10	103	61	49	40	08500	08500	08500	085
8,60	10	103	61	49	40	08600	08600	08600	086
8,70	10	103	61	49	40	08700	08700	08700	087
8,80	10	103	61	49	40	08800	08800	08800	088
8,90	10	103	61	49	40	08900	08900	08900	089
9,00	10	103	61	49	40	09000	09000	09000	090
9,10	10	103	61	49	40	09100	09100	09100	091
9,20	10	103	61	49	40	09200	09200	09200	092
9,30	10	103	61	49	40	09300	09300	09300	093
9,35	10	103	61	49	40	09350	09350	09350	
9,40	10	103	61	49	40	09400	09400	09400	094
9,45	10	103	61	49	40	09450	09450	09450	
9,50	10	103	61	49	40	09500	09500	09500	095
9,60	10	103	61	49	40	09600	09600	09600	096
9,70	10	103	61	49	40	09700	09700	09700	097
P						●	●	●	○
M									●
K						●	●	●	○
N									○
S									●
H						○	○	○	
O									

→ v_c Page 111+112

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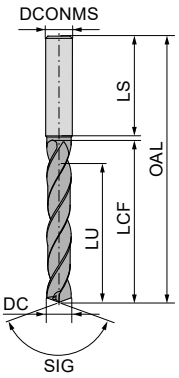
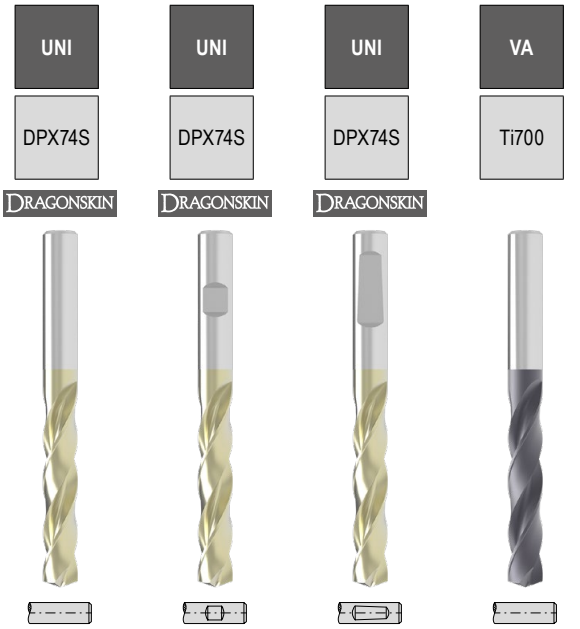
WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2





SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 783 ...	11 784 ...	11 782 ...	10 740 ...
9,80	10	103	61	49	40	09800	09800	09800	098
9,90	10	103	61	49	40	09900	09900	09900	099
10,00	10	103	61	49	40	10000	10000	10000	100
10,10	12	118	71	56	45	10100	10100	10100	101
10,20	12	118	71	56	45	10200	10200	10200	102
10,30	12	118	71	56	45	10300	10300	10300	103
10,40	12	118	71	56	45	10400	10400	10400	104
10,50	12	118	71	56	45	10500	10500	10500	105
10,55	12	118	71	56	45	10550	10550	10550	
10,60	12	118	71	56	45	10600	10600	10600	106
10,70	12	118	71	56	45	10700	10700	10700	107
10,75	12	118	71	56	45	10750	10750	10750	
10,80	12	118	71	56	45	10800	10800	10800	108
10,90	12	118	71	56	45	10900	10900	10900	109
11,00	12	118	71	56	45	11000	11000	11000	110
11,10	12	118	71	56	45	11100	11100	11100	111
11,20	12	118	71	56	45	11200	11200	11200	112
11,25	12	118	71	56	45	11250	11250	11250	
11,30	12	118	71	56	45	11300	11300	11300	113
11,35	12	118	71	56	45	11350	11350	11350	
11,40	12	118	71	56	45	11400	11400	11400	114
11,45	12	118	71	56	45	11450	11450	11450	
11,50	12	118	71	56	45	11500	11500	11500	115
11,60	12	118	71	56	45	11600	11600	11600	116
11,70	12	118	71	56	45	11700	11700	11700	117
11,80	12	118	71	56	45	11800	11800	11800	118
11,90	12	118	71	56	45	11900	11900	11900	119
12,00	12	118	71	56	45	12000	12000	12000	120
12,15	14	124	77	60	45	12150	12150	12150	
12,25	14	124	77	60	45	12250	12250	12250	
12,50	14	124	77	60	45	12500	12500	12500	125
12,55	14	124	77	60	45	12550	12550	12550	
12,70	14	124	77	60	45	12700	12700	12700	
12,80	14	124	77	60	45	12800	12800	12800	128
12,90	14	124	77	60	45	12900	12900	12900	
13,00	14	124	77	60	45	13000	13000	13000	130
13,10	14	124	77	60	45	13100	13100	13100	
13,30	14	124	77	60	45	13300	13300	13300	
13,35	14	124	77	60	45	13350	13350	13350	
13,50	14	124	77	60	45	13500	13500	13500	135
13,70	14	124	77	60	45	13700	13700	13700	
13,80	14	124	77	60	45	13800	13800	13800	138
P						●	●	●	○
M									●
K						●	●	●	○
N									○
S									●
H						○	○	○	
O									

→ v_c Page 111+112

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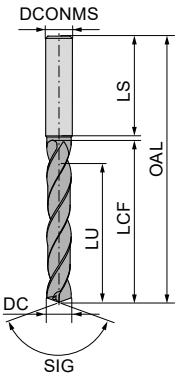
WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2



SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

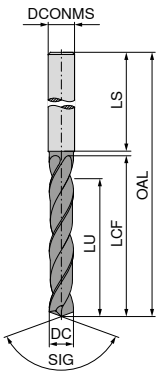
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 783 ...	11 784 ...	11 782 ...	10 740 ...
14,00	14	124	77	60	45	14000	14000	14000	140
14,20	16	133	83	63	48	14200	14200	14200	
14,50	16	133	83	63	48	14500	14500	14500	145
14,80	16	133	83	63	48	14800	14800	14800	148
15,00	16	133	83	63	48	15000	15000	15000	150
15,10	16	133	83	63	48	15100	15100	15100	
15,25	16	133	83	63	48	15250	15250	15250	
15,30	16	133	83	63	48	15300	15300	15300	
15,35	16	133	83	63	48	15350	15350	15350	
15,50	16	133	83	63	48	15500	15500	15500	155
15,60	16	133	83	63	48	15600	15600	15600	
15,80	16	133	83	63	48	15800	15800	15800	158
16,00	16	133	83	63	48	16000	16000	16000	160
16,05	18	143	93	71	48	16050	16050	16050	
16,50	18	143	93	71	48	16500	16500	16500	165
16,80	18	143	93	71	48	16800	16800	16800	168
16,90	18	143	93	71	48	16900	16900	16900	
17,00	18	143	93	71	48	17000	17000	17000	170
17,50	18	143	93	71	48	17500	17500	17500	175
17,60	18	143	93	71	48	17600	17600	17600	
17,80	18	143	93	71	48	17800	17800	17800	178
18,00	18	143	93	71	48	18000	18000	18000	180
18,50	20	153	101	77	50	18500	18500	18500	185
18,80	20	153	101	77	50	18800	18800	18800	188
18,90	20	153	101	77	50	18900	18900	18900	
19,00	20	153	101	77	50	19000	19000	19000	190
19,35	20	153	101	77	50	19350	19350	19350	
19,50	20	153	101	77	50	19500	19500	19500	195
19,60	20	153	101	77	50	19600	19600	19600	
19,80	20	153	101	77	50	19800	19800	19800	198
20,00	20	153	101	77	50	20000	20000	20000	200
P						●	●	●	○
M									●
K						●	●	●	○
N									○
S									●
H						○	○	○	
O									

→ v_c Page 111+112

High Performance Drill, DIN 6537

≤ 5xD

NOF = 2



UNI

TiAlN

SIG 140°

Solid carbide

UNI

TiAlN

SIG 140°

Solid carbide

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 710 ...	11 709 ...
3,00	6	66	28	23,5	36	03000	03000
3,10	6	66	28	23,3	36	03100	03100
3,20	6	66	28	23,2	36	03200	03200
3,25	6	66	28	23,1	36	03250	03250
3,30	6	66	28	23,0	36	03300	03300
3,40	6	66	28	22,9	36	03400	03400
3,50	6	66	28	22,7	36	03500	03500
3,60	6	66	28	22,6	36	03600	03600
3,70	6	66	28	22,4	36	03700	03700
3,80	6	74	36	30,3	36	03800	03800
3,90	6	74	36	30,1	36	03900	03900
4,00	6	74	36	30,0	36	04000	04000
4,10	6	74	36	29,8	36	04100	04100
4,20	6	74	36	29,7	36	04200	04200
4,30	6	74	36	29,5	36	04300	04300
4,40	6	74	36	29,4	36	04400	04400
4,50	6	74	36	29,2	36	04500	04500
4,60	6	74	36	29,1	36	04600	04600
4,65	6	74	36	29,0	36	04650	04650
4,70	6	74	36	28,9	36	04700	04700
4,80	6	82	44	36,8	36	04800	04800
4,90	6	82	44	36,6	36	04900	04900
5,00	6	82	44	36,5	36	05000	05000
5,10	6	82	44	36,3	36	05100	05100
5,20	6	82	44	36,2	36	05200	05200
5,30	6	82	44	36,0	36	05300	05300
5,40	6	82	44	35,9	36	05400	05400
5,50	6	82	44	35,7	36	05500	05500
5,55	6	82	44	35,6	36	05550	05550
5,60	6	82	44	35,6	36	05600	05600
5,65	6	82	44	35,5	36	05650	05650
5,70	6	82	44	35,4	36	05700	05700
5,80	6	82	44	35,3	36	05800	05800
5,90	6	82	44	35,1	36	05900	05900
6,00	6	82	44	35,0	36	06000	06000
6,10	8	91	53	43,8	36	06100	06100
6,20	8	91	53	43,7	36	06200	06200
6,30	8	91	53	43,5	36	06300	06300
6,40	8	91	53	43,4	36	06400	06400
6,50	8	91	53	43,2	36	06500	06500
6,60	8	91	53	43,1	36	06600	06600
6,70	8	91	53	42,9	36	06700	06700
6,80	8	91	53	42,8	36	06800	06800
6,90	8	91	53	42,6	36	06900	06900
7,00	8	91	53	42,5	36	07000	07000
7,10	8	91	53	42,3	36	07100	07100
7,20	8	91	53	42,2	36	07200	07200
7,30	8	91	53	42,0	36	07300	07300
7,40	8	91	53	41,9	36	07400	07400
7,50	8	91	53	41,7	36	07500	07500
7,55	8	91	53	41,6	36	07550	07550
7,60	8	91	53	41,6	36	07600	07600
7,65	8	91	53	41,5	36	07650	07650
7,70	8	91	53	41,4	36	07700	07700
7,80	8	91	53	41,3	36	07800	07800
7,90	8	91	53	41,1	36	07900	07900
8,00	8	91	53	41,0	36	08000	08000
8,10	10	103	61	48,8	40	08100	08100
8,20	10	103	61	48,7	40	08200	08200
8,30	10	103	61	48,5	40	08300	08300
8,40	10	103	61	48,4	40	08400	08400
8,50	10	103	61	48,2	40	08500	08500
8,60	10	103	61	48,1	40	08600	08600
8,70	10	103	61	47,9	40	08700	08700
8,80	10	103	61	47,8	40	08800	08800
8,90	10	103	61	47,6	40	08900	08900
9,00	10	103	61	47,5	40	09000	09000
9,10	10	103	61	47,3	40	09100	09100
9,20	10	103	61	47,2	40	09200	09200
9,30	10	103	61	47,0	40	09300	09300
9,40	10	103	61	46,9	40	09400	09400
9,50	10	103	61	46,7	40	09500	09500
9,60	10	103	61	46,6	40	09600	09600
9,70	10	103	61	46,4	40	09700	09700
9,80	10	103	61	46,3	40	09800	09800
9,90	10	103	61	46,1	40	09900	09900
10,00	10	103	61	46,0	40	10000	10000
10,10	12	118	71	55,8	45	10100	10100
10,20	12	118	71	55,7	45	10200	10200
10,30	12	118	71	55,5	45	10300	10300
10,40	12	118	71	55,4	45	10400	10400
10,50	12	118	71	55,2	45	10500	10500
10,60	12	118	71	55,1	45	10600	10600
10,70	12	118	71	54,9	45	10700	10700
10,80	12	118	71	54,8	45	10800	10800
10,90	12	118	71	54,6	45	10900	10900
11,00	12	118	71	54,5	45	11000	11000
11,10	12	118	71	54,3	45	11100	11100
11,20	12	118	71	54,2	45	11200	11200
11,30	12	118	71	54,0	45	11300	11300
11,40	12	118	71	53,9	45	11400	11400
11,50	12	118	71	53,7	45	11500	11500
11,60	12	118	71	53,6	45	11600	11600
11,70	12	118	71	53,4	45	11700	11700
11,80	12	118	71	53,3	45	11800	11800
11,90	12	118	71	53,1	45	11900	11900
12,00	12	118	71	53,0	45	12000	12000
12,10	14	124	77	58,8	45	12100	12100
12,20	14	124	77	58,7	45	12200	12200
12,50	14	124	77	58,2	45	12500	12500
12,70	14	124	77	57,9	45	12700	12700
12,80	14	124	77	57,8	45	12800	12800
13,00	14	124	77	57,5	45	13000	13000
13,20	14	124	77	57,2	45	13200	13200
13,50	14	124	77	56,7	45	13500	13500
13,80	14	124	77	56,3	45	13800	13800
14,00	14	124	77	56,0	45	14000	14000
14,20	16	133	83	61,7	48	14200	14200
14,40	16	133	83	61,4	48	14400	14400
14,50	16	133	83	61,2	48	14500	14500
14,80	16	133	83	60,8	48	14800	14800
15,00	16	133	83	60,5	48	15000	15000
15,20	16	133	83	60,2	48	15200	15200
15,50	16	133	83	59,7	48	15500	15500
15,80	16	133	83	59,3	48	15800	15800
16,00	16	133	83	59,0	48	16000	16000
16,50	18	143	93	68,2	48	16500	16500
17,00	18	143	93	67,5	48	17000	17000
17,50	18	143	93	66,7	48	17500	17500
18,00	18	143	93	66,0	48	18000	18000
18,50	20	153	101	73,2	50	18500	18500
18,90	20	153	101	72,6	50	18900	18900
19,00	20	153	101	72,5	50	19000	19000
19,50	20	153	101	71,7	50	19500	19500
20,00	20	153	101	71,0	50	20000	20000

	11 710 ...	11 709 ...
P	●	●
M		
K	●	●
N		
S		
H		
O		

→ v_c Page 128

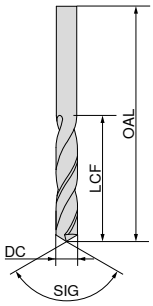
Twist drill similar to DIN 338

▲ Helix angle 30°
▲ Shank Ø h7

2

≤ 5xD

NOF = 2



N

SIG 118°
Solid carbide

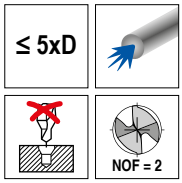
DC h7 mm	OAL mm	LCF mm	10 710 ...
0,5	22	6	005
0,6	24	7	006
0,7	28	9	007
0,8	30	10	008
0,9	32	11	009
1,0	34	12	010
1,1	36	14	011
1,2	38	16	012
1,3	38	16	013
1,4	40	18	014
1,5	40	18	015
1,6	43	20	016
1,7	43	20	017
1,8	46	22	018
1,9	46	22	019
2,0	49	24	020
2,1	49	24	021
2,2	53	27	022
2,3	53	27	023
2,4	57	30	024
2,5	57	30	025
2,6	57	30	026
2,7	61	33	027
2,8	61	33	028
2,9	61	33	029
3,0	61	33	030
3,1	65	36	031
3,2	65	36	032
3,3	65	36	033
3,4	70	39	034
3,5	70	39	035
3,6	70	39	036
3,7	70	39	037
3,8	75	43	038
3,9	75	43	039
4,0	75	43	040
4,1	75	43	041
4,2	75	43	042
4,3	80	47	043
4,4	80	47	044
4,5	80	47	045
4,6	80	47	046
4,7	80	47	047
4,8	86	52	048
4,9	86	52	049
5,0	86	52	050
5,1	86	52	051
5,2	86	52	052
5,3	86	52	053

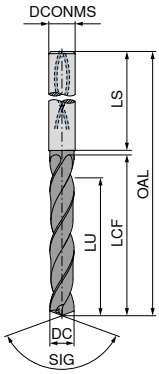
DC h7 mm	OAL mm	LCF mm	10 710 ...
5,4	93	57	054
5,5	93	57	055
5,6	93	57	056
5,7	93	57	057
5,8	93	57	058
5,9	93	57	059
6,0	93	57	060
6,1	101	63	061
6,2	101	63	062
6,3	101	63	063
6,4	101	63	064
6,5	101	63	065
6,6	109	69	066
6,8	109	69	068
7,0	109	69	070
7,5	109	69	075
7,8	117	75	078
8,0	117	75	080
8,5	117	75	085
8,8	125	81	088
9,0	125	81	090
9,5	125	81	095
9,8	133	87	098
10,0	133	87	100
10,2	133	87	102
10,5	133	87	105
11,0	142	94	110
11,5	142	94	115
12,0	151	101	120
13,0	151	101	130
14,0	160	108	140
16,0	178	120	160

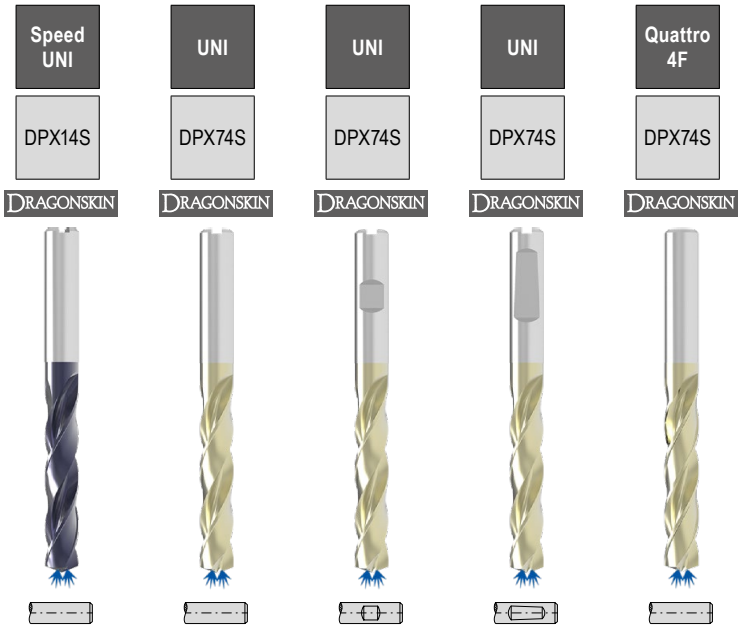
P	○
M	
K	●
N	●
S	○
H	
O	

→ v_c Page 134

WTX – High Performance Drill, DIN 6537







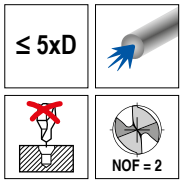
						SIG 145° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide
						10 771 ...	**11 786 ...**	**11 787 ...**	**11 785 ...**	**10 735 ...**
DC $_{m7/h7}$ **mm**	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm					
3,00	6	66	28	23	36	03000	03000	03000	03000	03000
3,10	6	66	28	23	36	03100	03100	03100	03100	03100
3,15	6	66	28	23	36		03150	03150	03150	
3,20	6	66	28	23	36	03200	03200	03200	03200	03200
3,22	6	66	28	23	36		03220	03220	03220	
3,25	6	66	28	23	36		03250	03250	03250	
3,30	6	66	28	23	36	03300	03300	03300	03300	03300
3,40	6	66	28	23	36	03400	03400	03400	03400	03400
3,50	6	66	28	23	36	03500	03500	03500	03500	03500
3,60	6	66	28	23	36	03600	03600	03600	03600	03600
3,70	6	66	28	23	36	03700	03700	03700	03700	03700
3,80	6	74	36	29	36	03800	03800	03800	03800	03800
3,85	6	74	36	29	36		03850	03850	03850	
3,90	6	74	36	29	36	03900	03900	03900	03900	03900
4,00	6	74	36	29	36	04000	04000	04000	04000	04000
4,10	6	74	36	29	36	04100	04100	04100	04100	04100
4,20	6	74	36	29	36	04200	04200	04200	04200	04200
4,25	6	74	36	29	36		04250	04250	04250	
4,30	6	74	36	29	36	04300	04300	04300	04300	04300
4,35	6	74	36	29	36		04350	04350	04350	
4,40	6	74	36	29	36	04400	04400	04400	04400	04400
4,45	6	74	36	29	36		04450	04450	04450	
4,50	6	74	36	29	36	04500	04500	04500	04500	04500
4,60	6	74	36	29	36	04600	04600	04600	04600	04600
4,65	6	74	36	29	36	04650	04650	04650	04650	
4,70	6	74	36	29	36	04700	04700	04700	04700	04700
4,80	6	82	44	35	36	04800	04800	04800	04800	04800
4,90	6	82	44	35	36	04900	04900	04900	04900	04900
4,95	6	82	44	35	36		04950	04950	04950	
5,00	6	82	44	35	36	05000	05000	05000	05000	05000
5,05	6	82	44	35	36		05050	05050	05050	
5,10	6	82	44	35	36	05100	05100	05100	05100	05100
5,20	6	82	44	35	36	05200	05200	05200	05200	05200
5,30	6	82	44	35	36	05300	05300	05300	05300	05300
P						●	●	●	●	●
M						●				
K						●	●	●	●	●
N										
S										
H							○	○	○	○
O										

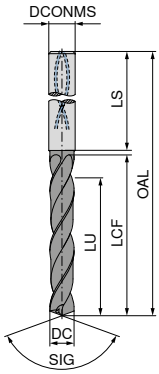
→ v_c Page 111–120

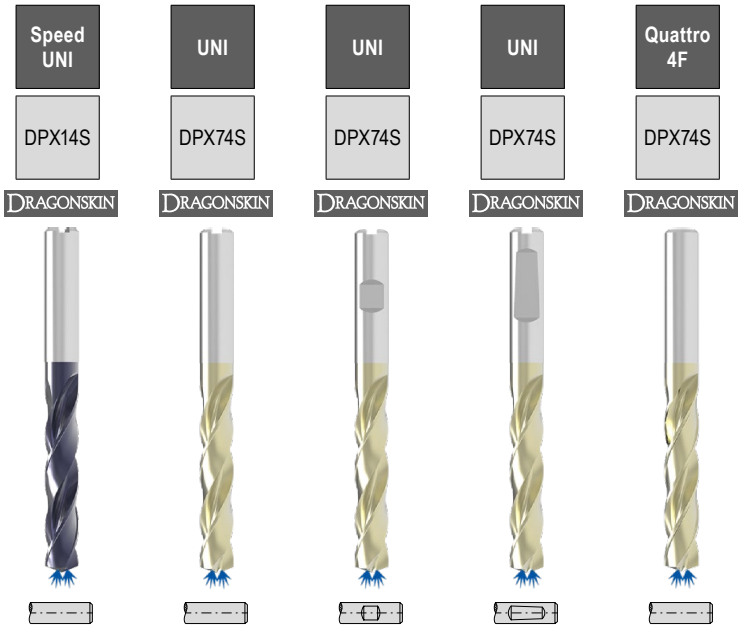
Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, DIN 6537







SIG 145° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide
10 771 ...	**11 786 ...**	**11 787 ...**	**11 785 ...**	**10 735 ...**

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm					
5,40	6	82	44	35	36	05400	05400	05400	05400	05400
5,50	6	82	44	35	36	05500	05500	05500	05500	05500
5,55	6	82	44	35	36	05550	05550	05550	05550	
5,60	6	82	44	35	36	05600	05600	05600	05600	05600
5,70	6	82	44	35	36	05700	05700	05700	05700	05700
5,75	6	82	44	35	36		05750	05750	05750	
5,80	6	82	44	35	36	05800	05800	05800	05800	05800
5,90	6	82	44	35	36	05900	05900	05900	05900	05900
5,95	6	82	44	35	36		05950	05950	05950	
6,00	6	82	44	35	36	06000	06000	06000	06000	06000
6,10	8	91	53	43	36	06100	06100	06100	06100	06100
6,20	8	91	53	43	36	06200	06200	06200	06200	06200
6,30	8	91	53	43	36	06300	06300	06300	06300	06300
6,40	8	91	53	43	36	06400	06400	06400	06400	06400
6,50	8	91	53	43	36	06500	06500	06500	06500	06500
6,60	8	91	53	43	36	06600	06600	06600	06600	06600
6,70	8	91	53	43	36	06700	06700	06700	06700	06700
6,80	8	91	53	43	36	06800	06800	06800	06800	06800
6,90	8	91	53	43	36	06900	06900	06900	06900	06900
7,00	8	91	53	43	36	07000	07000	07000	07000	07000
7,10	8	91	53	43	36	07100	07100	07100	07100	07100
7,20	8	91	53	43	36	07200	07200	07200	07200	07200
7,30	8	91	53	43	36	07300	07300	07300	07300	07300
7,40	8	91	53	43	36	07400	07400	07400	07400	07400
7,45	8	91	53	43	36		07450	07450	07450	
7,50	8	91	53	43	36	07500	07500	07500	07500	07500
7,60	8	91	53	43	36	07600	07600	07600	07600	07600
7,70	8	91	53	43	36	07700	07700	07700	07700	07700
7,80	8	91	53	43	36	07800	07800	07800	07800	07800
7,90	8	91	53	43	36	07900	07900	07900	07900	07900
8,00	8	91	53	43	36	08000	08000	08000	08000	08000
8,10	10	103	61	49	40	08100	08100	08100	08100	08100
8,20	10	103	61	49	40	08200	08200	08200	08200	08200
8,30	10	103	61	49	40	08300	08300	08300	08300	08300
P						●	●	●	●	●
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K						●	●	●	●	●
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H							○	○	○	○
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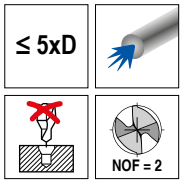
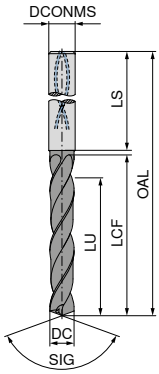
→ v_c Page 111–120

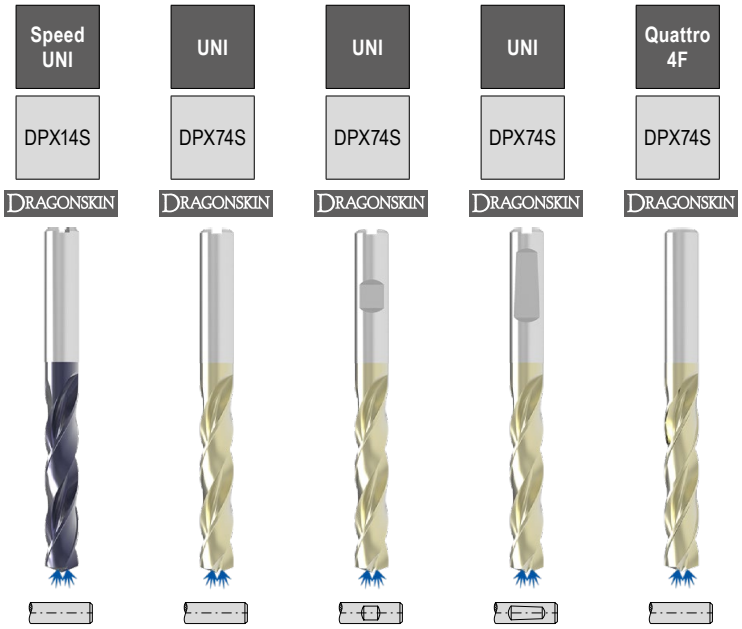
Ø DC_{m7} for Type UNI and Quattro 4F/ Ø DC_{h7} for Type Speed UNI

Continued on next page

WTX – High Performance Drill, DIN 6537







	SIG 145° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide
	10 771 ...	**11 786 ...**	**11 787 ...**	**11 785 ...**	**10 735 ...**
DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm										
8,40	10	103	61	49	40	**08400**	**08400**	**08400**	**08400**	**08400**
8,50	10	103	61	49	40	**08500**	**08500**	**08500**	**08500**	**08500**
8,60	10	103	61	49	40	**08600**	**08600**	**08600**	**08600**	**08600**
8,70	10	103	61	49	40	**08700**	**08700**	**08700**	**08700**	**08700**
8,80	10	103	61	49	40	**08800**	**08800**	**08800**	**08800**	**08800**
8,90	10	103	61	49	40	**08900**	**08900**	**08900**	**08900**	**08900**
9,00	10	103	61	49	40	**09000**	**09000**	**09000**	**09000**	**09000**
9,10	10	103	61	49	40	**09100**	**09100**	**09100**	**09100**	**09100**
9,20	10	103	61	49	40	**09200**	**09200**	**09200**	**09200**	**09200**
9,30	10	103	61	49	40	**09300**	**09300**	**09300**	**09300**	**09300**
9,35	10	103	61	49	40		**09350**	**09350**	**09350**	
9,40	10	103	61	49	40	**09400**	**09400**	**09400**	**09400**	**09400**
9,45	10	103	61	49	40		**09450**	**09450**	**09450**	
9,50	10	103	61	49	40	**09500**	**09500**	**09500**	**09500**	**09500**
9,60	10	103	61	49	40	**09600**	**09600**	**09600**	**09600**	**09600**
9,70	10	103	61	49	40	**09700**	**09700**	**09700**	**09700**	**09700**
9,80	10	103	61	49	40	**09800**	**09800**	**09800**	**09800**	**09800**
9,90	10	103	61	49	40	**09900**	**09900**	**09900**	**09900**	**09900**
10,00	10	103	61	49	40	**10000**	**10000**	**10000**	**10000**	**10000**
10,10	12	118	71	56	45	**10100**	**10100**	**10100**	**10100**	**10100**
10,20	12	118	71	56	45	**10200**	**10200**	**10200**	**10200**	**10200**
10,30	12	118	71	56	45	**10300**	**10300**	**10300**	**10300**	**10300**
10,40	12	118	71	56	45	**10400**	**10400**	**10400**	**10400**	**10400**
10,50	12	118	71	56	45	**10500**	**10500**	**10500**	**10500**	**10500**
10,55	12	118	71	56	45		**10550**	**10550**	**10550**	
10,60	12	118	71	56	45	**10600**	**10600**	**10600**	**10600**	**10600**
10,70	12	118	71	56	45	**10700**	**10700**	**10700**	**10700**	**10700**
10,75	12	118	71	56	45		**10750**	**10750**	**10750**	
10,80	12	118	71	56	45	**10800**	**10800**	**10800**	**10800**	**10800**
10,90	12	118	71	56	45	**10900**	**10900**	**10900**	**10900**	**10900**
11,00	12	118	71	56	45	**11000**	**11000**	**11000**	**11000**	**11000**
11,10	12	118	71	56	45	**11100**	**11100**	**11100**	**11100**	**11100**
11,20	12	118	71	56	45	**11200**	**11200**	**11200**	**11200**	**11200**
11,25	12	118	71	56	45		**11250**	**11250**	**11250**	
P						●	●	●	●	●
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K						●	●	●	●	●
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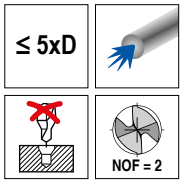
S										
H							○	○	○	○
O										

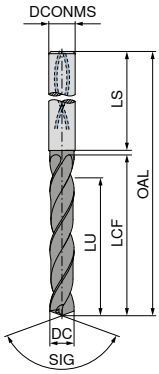
→ v_c Page 111–120

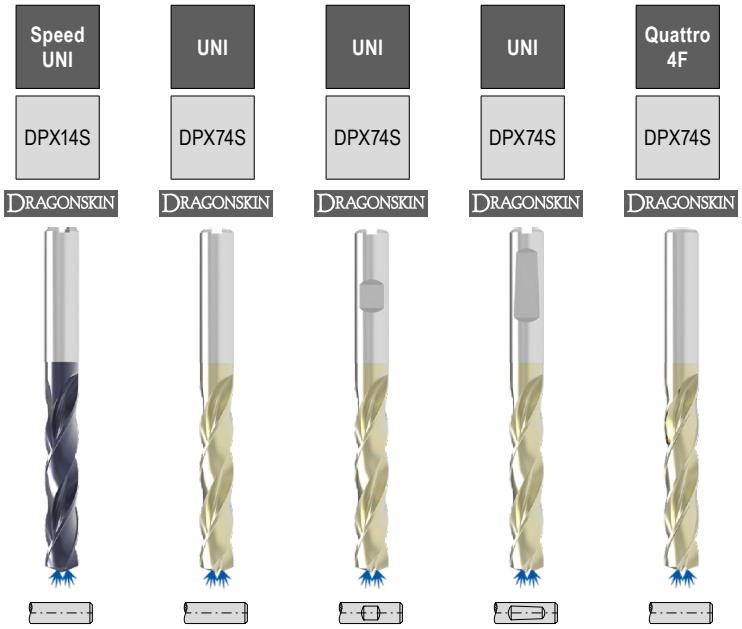
Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, DIN 6537







SIG 145° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide
10 771 ...	**11 786 ...**	**11 787 ...**	**11 785 ...**	**10 735 ...**

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm									
11,30	12	118	71	56	45	11300		11300		11300		11300		11300
11,35	12	118	71	56	45			11350		11350		11350		
11,40	12	118	71	56	45	11400		11400		11400		11400		11400
11,45	12	118	71	56	45			11450		11450		11450		
11,50	12	118	71	56	45	11500		11500		11500		11500		11500
11,60	12	118	71	56	45	11600		11600		11600		11600		11600
11,70	12	118	71	56	45	11700		11700		11700		11700		11700
11,80	12	118	71	56	45	11800		11800		11800		11800		11800
11,90	12	118	71	56	45	11900		11900		11900		11900		11900
12,00	12	118	71	56	45	12000		12000		12000		12000		12000
12,15	14	124	77	60	45			12150		12150		12150		
12,20	14	124	77	60	45	12200								
12,25	14	124	77	60	45			12250		12250		12250		
12,50	14	124	77	60	45	12500		12500		12500		12500		12500
12,55	14	124	77	60	45			12550		12550		12550		
12,70	14	124	77	60	45			12700		12700		12700		
12,80	14	124	77	60	45	12800		12800		12800		12800		12800
12,90	14	124	77	60	45			12900		12900		12900		
13,00	14	124	77	60	45	13000		13000		13000		13000		13000
13,10	14	124	77	60	45			13100		13100		13100		
13,30	14	124	77	60	45			13300		13300		13300		
13,35	14	124	77	60	45			13350		13350		13350		
13,50	14	124	77	60	45	13500		13500		13500		13500		13500
13,70	14	124	77	60	45			13700		13700		13700		
13,80	14	124	77	60	45	13800		13800		13800		13800		13800
14,00	14	124	77	60	45	14000		14000		14000		14000		14000
14,20	16	133	83	63	48	14200		14200		14200		14200		
14,50	16	133	83	63	48	14500		14500		14500		14500		14500
14,80	16	133	83	63	48	14800		14800		14800		14800		14800
15,00	16	133	83	63	48	15000		15000		15000		15000		15000
15,10	16	133	83	63	48			15100		15100		15100		
15,20	16	133	83	63	48	15200								
15,25	16	133	83	63	48			15250		15250		15250		
15,30	16	133	83	63	48			15300		15300		15300		

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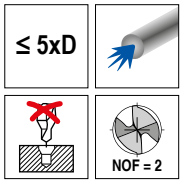
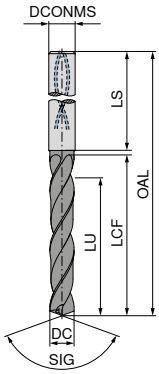
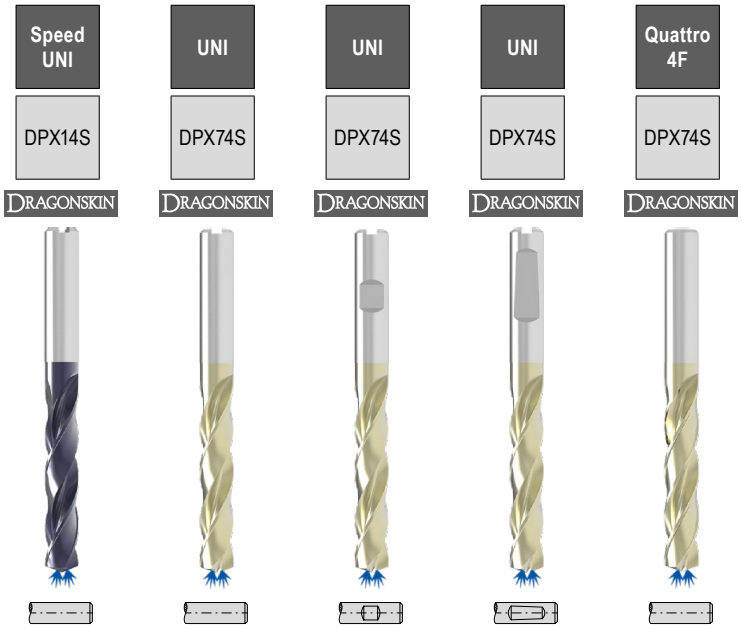
Ø DC_{m7} for Type UNI and Quattro 4F/ Ø DC_{h7} for Type Speed UNI

Continued on next page

WTX – High Performance Drill, DIN 6537







SIG 145° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide
10 771 ...	**11 786 ...**	**11 787 ...**	**11 785 ...**	**10 735 ...**

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm									
15,35	16	133	83	63	48		15350		15350		15350			
15,50	16	133	83	63	48	15500	15500		15500		15500		15500	
15,60	16	133	83	63	48		15600		15600		15600			
15,80	16	133	83	63	48	15800	15800		15800		15800		15800	
16,00	16	133	83	63	48	16000	16000		16000		16000		16000	
16,05	18	143	93	71	48		16050		16050		16050			
16,50	18	143	93	71	48	16500	16500		16500		16500		16500	
16,80	18	143	93	71	48	16800	16800		16800		16800		16800	
16,90	18	143	93	71	48		16900		16900		16900			
17,00	18	143	93	71	48	17000	17000		17000		17000		17000	
17,50	18	143	93	71	48	17500	17500		17500		17500		17500	
17,60	18	143	93	71	48		17600		17600		17600			
17,80	18	143	93	71	48	17800	17800		17800		17800		17800	
18,00	18	143	93	71	48	18000	18000		18000		18000		18000	
18,50	20	153	101	77	50		18500		18500		18500			
18,80	20	153	101	77	50		18800		18800		18800			
18,90	20	153	101	77	50		18900		18900		18900			
19,00	20	153	101	77	50		19000		19000		19000			
19,35	20	153	101	77	50		19350		19350		19350			
19,50	20	153	101	77	50		19500		19500		19500			
19,60	20	153	101	77	50		19600		19600		19600			
19,80	20	153	101	77	50		19800		19800		19800			
20,00	20	153	101	77	50		20000		20000		20000			
20,50	25	200	135	110	56		20500		20500		20500			
21,00	25	200	135	110	56		21000		21000		21000			
21,50	25	200	135	110	56		21500		21500		21500			
22,00	25	200	135	110	56		22000		22000		22000			
22,50	25	200	140	120	56		22500		22500		22500			
23,00	25	200	140	120	56		23000		23000		23000			
23,50	25	200	140	120	56		23500		23500		23500			
24,00	25	200	140	120	56		24000		24000		24000			
24,50	25	200	140	120	56		24500		24500		24500			
25,00	25	200	140	120	56		25000		25000		25000			

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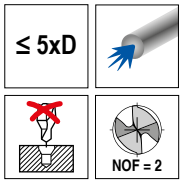
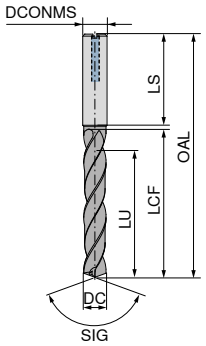
→ v_c Page 111–120

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

WTX – High Performance Drill, DIN 6537





Speed VA | VA | AL

Ti800 | Ti700 | DLC

DRAGONSKIN

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

10 773 ... | **10 745 ...** | **10 791 ...**

DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm					
2,50	4	57	21	17	28					**02500**
2,60	4	57	21	17	28					**02600**
2,70	4	57	21	17	28					**02700**
2,80	4	57	21	17	28					**02800**
2,90	4	57	21	17	28					**02900**
3,00	6	66	28	23	36	**030**		**030**		**03000**
3,10	6	66	28	23	36	**031**		**031**		**03100**
3,15	6	66	28	23	36			**831**		
3,20	6	66	28	23	36	**032**		**032**		**03200**
3,22	6	66	28	23	36			**832**		
3,25	6	66	28	23	36			**890**		
3,30	6	66	28	23	36	**033**		**033**		**03300**
3,40	6	66	28	23	36	**034**		**034**		**03400**
3,50	6	66	28	23	36	**035**		**035**		**03500**
3,60	6	66	28	23	36	**036**		**036**		**03600**
3,70	6	66	28	23	36	**037**		**037**		**03700**
3,80	6	74	36	29	36	**038**		**038**		**03800**
3,85	6	74	36	29	36			**838**		
3,90	6	74	36	29	36	**039**		**039**		**03900**
4,00	6	74	36	29	36	**040**		**040**		**04000**
4,10	6	74	36	29	36	**041**		**041**		**04100**
4,20	6	74	36	29	36	**042**		**042**		**04200**
4,30	6	74	36	29	36	**043**		**043**		**04300**
4,35	6	74	36	29	36			**843**		
4,40	6	74	36	29	36	**044**		**044**		**04400**
4,45	6	74	36	29	36			**844**		
4,50	6	74	36	29	36	**045**		**045**		**04500**
4,60	6	74	36	29	36	**046**		**046**		**04600**
4,65	6	74	36	29	36	**900**		**900**		
4,70	6	74	36	29	36	**047**		**047**		**04700**
4,80	6	82	44	35	36	**048**		**048**		**04800**
4,90	6	82	44	35	36	**049**		**049**		**04900**
5,00	6	82	44	35	36	**050**		**050**		**05000**
5,10	6	82	44	35	36	**051**		**051**		**05100**
5,20	6	82	44	35	36	**052**		**052**		**05200**
5,30	6	82	44	35	36	**053**		**053**		**05300**
5,40	6	82	44	35	36	**054**		**054**		**05400**

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→ v_c Page 112–122

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

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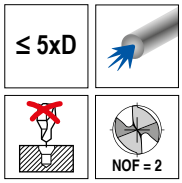
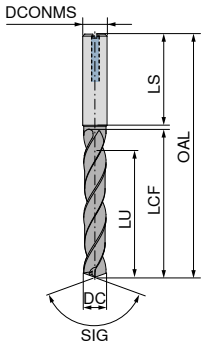
WTX – High Performance Drill, DIN 6537





Speed VA | VA | AL

Ti800 | Ti700 | DLC

DRAGONSKIN

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

10 773 ... | **10 745 ...** | **10 791 ...**

DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm					
5,50	6	82	44	35	36	055		055		05500
5,55	6	82	44	35	36	902				
5,60	6	82	44	35	36	056		056		05600
5,70	6	82	44	35	36	057		057		05700
5,75	6	82	44	35	36			916		
5,80	6	82	44	35	36	058		058		05800
5,90	6	82	44	35	36	059		059		05900
5,95	6	82	44	35	36			959		
6,00	6	82	44	35	36	060		060		06000
6,10	8	91	53	43	36	061		061		06100
6,20	8	91	53	43	36	062		062		06200
6,30	8	91	53	43	36	063		063		06300
6,40	8	91	53	43	36	064		064		06400
6,50	8	91	53	43	36	065		065		06500
6,60	8	91	53	43	36	066		066		06600
6,70	8	91	53	43	36	067		067		06700
6,80	8	91	53	43	36	068		068		06800
6,90	8	91	53	43	36	069		069		06900
7,00	8	91	53	43	36	070		070		07000
7,10	8	91	53	43	36	071		071		07100
7,20	8	91	53	43	36	072		072		07200
7,30	8	91	53	43	36	073		073		07300
7,40	8	91	53	43	36	074		074		07400
7,45	8	91	53	43	36			924		
7,50	8	91	53	43	36	075		075		07500
7,60	8	91	53	43	36	076		076		07600
7,70	8	91	53	43	36	077		077		07700
7,80	8	91	53	43	36	078		078		07800
7,90	8	91	53	43	36	079		079		07900
8,00	8	91	53	43	36	080		080		08000
8,10	10	103	61	49	40	081		081		08100
8,20	10	103	61	49	40	082		082		08200
8,30	10	103	61	49	40	083		083		08300
8,40	10	103	61	49	40	084		084		08400
8,50	10	103	61	49	40	085		085		08500
8,60	10	103	61	49	40	086		086		08600
8,70	10	103	61	49	40	087		087		08700

P	●	○	
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K	●	○	
N	○	○	●
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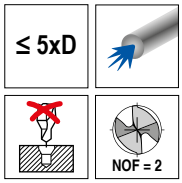
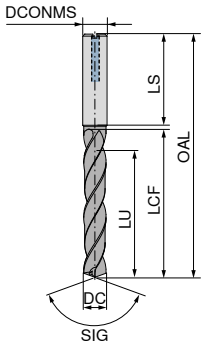
→ v_c Page 112–122

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

Continued on next page

WTX – High Performance Drill, DIN 6537





Speed VA | VA | AL

Ti800 | Ti700 | DLC

DRAGONSKIN

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

10 773 ... | **10 745 ...** | **10 791 ...**

DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm					
8,80	10	103	61	49	40		088		088	08800
8,90	10	103	61	49	40		089		089	08900
9,00	10	103	61	49	40		090		090	09000
9,10	10	103	61	49	40		091		091	09100
9,20	10	103	61	49	40		092		092	09200
9,30	10	103	61	49	40		093		093	09300
9,35	10	103	61	49	40				930	
9,40	10	103	61	49	40		094		094	09400
9,45	10	103	61	49	40				994	
9,50	10	103	61	49	40		095		095	09500
9,60	10	103	61	49	40		096		096	09600
9,70	10	103	61	49	40		097		097	09700
9,80	10	103	61	49	40		098		098	09800
9,90	10	103	61	49	40		099		099	09900
10,00	10	103	61	49	40		100		100	10000
10,10	12	118	71	56	45		101		101	10100
10,20	12	118	71	56	45		102		102	10200
10,30	12	118	71	56	45		103		103	10300
10,40	12	118	71	56	45		104		104	10400
10,50	12	118	71	56	45		105		105	10500
10,55	12	118	71	56	45				932	
10,60	12	118	71	56	45		106		106	10600
10,70	12	118	71	56	45		107		107	10700
10,80	12	118	71	56	45		108		108	10800
10,90	12	118	71	56	45		109		109	
11,00	12	118	71	56	45		110		110	11000
11,10	12	118	71	56	45		111		111	11100
11,20	12	118	71	56	45		112		112	11200
11,25	12	118	71	56	45				912	
11,30	12	118	71	56	45		113		113	11300
11,35	12	118	71	56	45				913	
11,40	12	118	71	56	45		114		114	11400
11,45	12	118	71	56	45				914	
11,50	12	118	71	56	45		115		115	11500
11,60	12	118	71	56	45		116		116	
11,70	12	118	71	56	45		117		117	11700
11,80	12	118	71	56	45		118		118	11800

P	●	○	
M	●	●	
K	●	○	
N	○	○	●
S	●	●	
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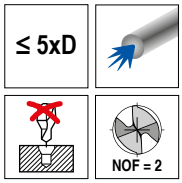
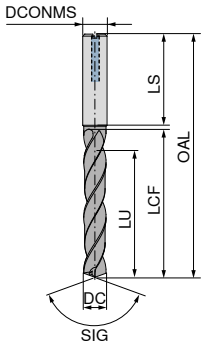
→ v_c Page 112–122

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

Continued on next page

WTX – High Performance Drill, DIN 6537





Speed VA | VA | AL

Ti800 | Ti700 | DLC

DRAGONSKIN

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

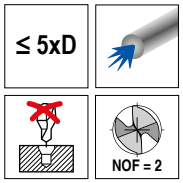
10 773 ... | **10 745 ...** | **10 791 ...**

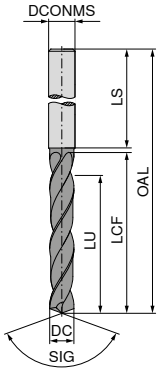
DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm					
11,90	12	118	71	56	45	**119**		**119**		
12,00	12	118	71	56	45	**120**		**120**		**12000**
12,15	14	124	77	60	45			**921**		
12,20	14	124	77	60	45	**12200**				**12200**
12,50	14	124	77	60	45	**125**		**125**		**12500**
12,55	14	124	77	60	45			**925**		
12,60	14	124	77	60	45					**12600**
12,80	14	124	77	60	45	**128**		**128**		**12800**
13,00	14	124	77	60	45	**130**		**130**		**13000**
13,35	14	124	77	60	45			**933**		
13,50	14	124	77	60	45	**135**		**135**		**13500**
13,80	14	124	77	60	45	**138**		**138**		**13800**
14,00	14	124	77	60	45	**140**		**140**		**14000**
14,20	16	133	83	63	48					**14200**
14,50	16	133	83	63	48	**145**		**145**		**14500**
14,80	16	133	83	63	48	**148**		**148**		**14800**
15,00	16	133	83	63	48	**150**		**150**		**15000**
15,20	16	133	83	63	48					**15200**
15,35	16	133	83	63	48			**953**		
15,50	16	133	83	63	48	**155**		**155**		**15500**
15,80	16	133	83	63	48	**158**		**158**		**15800**
16,00	16	133	83	63	48	**160**		**160**		**16000**
16,05	18	143	93	71	48			**960**		
16,50	18	143	93	71	48	**165**		**165**		**16500**
16,80	18	143	93	71	48	**168**		**168**		
17,00	18	143	93	71	48	**170**		**170**		**17000**
17,50	18	143	93	71	48	**175**		**175**		**17500**
17,80	18	143	93	71	48	**178**		**178**		
18,00	18	143	93	71	48	**180**		**180**		**18000**
18,50	20	153	101	77	50	**185**		**185**		**18500**
18,80	20	153	101	77	50	**188**		**188**		
19,00	20	153	101	77	50	**190**		**190**		**19000**
19,35	20	153	101	77	50			**993**		
19,50	20	153	101	77	50	**195**		**195**		**19500**
19,80	20	153	101	77	50	**198**		**198**		
20,00	20	153	101	77	50	**200**		**200**		**20000**
P						●		○		
M						●		●		
K						●		○		
N						○		○		●
S						●		●		
H										
O										

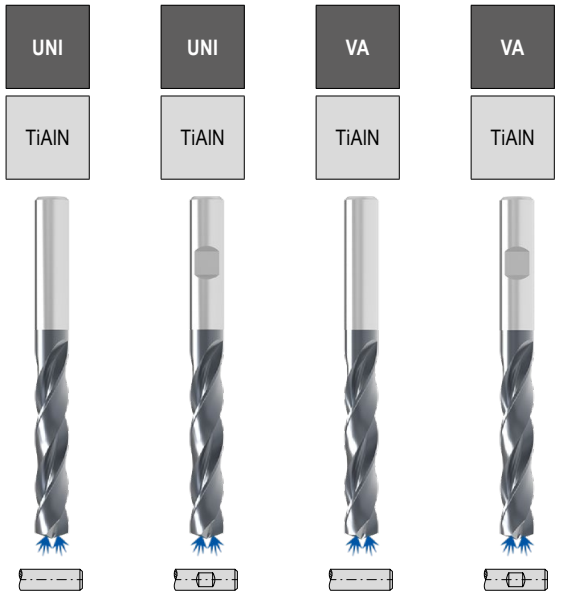
→ v_c Page 112–122

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

High Performance Drill, DIN 6537







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

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	11 702 ...	11 703 ...	11 715 ...	11 716 ...
1,00	4	55	8	6,5	28	01000		01000	
1,10	4	55	12	10,3	28	01100		01100	
1,20	4	55	12	10,2	28	01200		01200	
1,30	4	55	12	10,0	28	01300		01300	
1,40	4	55	12	9,9	28	01400		01400	
1,50	4	55	12	9,7	28	01500		01500	
1,60	4	55	16	13,6	28	01600		01600	
1,70	4	55	16	13,4	28	01700		01700	
1,80	4	55	16	13,3	28	01800		01800	
1,90	4	55	16	13,1	28	01900		01900	
2,00	4	57	21	18,0	28	02000		02000	
2,10	4	57	21	17,8	28	02100		02100	
2,20	4	57	21	17,7	28	02200		02200	
2,30	4	57	21	17,5	28	02300		02300	
2,40	4	57	21	17,4	28	02400		02400	
2,50	4	57	21	17,2	28	02500		02500	
2,60	4	57	21	17,1	28	02600		02600	
2,70	4	57	21	16,9	28	02700		02700	
2,80	4	57	21	16,8	28	02800		02800	
2,90	4	57	21	16,6	28	02900		02900	
3,00	6	66	28	23,5	36	03000	03000	03000	03000
3,10	6	66	28	23,3	36	03100	03100	03100	03100
3,20	6	66	28	23,2	36	03200	03200	03200	03200
3,25	6	66	28	23,1	36	03250	03250		
3,30	6	66	28	23,0	36	03300	03300	03300	03300
3,40	6	66	28	22,9	36	03400	03400	03400	03400
3,50	6	66	28	22,7	36	03500	03500	03500	03500
3,60	6	66	28	22,6	36	03600	03600	03600	03600
3,70	6	66	28	22,4	36	03700	03700	03700	03700
3,80	6	74	36	30,3	36	03800	03800	03800	03800
3,85	6	74	36	30,2	36	03850	03850		
3,90	6	74	36	30,1	36	03900	03900	03900	03900
4,00	6	74	36	30,0	36	04000	04000	04000	04000
4,10	6	74	36	29,8	36	04100	04100	04100	04100
4,20	6	74	36	29,7	36	04200	04200	04200	04200
4,30	6	74	36	29,5	36	04300	04300	04300	04300
4,40	6	74	36	29,4	36	04400	04400	04400	04400
4,50	6	74	36	29,2	36	04500	04500	04500	04500
4,60	6	74	36	29,1	36	04600	04600	04600	04600
4,65	6	74	36	29,0	36	04650	04650		
4,70	6	74	36	28,9	36	04700	04700	04700	04700
4,80	6	82	44	36,8	36	04800	04800	04800	04800
4,90	6	82	44	36,6	36	04900	04900	04900	04900
5,00	6	82	44	36,5	36	05000	05000	05000	05000
5,10	6	82	44	36,3	36	05100	05100	05100	05100

P	●	●	○	○
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N	○	○	●	●
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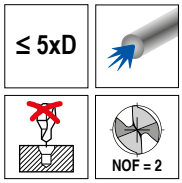
H				
O			○	○

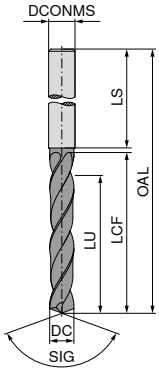
→ v_c Page 129+133

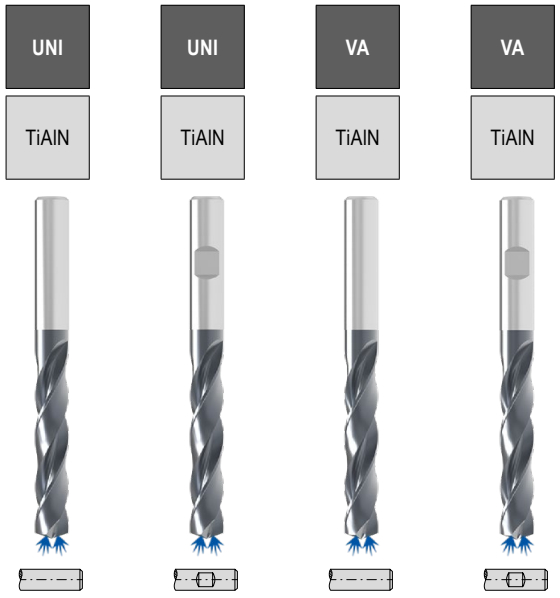
Ø DC_{h7} for Type UNI / Ø DC_{m7} for Type VA

Continued on next page

High Performance Drill, DIN 6537







SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	11 702 ...	11 703 ...	11 715 ...	11 716 ...
5,20	6	82	44	36,2	36	05200	05200	05200	05200
5,30	6	82	44	36,0	36	05300	05300	05300	05300
5,40	6	82	44	35,9	36	05400	05400	05400	05400
5,50	6	82	44	35,7	36	05500	05500	05500	05500
5,55	6	82	44	35,6	36	05550	05550		
5,60	6	82	44	35,6	36	05600	05600	05600	05600
5,65	6	82	44	35,5	36	05650	05650		
5,70	6	82	44	35,4	36	05700	05700	05700	05700
5,80	6	82	44	35,3	36	05800	05800	05800	05800
5,90	6	82	44	35,1	36	05900	05900	05900	05900
6,00	6	82	44	35,0	36	06000	06000	06000	06000
6,10	8	91	53	43,8	36	06100	06100	06100	06100
6,20	8	91	53	43,7	36	06200	06200	06200	06200
6,30	8	91	53	43,5	36	06300	06300	06300	06300
6,40	8	91	53	43,4	36	06400	06400	06400	06400
6,50	8	91	53	43,2	36	06500	06500	06500	06500
6,60	8	91	53	43,1	36	06600	06600	06600	06600
6,70	8	91	53	42,9	36	06700	06700	06700	06700
6,80	8	91	53	42,8	36	06800	06800	06800	06800
6,90	8	91	53	42,6	36	06900	06900	06900	06900
7,00	8	91	53	42,5	36	07000	07000	07000	07000
7,10	8	91	53	42,3	36	07100	07100	07100	07100
7,20	8	91	53	42,2	36	07200	07200	07200	07200
7,30	8	91	53	42,0	36	07300	07300	07300	07300
7,40	8	91	53	41,9	36	07400	07400	07400	07400
7,45	8	91	53	41,8	36			07450	07450
7,50	8	91	53	41,7	36	07500	07500	07500	07500
7,55	8	91	53	41,6	36	07550	07550	07550	07550
7,60	8	91	53	41,6	36	07600	07600	07600	07600
7,65	8	91	53	41,5	36	07650	07650		
7,70	8	91	53	41,4	36	07700	07700	07700	07700
7,80	8	91	53	41,3	36	07800	07800	07800	07800
7,90	8	91	53	41,1	36	07900	07900	07900	07900
8,00	8	91	53	41,0	36	08000	08000	08000	08000
8,10	10	103	61	48,8	40	08100	08100	08100	08100
8,20	10	103	61	48,7	40	08200	08200	08200	08200
8,30	10	103	61	48,5	40	08300	08300	08300	08300
8,40	10	103	61	48,4	40	08400	08400	08400	08400
8,50	10	103	61	48,2	40	08500	08500	08500	08500
8,60	10	103	61	48,1	40	08600	08600	08600	08600
8,70	10	103	61	47,9	40	08700	08700	08700	08700
8,80	10	103	61	47,8	40	08800	08800	08800	08800
8,90	10	103	61	47,6	40	08900	08900	08900	08900
9,00	10	103	61	47,5	40	09000	09000	09000	09000
9,10	10	103	61	47,3	40	09100	09100	09100	09100
P						●	●	○	○
M						●	●	●	●
K						●	●		
N						○	○	●	●
S								○	○
H									
O								○	○

→ v_c Page 129+133

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

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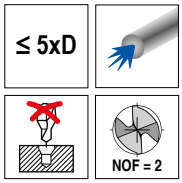
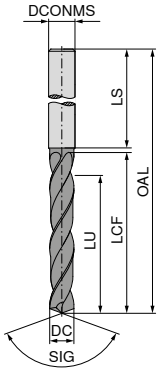
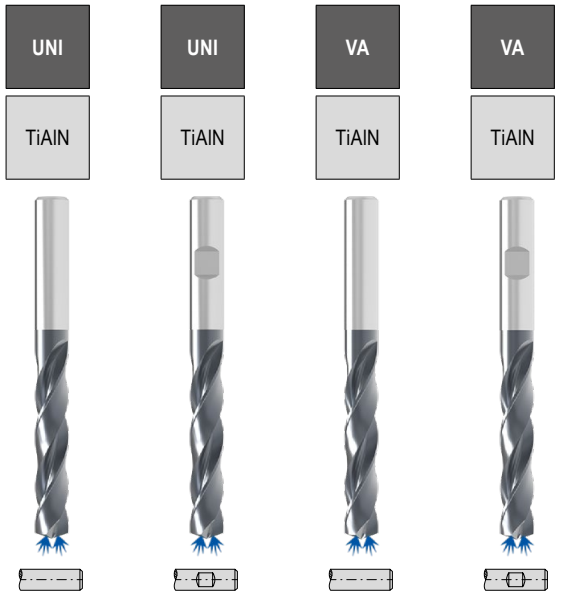
High Performance Drill, DIN 6537







SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

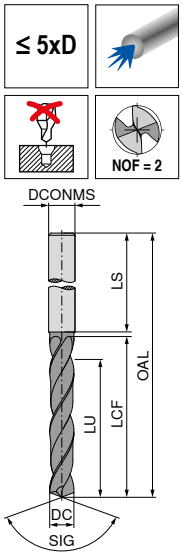
DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	11 702 ...	11 703 ...	11 715 ...	11 716 ...
9,20	10	103	61	47,2	40	09200	09200	09200	09200
9,30	10	103	61	47,0	40	09300	09300	09300	09300
9,40	10	103	61	46,9	40	09400	09400	09400	09400
9,50	10	103	61	46,7	40	09500	09500	09500	09500
9,55	10	103	61	46,6	40	09550	09550		
9,60	10	103	61	46,6	40	09600	09600	09600	09600
9,70	10	103	61	46,4	40	09700	09700	09700	09700
9,80	10	103	61	46,3	40	09800	09800	09800	09800
9,90	10	103	61	46,1	40	09900	09900	09900	09900
10,00	10	103	61	46,0	40	10000	10000	10000	10000
10,10	12	118	71	55,8	45	10100	10100	10100	10100
10,20	12	118	71	55,7	45	10200	10200	10200	10200
10,30	12	118	71	55,5	45	10300	10300	10300	10300
10,40	12	118	71	55,4	45	10400	10400	10400	10400
10,50	12	118	71	55,2	45	10500	10500	10500	10500
10,60	12	118	71	55,1	45	10600	10600	10600	10600
10,70	12	118	71	54,9	45	10700	10700	10700	10700
10,80	12	118	71	54,8	45	10800	10800	10800	10800
10,90	12	118	71	54,6	45	10900	10900	10900	10900
11,00	12	118	71	54,5	45	11000	11000	11000	11000
11,10	12	118	71	54,3	45	11100	11100	11100	11100
11,20	12	118	71	54,2	45	11200	11200	11200	11200
11,30	12	118	71	54,0	45	11300	11300	11300	11300
11,40	12	118	71	53,9	45	11400	11400	11400	11400
11,50	12	118	71	53,7	45	11500	11500	11500	11500
11,60	12	118	71	53,6	45	11600	11600	11600	11600
11,70	12	118	71	53,4	45	11700	11700	11700	11700
11,80	12	118	71	53,3	45	11800	11800	11800	11800
11,90	12	118	71	53,1	45	11900	11900	11900	11900
12,00	12	118	71	53,0	45	12000	12000	12000	12000
12,10	14	124	77	58,8	45	12100	12100	12100	12100
12,20	14	124	77	58,7	45	12200	12200	12200	12200
12,40	14	124	77	58,4	45	12400	12400	12400	12400
12,50	14	124	77	58,2	45	12500	12500	12500	12500
12,60	14	124	77	58,1	45	12600	12600	12600	12600
12,70	14	124	77	57,9	45	12700	12700	12700	12700
12,80	14	124	77	57,8	45	12800	12800	12800	12800
13,00	14	124	77	57,5	45	13000	13000	13000	13000
13,10	14	124	77	57,3	45	13100	13100	13100	13100
13,20	14	124	77	57,2	45	13200	13200	13200	13200
13,30	14	124	77	57,0	45	13300	13300	13300	13300
13,50	14	124	77	56,7	45	13500	13500	13500	13500
13,70	14	124	77	56,4	45			13700	13700
13,80	14	124	77	56,3	45	13800	13800	13800	13800
14,00	14	124	77	56,0	45	14000	14000	14000	14000
P						●	●	○	○
M						●	●	●	●
K						●	●		
N						○	○	●	●
S								○	○
H									
O								○	○

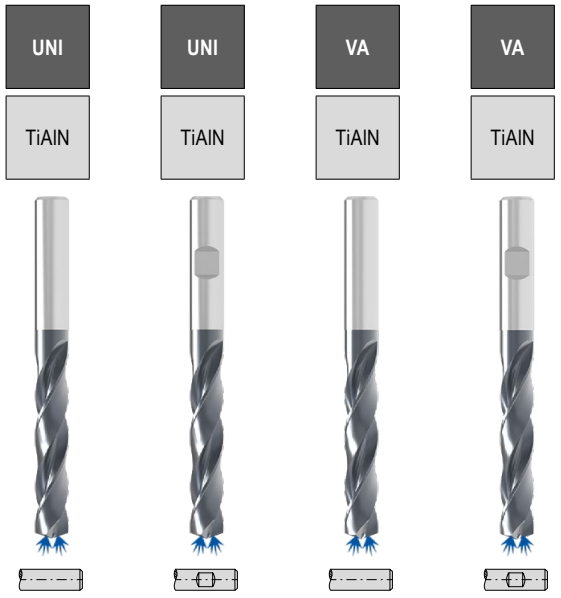
→ v_c Page 129+133

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

Continued on next page

High Performance Drill, DIN 6537





SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

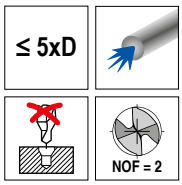
DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	11 702 ...	11 703 ...	11 715 ...	11 716 ...
14,20	16	133	83	61,7	48	14200	14200	14200	14200
14,30	16	133	83	61,5	48	14300	14300	14300	14300
14,40	16	133	83	61,4	48	14400	14400	14400	14400
14,50	16	133	83	61,2	48	14500	14500	14500	14500
14,70	16	133	83	60,9	48			14700	14700
14,80	16	133	83	60,8	48	14800	14800	14800	14800
15,00	16	133	83	60,5	48	15000	15000	15000	15000
15,10	16	133	83	60,3	48	15100	15100	15100	15100
15,20	16	133	83	60,2	48	15200	15200	15200	15200
15,25	16	133	83	60,1	48	15250	15250		
15,30	16	133	83	60,0	48	15300	15300	15300	15300
15,50	16	133	83	59,7	48	15500	15500	15500	15500
15,70	16	133	83	59,4	48			15700	15700
15,80	16	133	83	59,3	48	15800	15800	15800	15800
16,00	16	133	83	59,0	48	16000	16000	16000	16000
16,20	18	143	93	68,7	48	16200	16200	16200	16200
16,30	18	143	93	68,5	48	16300	16300	16300	16300
16,50	18	143	93	68,2	48	16500	16500	16500	16500
16,80	18	143	93	67,8	48	16800	16800	16800	16800
17,00	18	143	93	67,5	48	17000	17000	17000	17000
17,30	18	143	93	67,0	48	17300	17300	17300	17300
17,50	18	143	93	66,7	48	17500	17500	17500	17500
18,00	18	143	93	66,0	48	18000	18000	18000	18000
18,50	20	153	101	73,2	50	18500	18500	18500	18500
18,90	20	153	101	72,6	50	18900	18900	18900	18900
19,00	20	153	101	72,5	50	19000	19000	19000	19000
19,20	20	153	101	72,2	50	19200	19200	19200	19200
19,30	20	153	101	72,0	50	19300	19300	19300	19300
19,50	20	153	101	71,7	50	19500	19500	19500	19500
19,70	20	153	101	71,4	50	19700	19700	19700	19700
20,00	20	153	101	71,0	50	20000	20000	20000	20000
P						●	●	○	○
M						●	●	●	●
K						●	●		
N						○	○	●	●
S								○	○
H									
O								○	○

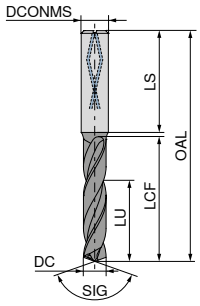
→ v_c Page 129+133

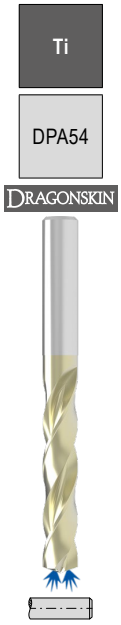
Ø DC_{h7} for Type UNI / **Ø DC_{m7}** for Type VA

WTX – High-performance drill, DIN 6537

▲ Specialist for difficult to machine materials







SIG 140°

Solid carbide

10 787 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
3,00	6	66	28	23	36	030
3,10	6	66	28	23	36	031
3,20	6	66	28	23	36	032
3,30	6	66	28	23	36	033
3,40	6	66	28	23	36	034
3,50	6	66	28	23	36	035
3,60	6	66	28	23	36	036
3,70	6	66	28	23	36	037
3,80	6	74	36	29	36	038
3,90	6	74	36	29	36	039
3,97	6	74	36	29	36	900
4,00	6	74	36	29	36	040
4,10	6	74	36	29	36	041
4,20	6	74	36	29	36	042
4,23	6	74	36	29	36	901
4,30	6	74	36	29	36	043
4,40	6	74	36	29	36	044
4,50	6	74	36	29	36	045
4,60	6	74	36	29	36	046
4,70	6	74	36	29	36	047
4,80	6	82	44	35	36	048
4,90	6	82	44	35	36	049
5,00	6	82	44	35	36	050
5,10	6	82	44	35	36	051
5,20	6	82	44	35	36	052
5,30	6	82	44	35	36	053
5,40	6	82	44	35	36	054
5,50	6	82	44	35	36	055
5,56	6	82	44	35	36	902
5,60	6	82	44	35	36	056
5,70	6	82	44	35	36	057
5,80	6	82	44	35	36	058
5,90	6	82	44	35	36	059
6,00	6	82	44	35	36	060
6,10	8	91	53	43	36	061
6,20	8	91	53	43	36	062
6,30	8	91	53	43	36	063
6,35	8	91	53	43	36	903
6,40	8	91	53	43	36	064
6,50	8	91	53	43	36	065
6,60	8	91	53	43	36	066
6,70	8	91	53	43	36	067
6,80	8	91	53	43	36	068
6,90	8	91	53	43	36	069
7,00	8	91	53	43	36	070
7,10	8	91	53	43	36	071
7,20	8	91	53	43	36	072
7,30	8	91	53	43	36	073
7,40	8	91	53	43	36	074
7,50	8	91	53	43	36	075
7,60	8	91	53	43	36	076

10 787 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
7,70	8	91	53	43	36	077
7,80	8	91	53	43	36	078
7,90	8	91	53	43	36	079
7,94	8	91	53	43	36	904
8,00	8	91	53	43	36	080
8,10	10	103	61	49	40	081
8,20	10	103	61	49	40	082
8,30	10	103	61	49	40	083
8,40	10	103	61	49	40	084
8,50	10	103	61	49	40	085
8,60	10	103	61	49	40	086
8,70	10	103	61	49	40	087
8,80	10	103	61	49	40	088
8,90	10	103	61	49	40	089
9,00	10	103	61	49	40	090
9,10	10	103	61	49	40	091
9,20	10	103	61	49	40	092
9,30	10	103	61	49	40	093
9,40	10	103	61	49	40	094
9,50	10	103	61	49	40	095
9,53	10	103	61	49	40	905
9,60	10	103	61	49	40	096
9,70	10	103	61	49	40	097
9,80	10	103	61	49	40	098
9,90	10	103	61	49	40	099
10,00	10	103	61	49	40	100
10,10	12	118	71	54	45	101
10,20	12	118	71	54	45	102
10,30	12	118	71	54	45	103
10,40	12	118	71	54	45	104
10,50	12	118	71	54	45	105
10,60	12	118	71	54	45	106
10,70	12	118	71	54	45	107
10,80	12	118	71	54	45	108
10,90	12	118	71	54	45	109
11,00	12	118	71	54	45	110
11,10	12	118	71	54	45	111
11,11	12	118	71	54	45	906
11,20	12	118	71	54	45	112
11,30	12	118	71	54	45	113
11,40	12	118	71	54	45	114
11,50	12	118	71	54	45	115
11,60	12	118	71	54	45	116
11,70	12	118	71	54	45	117
11,80	12	118	71	54	45	118
11,90	12	118	71	54	45	119
12,00	12	118	71	54	45	120
12,10	14	124	77	58	45	121
12,20	14	124	77	58	45	122
12,30	14	124	77	58	45	123
12,40	14	124	77	58	45	124
12,50	14	124	77	58	45	125
12,60	14	124	77	58	45	126
12,70	14	124	77	58	45	907
12,80	14	124	77	58	45	128
12,90	14	124	77	58	45	129
13,00	14	124	77	58	45	130
13,10	14	124	77	58	45	131
13,20	14	124	77	58	45	132
13,30	14	124	77	58	45	133
13,40	14	124	77	58	45	134
13,50	14	124	77	58	45	135
13,60	14	124	77	58	45	136
13,70	14	124	77	58	45	137
13,80	14	124	77	58	45	138
13,90	14	124	77	58	45	139

P	○
M	●
K	
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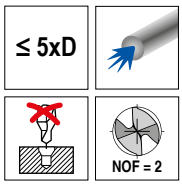
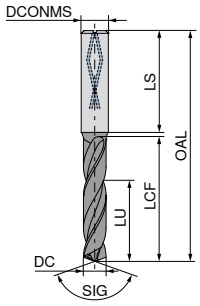
→ v_c Page 109

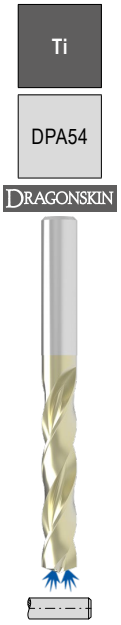
Continued on next page

WTX – High-performance drill, DIN 6537

▲ Specialist for difficult to machine materials







SIG 140°

Solid carbide

10 787 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
14,0	14	124	77	58	45	140
14,1	16	133	83	61	48	141
14,2	16	133	83	61	48	142
14,3	16	133	83	61	48	143
14,4	16	133	83	61	48	144
14,5	16	133	83	61	48	145
14,6	16	133	83	61	48	146
14,7	16	133	83	61	48	147
14,8	16	133	83	61	48	148
14,9	16	133	83	61	48	149
15,0	16	133	83	61	48	150
15,1	16	133	83	61	48	151
15,2	16	133	83	61	48	152
15,3	16	133	83	61	48	153
15,4	16	133	83	61	48	154
15,5	16	133	83	61	48	155
15,6	16	133	83	61	48	156
15,7	16	133	83	61	48	157
15,8	16	133	83	61	48	158
15,9	16	133	83	61	48	159
16,0	16	133	83	61	48	160
16,1	18	143	93	69	48	161
16,2	18	143	93	69	48	162
16,3	18	143	93	69	48	163
16,4	18	143	93	69	48	164
16,5	18	143	93	69	48	165
16,6	18	143	93	69	48	166
16,7	18	143	93	69	48	167
16,8	18	143	93	69	48	168
16,9	18	143	93	69	48	169
17,0	18	143	93	69	48	170
17,1	18	143	93	69	48	171
17,2	18	143	93	69	48	172
17,3	18	143	93	69	48	173
17,4	18	143	93	69	48	174
17,5	18	143	93	69	48	175
17,6	18	143	93	69	48	176
17,7	18	143	93	69	48	177
17,8	18	143	93	69	48	178
17,9	18	143	93	69	48	179
18,0	18	143	93	69	48	180
18,1	20	153	101	75	50	181
18,2	20	153	101	75	50	182
18,3	20	153	101	75	50	183
18,4	20	153	101	75	50	184
18,5	20	153	101	75	50	185
18,6	20	153	101	75	50	186
18,7	20	153	101	75	50	187
18,8	20	153	101	75	50	188
18,9	20	153	101	75	50	189
19,0	20	153	101	75	50	190

10 787 ...

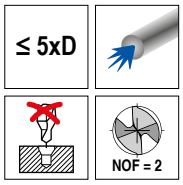
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
19,1	20	153	101	75	50	191
19,2	20	153	101	75	50	192
19,3	20	153	101	75	50	193
19,4	20	153	101	75	50	194
19,5	20	153	101	75	50	195
19,6	20	153	101	75	50	196
19,7	20	153	101	75	50	197
19,8	20	153	101	75	50	198
19,9	20	153	101	75	50	199
20,0	20	153	101	75	50	200

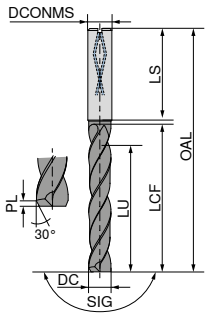
P	○
M	●
K	
N	
S	●
H	
O	

→ v_c Page 109

WTX – High Performance Drill, DIN 6537

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





180
Ti800

SIG 180°
Solid carbide

10 721 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	PL mm	
3,00	6	66	28	23	36	0,15	030
3,10	6	66	28	23	36	0,16	031
3,20	6	66	28	23	36	0,16	032
3,30	6	66	28	23	36	0,17	033
3,40	6	66	28	23	36	0,17	034
3,50	6	66	28	23	36	0,18	035
3,60	6	66	28	23	36	0,18	036
3,70	6	66	28	23	36	0,19	037
3,80	6	74	36	29	36	0,19	038
3,90	6	74	36	29	36	0,20	039
4,00	6	74	36	29	36	0,20	040
4,10	6	74	36	29	36	0,21	041
4,20	6	74	36	29	36	0,21	042
4,30	6	74	36	29	36	0,22	043
4,40	6	74	36	29	36	0,22	044
4,50	6	74	36	29	36	0,23	045
4,60	6	74	36	29	36	0,23	046
4,65	6	74	36	29	36	0,23	900
4,70	6	74	36	29	36	0,24	047
4,80	6	82	44	35	36	0,24	048
4,90	6	82	44	35	36	0,25	049
5,00	6	82	44	35	36	0,25	050
5,10	6	82	44	35	36	0,26	051
5,20	6	82	44	35	36	0,26	052
5,30	6	82	44	35	36	0,27	053
5,40	6	82	44	35	36	0,27	054
5,50	6	82	44	35	36	0,28	055
5,55	6	82	44	35	36	0,28	902
5,60	6	82	44	35	36	0,28	056
5,70	6	82	44	35	36	0,29	057
5,80	6	82	44	35	36	0,29	058
5,90	6	82	44	35	36	0,30	059
6,00	6	82	44	35	36	0,30	060
6,10	8	91	53	43	36	0,31	061
6,20	8	91	53	43	36	0,31	062
6,30	8	91	53	43	36	0,32	063
6,40	8	91	53	43	36	0,32	064
6,50	8	91	53	43	36	0,33	065
6,60	8	91	53	43	36	0,33	066
6,70	8	91	53	43	36	0,34	067
6,80	8	91	53	43	36	0,34	068
6,90	8	91	53	43	36	0,35	069
7,00	8	91	53	43	36	0,35	070
7,10	8	91	53	43	36	0,36	071
7,20	8	91	53	43	36	0,36	072
7,30	8	91	53	43	36	0,37	073
7,40	8	91	53	43	36	0,37	074
7,50	8	91	53	43	36	0,38	075
7,60	8	91	53	43	36	0,38	076
7,70	8	91	53	43	36	0,39	077
7,80	8	91	53	43	36	0,39	078
7,90	8	91	53	43	36	0,40	079
8,00	8	91	53	43	36	0,40	080
8,10	10	103	61	49	40	0,41	081

10 721 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	PL mm	
8,20	10	103	61	49	40	0,41	082
8,30	10	103	61	49	40	0,42	083
8,40	10	103	61	49	40	0,42	084
8,50	10	103	61	49	40	0,43	085
8,60	10	103	61	49	40	0,43	086
8,70	10	103	61	49	40	0,44	087
8,80	10	103	61	49	40	0,44	088
8,90	10	103	61	49	40	0,45	089
9,00	10	103	61	49	40	0,45	090
9,10	10	103	61	49	40	0,46	091
9,20	10	103	61	49	40	0,46	092
9,30	10	103	61	49	40	0,47	093
9,40	10	103	61	49	40	0,47	094
9,50	10	103	61	49	40	0,48	095
9,60	10	103	61	49	40	0,48	096
9,70	10	103	61	49	40	0,49	097
9,80	10	103	61	49	40	0,49	098
9,90	10	103	61	49	40	0,50	099
10,00	10	103	61	49	40	0,50	100
10,10	12	116	69	54	45	0,51	101
10,20	12	116	69	54	45	0,51	102
10,30	12	116	69	54	45	0,52	103
10,40	12	116	69	54	45	0,52	104
10,50	12	116	69	54	45	0,53	105
10,60	12	116	69	54	45	0,53	106
10,70	12	116	69	54	45	0,54	107
10,80	12	116	69	54	45	0,54	108
10,90	12	116	69	54	45	0,55	109
11,00	12	116	69	54	45	0,55	110
11,10	12	116	69	54	45	0,56	111
11,20	12	116	69	54	45	0,56	112
11,30	12	116	69	54	45	0,57	113
11,40	12	116	69	54	45	0,57	114
11,50	12	116	69	54	45	0,58	115
11,60	12	116	69	54	45	0,58	116
11,70	12	116	69	54	45	0,59	117
11,80	12	116	69	54	45	0,59	118
11,90	12	116	69	54	45	0,60	119
12,00	12	116	69	54	45	0,60	120
12,50	14	122	75	58	45	0,63	125
12,80	14	122	75	58	45	0,64	128
13,00	14	122	75	58	45	0,65	130
13,50	14	122	75	58	45	0,68	135
13,80	14	122	75	58	45	0,69	138
14,00	14	122	75	58	45	0,70	140
14,50	16	131	81	61	48	0,73	145
14,80	16	131	81	61	48	0,74	148
15,00	16	131	81	61	48	0,75	150
15,50	16	131	81	61	48	0,78	155
15,80	16	131	81	61	48	0,79	158
16,00	16	131	81	61	48	0,80	160
16,50	18	141	91	69	48	0,83	165
16,80	18	141	91	69	48	0,84	168
17,00	18	141	91	69	48	0,85	170
17,50	18	141	91	69	48	0,88	175
17,80	18	141	91	69	48	0,89	178
18,00	18	141	91	69	48	0,90	180
18,50	20	151	99	75	50	0,93	185
18,80	20	151	99	75	50	0,94	188
19,00	20	151	99	75	50	0,95	190
19,50	20	151	99	75	50	0,98	195
19,80	20	151	99	75	50	0,99	198
20,00	20	151	99	75	50	1,00	200

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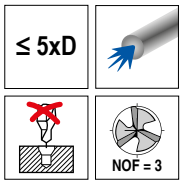
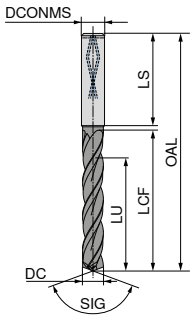
→ Machining information: Page 127

WTX – High Feed Drill, factory standard

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





Feed UNI

DPX74S

DRAGONSKIN

SIG 140°

Solid carbide

10 789 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
4,00	6	74	36	29	36	04000
4,10	6	74	36	29	36	04100
4,20	6	74	36	29	36	04200
4,30	6	74	36	29	36	04300
4,40	6	74	36	29	36	04400
4,50	6	74	36	29	36	04500
4,60	6	74	36	29	36	04600
4,70	6	74	36	29	36	04700
4,80	6	82	44	35	36	04800
4,90	6	82	44	35	36	04900
5,00	6	82	44	35	36	05000
5,10	6	82	44	35	36	05100
5,20	6	82	44	35	36	05200
5,30	6	82	44	35	36	05300
5,40	6	82	44	35	36	05400
5,50	6	82	44	35	36	05500
5,55	6	82	44	35	36	05550
5,60	6	82	44	35	36	05600
5,70	6	82	44	35	36	05700
5,80	6	82	44	35	36	05800
5,90	6	82	44	35	36	05900
6,00	6	82	44	35	36	06000
6,10	8	91	53	43	36	06100
6,20	8	91	53	43	36	06200
6,30	8	91	53	43	36	06300
6,40	8	91	53	43	36	06400
6,50	8	91	53	43	36	06500
6,60	8	91	53	43	36	06600
6,70	8	91	53	43	36	06700
6,80	8	91	53	43	36	06800
6,90	8	91	53	43	36	06900
7,00	8	91	53	43	36	07000
7,10	8	91	53	43	36	07100
7,20	8	91	53	43	36	07200
7,30	8	91	53	43	36	07300
7,40	8	91	53	43	36	07400
7,50	8	91	53	43	36	07500
7,60	8	91	53	43	36	07600
7,70	8	91	53	43	36	07700
7,80	8	91	53	43	36	07800
7,90	8	91	53	43	36	07900
8,00	8	91	53	43	36	08000
8,10	10	103	61	49	40	08100
8,20	10	103	61	49	40	08200
8,30	10	103	61	49	40	08300
8,40	10	103	61	49	40	08400
8,50	10	103	61	49	40	08500
8,60	10	103	61	49	40	08600
8,70	10	103	61	49	40	08700
8,80	10	103	61	49	40	08800
8,90	10	103	61	49	40	08900
9,00	10	103	61	49	40	09000

10 789 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
9,10	10	103	61	49	40	09100
9,20	10	103	61	49	40	09200
9,30	10	103	61	49	40	09300
9,40	10	103	61	49	40	09400
9,50	10	103	61	49	40	09500
9,60	10	103	61	49	40	09600
9,70	10	103	61	49	40	09700
9,80	10	103	61	49	40	09800
9,90	10	103	61	49	40	09900
10,00	10	103	61	49	40	10000
10,10	12	118	71	56	45	10100
10,20	12	118	71	56	45	10200
10,30	12	118	71	56	45	10300
10,40	12	118	71	56	45	10400
10,50	12	118	71	56	45	10500
10,60	12	118	71	56	45	10600
10,70	12	118	71	56	45	10700
10,80	12	118	71	56	45	10800
10,90	12	118	71	56	45	10900
11,00	12	118	71	56	45	11000
11,10	12	118	71	56	45	11100
11,20	12	118	71	56	45	11200
11,30	12	118	71	56	45	11300
11,40	12	118	71	56	45	11400
11,50	12	118	71	56	45	11500
11,60	12	118	71	56	45	11600
11,70	12	118	71	56	45	11700
11,80	12	118	71	56	45	11800
11,90	12	118	71	56	45	11900
12,00	12	118	71	56	45	12000
12,20	14	124	77	60	45	12200
12,50	14	124	77	60	45	12500
12,80	14	124	77	60	45	12800
13,00	14	124	77	60	45	13000
13,50	14	124	77	60	45	13500
13,80	14	124	77	60	45	13800
14,00	14	124	77	60	45	14000
14,50	16	133	83	63	48	14500
14,80	16	133	83	63	48	14800
15,00	16	133	83	63	48	15000
15,50	16	133	83	63	48	15500
15,80	16	133	83	63	48	15800
16,00	16	133	83	63	48	16000
16,50	18	143	93	71	48	16500
16,80	18	143	93	71	48	16800
17,00	18	143	93	71	48	17000
17,50	18	143	93	71	48	17500
17,80	18	143	93	71	48	17800
18,00	18	143	93	71	48	18000
18,50	20	153	101	77	50	18500
18,80	20	153	101	77	50	18800
19,00	20	153	101	77	50	19000
19,50	20	153	101	77	50	19500
19,80	20	153	101	77	50	19800
20,00	20	153	101	77	50	20000

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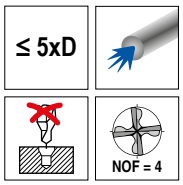
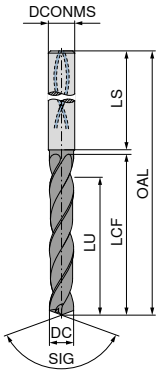
WTX – High Speed Drill, DIN 6537

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





HFDS

DPX14S

DRAGONSKIN

SIG 130°

Solid carbide

10 798 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
6,0	8	89	51	40	36	**06000**
6,1	10	102	59	47	40	**06100**
6,2	10	102	59	47	40	**06200**
6,3	10	102	59	47	40	**06300**
6,4	10	102	59	47	40	**06400**
6,5	10	102	59	47	40	**06500**
6,6	10	102	59	47	40	**06600**
6,7	10	102	59	47	40	**06700**
6,8	10	102	59	47	40	**06800**
6,9	10	102	59	47	40	**06900**
7,0	10	102	59	47	40	**07000**
7,1	10	102	59	47	40	**07100**
7,2	10	102	59	47	40	**07200**
7,3	10	102	59	47	40	**07300**
7,4	10	102	59	47	40	**07400**
7,5	10	102	59	47	40	**07500**
7,6	10	102	59	47	40	**07600**
7,7	10	102	59	47	40	**07700**
7,8	10	102	59	47	40	**07800**
7,9	10	102	59	47	40	**07900**
8,0	10	102	59	47	40	**08000**
8,1	12	118	70	55	45	**08100**
8,2	12	118	70	55	45	**08200**
8,3	12	118	70	55	45	**08300**
8,4	12	118	70	55	45	**08400**
8,5	12	118	70	55	45	**08500**
8,6	12	118	70	55	45	**08600**
8,7	12	118	70	55	45	**08700**
8,8	12	118	70	55	45	**08800**
8,9	12	118	70	55	45	**08900**
9,0	12	118	70	55	45	**09000**
9,1	12	118	70	55	45	**09100**
9,2	12	118	70	55	45	**09200**
9,3	12	118	70	55	45	**09300**
9,4	12	118	70	55	45	**09400**
9,5	12	118	70	55	45	**09500**
9,6	12	118	70	55	45	**09600**
9,7	12	118	70	55	45	**09700**
9,8	12	118	70	55	45	**09800**
9,9	12	118	70	55	45	**09900**
10,0	12	118	70	55	45	**10000**
10,2	14	124	76	60	45	**10200**
10,5	14	124	76	60	45	**10500**
11,0	14	124	76	60	45	**11000**
11,5	14	124	76	60	45	**11500**
12,0	14	124	76	60	45	**12000**
12,5	16	142	91	73	48	**12500**
13,0	16	142	91	73	48	**13000**

10 798 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
14,0	16	142	91	73	48	**14000**
14,3	16	142	91	73	48	**14300**
14,5	16	142	91	73	48	**14500**
15,0	18	142	91	73	48	**15000**
16,0	18	142	91	73	48	**16000**

P	●
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K	●
N	○
S	
H	
O	○

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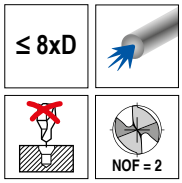
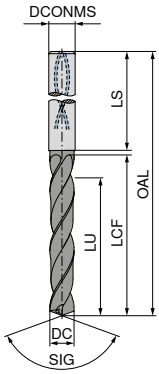
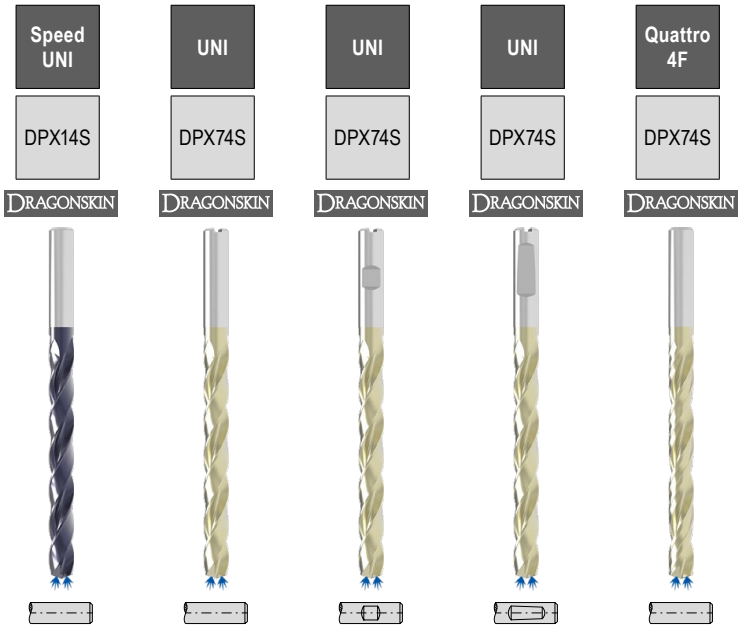
WTX – High Performance Drill, factory standard







	SIG 145° Solid carbide	SIG 135° Solid carbide	SIG 135° Solid carbide	SIG 135° Solid carbide	SIG 140° Solid carbide
	10 782 ...	**11 789 ...**	**11 790 ...**	**11 788 ...**	**10 736 ...**
DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm										
3,00	6	72	34	29	36	03000	030	030	030	03000
3,10	6	72	34	29	36	03100	031	031	031	03100
3,20	6	72	34	29	36	03200	032	032	032	03200
3,30	6	72	34	29	36	03300	033	033	033	03300
3,40	6	72	34	29	36	03400	034	034	034	03400
3,50	6	72	34	29	36	03500	035	035	035	03500
3,60	6	72	34	29	36	03600	036	036	036	03600
3,70	6	72	34	29	36	03700	037	037	037	03700
3,80	6	81	43	36	36	03800	038	038	038	03800
3,90	6	81	43	36	36	03900	039	039	039	03900
4,00	6	81	43	36	36	04000	040	040	040	04000
4,10	6	81	43	36	36	04100	041	041	041	04100
4,20	6	81	43	36	36	04200	042	042	042	04200
4,30	6	81	43	36	36	04300	043	043	043	04300
4,40	6	81	43	36	36	04400	044	044	044	04400
4,50	6	81	43	36	36	04500	045	045	045	04500
4,60	6	81	43	36	36	04600	046	046	046	04600
4,65	6	81	43	36	36	04650				
4,70	6	81	43	36	36	04700	047	047	047	04700
4,80	6	95	57	48	36	04800	048	048	048	04800
4,90	6	95	57	48	36	04900	049	049	049	04900
5,00	6	95	57	48	36	05000	050	050	050	05000
5,10	6	95	57	48	36	05100	051	051	051	05100
5,20	6	95	57	48	36	05200	052	052	052	05200
5,30	6	95	57	48	36	05300	053	053	053	05300
5,40	6	95	57	48	36	05400	054	054	054	05400
5,50	6	95	57	48	36	05500	055	055	055	05500
5,55	6	95	57	48	36	05550				
5,60	6	95	57	48	36	05600	056	056	056	05600
5,70	6	95	57	48	36	05700	057	057	057	05700
5,80	6	95	57	48	36	05800	058	058	058	05800
5,90	6	95	57	48	36	05900	059	059	059	05900
6,00	6	95	57	48	36	06000	060	060	060	06000
6,10	8	114	76	64	36	06100	061	061	061	06100
P						●	●	●	●	●
M						●				
K						●	●	●	●	●
N										
S										
H							○	○	○	○
O										

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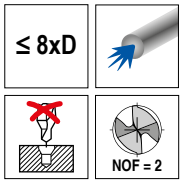
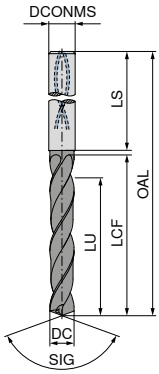
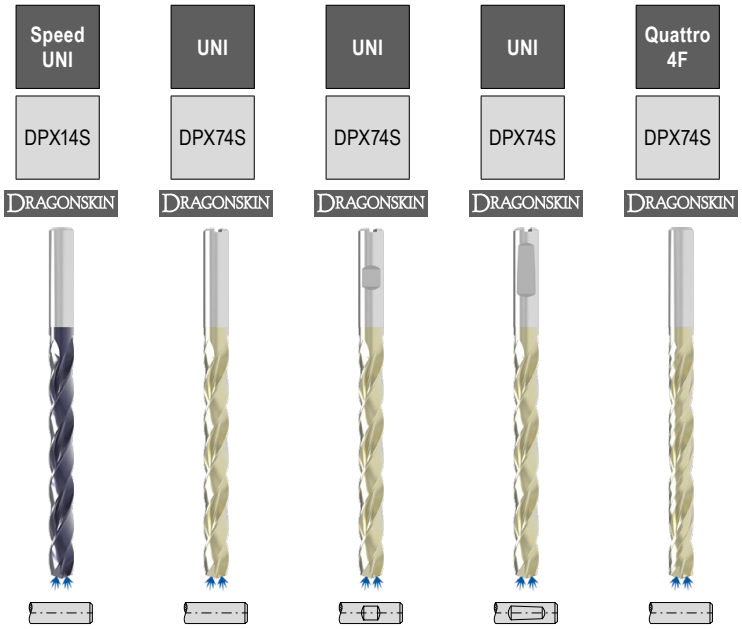
Ø DC_{m7} for Type UNI and Quattro 4F / **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, factory standard







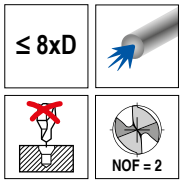
	SIG 145° Solid carbide	SIG 135° Solid carbide	SIG 135° Solid carbide	SIG 135° Solid carbide	SIG 140° Solid carbide
	10 782 ...	**11 789 ...**	**11 790 ...**	**11 788 ...**	**10 736 ...**
DC $_{m7/h7}$ mm					
6,20	06200	062	062	062	06200
6,30	06300	063	063	063	06300
6,40	06400	064	064	064	06400
6,50	06500	065	065	065	06500
6,60	06600	066	066	066	06600
6,70	06700	067	067	067	06700
6,80	06800	068	068	068	06800
6,90	06900	069	069	069	06900
7,00	07000	070	070	070	07000
7,10	07100	071	071	071	07100
7,20	07200	072	072	072	07200
7,30	07300	073	073	073	07300
7,40	07400	074	074	074	07400
7,50	07500	075	075	075	07500
7,60	07600	076	076	076	07600
7,70	07700	077	077	077	07700
7,80	07800	078	078	078	07800
7,90	07900	079	079	079	07900
8,00	08000	080	080	080	08000
8,10	08100	081	081	081	08100
8,20	08200	082	082	082	08200
8,30	08300	083	083	083	08300
8,40	08400	084	084	084	08400
8,50	08500	085	085	085	08500
8,60	08600	086	086	086	08600
8,70	08700	087	087	087	08700
8,80	08800	088	088	088	08800
8,90	08900	089	089	089	08900
9,00	09000	090	090	090	09000
9,10	09100	091	091	091	09100
9,20	09200	092	092	092	09200
9,30	09300	093	093	093	09300
9,40	09400	094	094	094	09400
9,50	09500	095	095	095	09500
DCONMS $_{h6}$ mm					
8	●	●	●	●	●
10	●				
8	●	●	●	●	●
		○	○	○	○
OAL mm					
114	●	●	●	●	●
142	●				
114	●	●	●	●	●
		○	○	○	○
LCF mm					
76	●	●	●	●	●
95	●				
76	●	●	●	●	●
		○	○	○	○
LU mm					
64	●	●	●	●	●
80	●				
64	●	●	●	●	●
		○	○	○	○
LS mm					
36	●	●	●	●	●
40	●				
36	●	●	●	●	●
		○	○	○	○
P	●	●	●	●	●
M	●				
K	●	●	●	●	●
N					
S					
H		○	○	○	○
O					

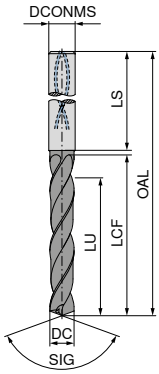
→ v_c Page 115–120

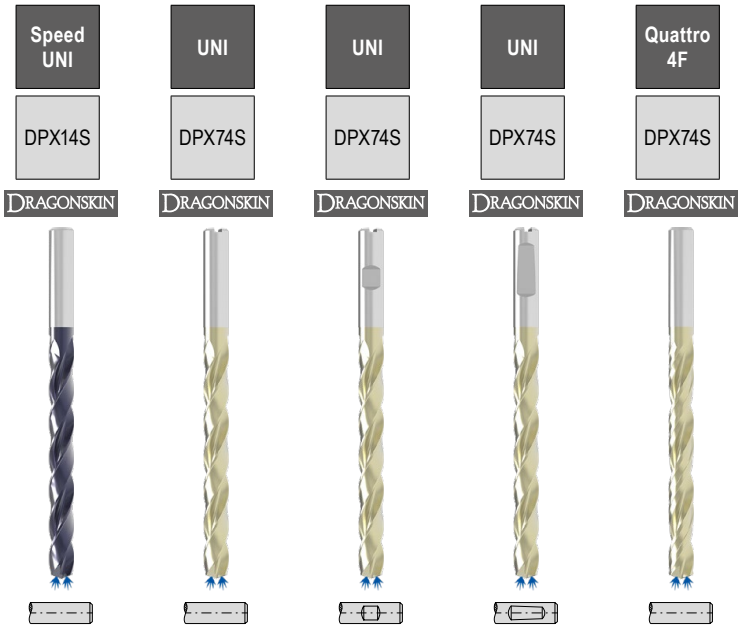
Ø DC_{m7} for Type UNI and Quattro 4F / **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, factory standard







SIG 145° Solid carbide | SIG 135° Solid carbide | SIG 135° Solid carbide | SIG 135° Solid carbide | SIG 140° Solid carbide

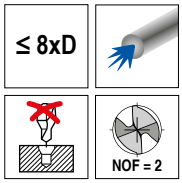
DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	10 782 ...	11 789 ...	11 790 ...	11 788 ...	10 736 ...
9,60	10	142	95	80	40	09600	096	096	096	09600
9,70	10	142	95	80	40	09700	097	097	097	09700
9,80	10	142	95	80	40	09800	098	098	098	09800
9,90	10	142	95	80	40	09900	099	099	099	09900
10,00	10	142	95	80	40	10000	100	100	100	10000
10,10	12	162	114	96	45	10100	101	101	101	10100
10,20	12	162	114	96	45	10200	102	102	102	10200
10,30	12	162	114	96	45	10300	103	103	103	10300
10,40	12	162	114	96	45	10400	104	104	104	10400
10,50	12	162	114	96	45	10500	105	105	105	10500
10,60	12	162	114	96	45	10600	106	106	106	10600
10,70	12	162	114	96	45	10700	107	107	107	10700
10,80	12	162	114	96	45	10800	108	108	108	10800
10,90	12	162	114	96	45	10900	109	109	109	10900
11,00	12	162	114	96	45	11000	110	110	110	11000
11,10	12	162	114	96	45	11100	111	111	111	11100
11,20	12	162	114	96	45	11200	112	112	112	11200
11,30	12	162	114	96	45	11300	113	113	113	11300
11,40	12	162	114	96	45	11400	114	114	114	11400
11,50	12	162	114	96	45	11500	115	115	115	11500
11,60	12	162	114	96	45	11600	116	116	116	11600
11,70	12	162	114	96	45	11700	117	117	117	11700
11,80	12	162	114	96	45	11800	118	118	118	11800
11,90	12	162	114	96	45	11900	119	119	119	11900
12,00	12	162	114	96	45	12000	120	120	120	12000
12,50	14	178	131	112	45	12500	125	125	125	12500
12,80	14	178	131	112	45	12800	128	128	128	12800
13,00	14	178	131	112	45	13000	130	130	130	13000
13,50	14	178	131	112	45	13500	135	135	135	13500
13,80	14	178	131	112	45	13800	138	138	138	13800
14,00	14	178	131	112	45	14000	140	140	140	14000
14,50	16	203	152	128	48	14500	145	145	145	14500
14,80	16	203	152	128	48	14800	148	148	148	14800
15,00	16	203	152	128	48	15000	150	150	150	15000
P						●	●	●	●	●
M						●				
K						●	●	●	●	●
N										
S										
H							○	○	○	○
O										

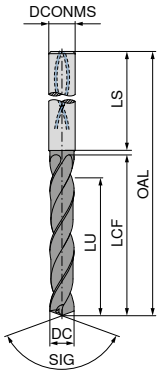
→ v_c Page 115–120

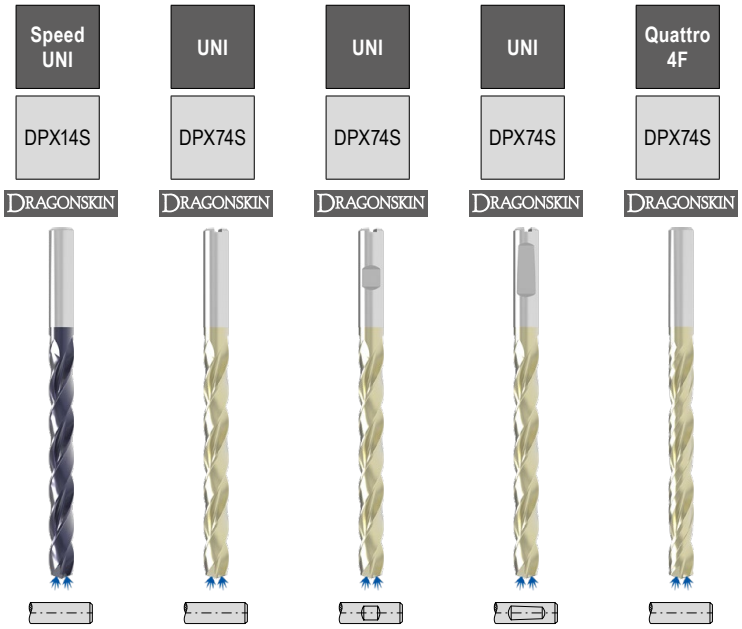
Ø DC_{m7} for Type UNI and Quattro 4F / Ø DC_{h7} for Type Speed UNI

Continued on next page

WTX – High Performance Drill, factory standard





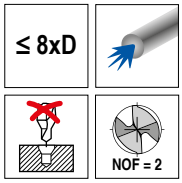


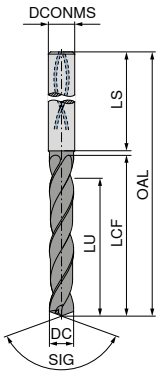
						SIG 145° Solid carbide		SIG 135° Solid carbide		SIG 135° Solid carbide		SIG 135° Solid carbide		SIG 140° Solid carbide		
						10 782 ...		11 789 ...		11 790 ...		11 788 ...		10 736 ...		
DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm											
15,50	16	203	152	128	48		15500		155		155		155		15500	
15,80	16	203	152	128	48		15800		158		158		158		15800	
16,00	16	203	152	128	48		16000		160		160		160		16000	
16,50	18	222	171	144	48		16500		165		165		165		16500	
16,80	18	222	171	144	48		16800		168		168		168		16800	
17,00	18	222	171	144	48		17000		170		170		170		17000	
17,50	18	222	171	144	48		17500		175		175		175		17500	
17,80	18	222	171	144	48		17800		178		178		178		17800	
18,00	18	222	171	144	48		18000		180		180		180		18000	
18,50	20	243	190	160	50				185		185		185			
18,80	20	243	190	160	50				188		188		188			
19,00	20	243	190	160	50				190		190		190			
19,50	20	243	190	160	50				195		195		195			
19,80	20	243	190	160	50				198		198		198			
20,00	20	243	190	160	50				200		200		200			
P						●		●		●		●		●		
M						●										
K						●		●		●		●		●		
N																
S																
H								○		○		○		○		
O																

→ v_c Page 115–120

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

High Performance Drill, factory standard





UNI

TiAlN

SIG 135°
Solid carbide

11 704 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
3,0	6	72	34	29,5	36	03000
3,1	6	72	34	29,3	36	03100
3,2	6	72	34	29,2	36	03200
3,3	6	72	34	29,0	36	03300
3,4	6	72	34	28,9	36	03400
3,5	6	72	34	28,7	36	03500
3,6	6	72	34	28,6	36	03600
3,7	6	72	34	28,4	36	03700
3,8	6	81	43	37,3	36	03800
3,9	6	81	43	37,1	36	03900
4,0	6	81	43	37,0	36	04000
4,1	6	81	43	36,8	36	04100
4,2	6	81	43	36,7	36	04200
4,3	6	81	43	36,5	36	04300
4,4	6	81	43	36,4	36	04400
4,5	6	81	43	36,2	36	04500
4,6	6	81	43	36,1	36	04600
4,7	6	81	43	35,9	36	04700
4,8	6	95	57	49,8	36	04800
4,9	6	95	57	49,6	36	04900
5,0	6	95	57	49,5	36	05000
5,1	6	95	57	49,3	36	05100
5,2	6	95	57	49,2	36	05200
5,3	6	95	57	49,0	36	05300
5,4	6	95	57	48,9	36	05400
5,5	6	95	57	48,7	36	05500
5,6	6	95	57	48,6	36	05600
5,7	6	95	57	48,4	36	05700
5,8	6	95	57	48,3	36	05800
5,9	6	95	57	48,1	36	05900
6,0	6	95	57	48,0	36	06000
6,1	8	114	76	66,8	36	06100
6,2	8	114	76	66,7	36	06200
6,3	8	114	76	66,5	36	06300
6,4	8	114	76	66,4	36	06400
6,5	8	114	76	66,2	36	06500
6,6	8	114	76	66,1	36	06600
6,7	8	114	76	65,9	36	06700
6,8	8	114	76	65,8	36	06800
6,9	8	114	76	65,6	36	06900
7,0	8	114	76	65,5	36	07000
7,1	8	114	76	65,3	36	07100
7,2	8	114	76	65,2	36	07200
7,3	8	114	76	65,0	36	07300
7,4	8	114	76	64,9	36	07400
7,5	8	114	76	64,7	36	07500
7,6	8	114	76	64,6	36	07600
7,7	8	114	76	64,4	36	07700
7,8	8	114	76	64,3	36	07800
7,9	8	114	76	64,1	36	07900
8,0	8	114	76	64,0	36	08000
8,1	10	142	95	82,8	40	08100

11 704 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
8,2	10	142	95	82,7	40	08200
8,3	10	142	95	82,5	40	08300
8,4	10	142	95	82,4	40	08400
8,5	10	142	95	82,2	40	08500
8,6	10	142	95	82,1	40	08600
8,7	10	142	95	81,9	40	08700
8,8	10	142	95	81,8	40	08800
8,9	10	142	95	81,6	40	08900
9,0	10	142	95	81,5	40	09000
9,1	10	142	95	81,3	40	09100
9,2	10	142	95	81,2	40	09200
9,3	10	142	95	81,0	40	09300
9,4	10	142	95	80,9	40	09400
9,5	10	142	95	80,7	40	09500
9,6	10	142	95	80,6	40	09600
9,7	10	142	95	80,4	40	09700
9,8	10	142	95	80,3	40	09800
9,9	10	142	95	80,1	40	09900
10,0	10	142	95	80,0	40	10000
10,2	12	162	114	98,7	45	10200
10,5	12	162	114	98,2	45	10500
10,8	12	162	114	97,8	45	10800
11,0	12	162	114	97,5	45	11000
11,5	12	162	114	96,7	45	11500
11,8	12	162	114	96,3	45	11800
12,0	12	162	114	96,0	45	12000
12,2	14	178	131	112,7	45	12200
12,5	14	178	131	112,2	45	12500
12,7	14	178	131	111,9	45	12700
13,0	14	178	131	111,5	45	13000
13,5	14	178	131	110,7	45	13500
14,0	14	178	131	110,0	45	14000
14,5	16	203	152	130,2	48	14500
15,0	16	203	152	129,5	48	15000
15,5	16	203	152	128,7	48	15500
16,0	16	203	152	128,0	48	16000
16,5	18	222	171	146,2	48	16500
17,0	18	222	171	145,5	48	17000
17,5	18	222	171	144,7	48	17500
18,0	18	222	171	144,0	48	18000
18,5	20	243	190	162,2	50	18500
19,0	20	243	190	161,5	50	19000
19,5	20	243	190	160,7	50	19500
20,0	20	243	190	160,0	50	20000

P	●
M	●
K	●
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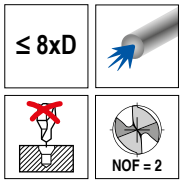
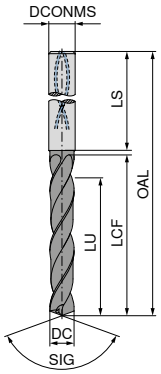
WTX – High Performance Drill, factory standard





VA
Ti700

AL
DLC
DRAGONSKIN

SIG 140°
Solid carbide

SIG 135°
Solid carbide

DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 770 ...	10 792 ...
3,0	6	72	34	29	36	030	03000
3,1	6	72	34	29	36	031	03100
3,2	6	72	34	29	36	032	03200
3,3	6	72	34	29	36	033	03300
3,4	6	72	34	29	36	034	03400
3,5	6	72	34	29	36	035	03500
3,6	6	72	34	29	36	036	03600
3,7	6	72	34	29	36	037	03700
3,8	6	81	43	36	36	038	03800
3,9	6	81	43	36	36	039	03900
4,0	6	81	43	36	36	040	04000
4,1	6	81	43	36	36	041	04100
4,2	6	81	43	36	36	042	04200
4,3	6	81	43	36	36	043	04300
4,4	6	81	43	36	36	044	04400
4,5	6	81	43	36	36	045	04500
4,6	6	81	43	36	36	046	04600
4,7	6	81	43	36	36	047	04700
4,8	6	95	57	48	36	048	04800
4,9	6	95	57	48	36	049	04900
5,0	6	95	57	48	36	050	05000
5,1	6	95	57	48	36	051	05100
5,2	6	95	57	48	36	052	05200
5,3	6	95	57	48	36	053	05300
5,4	6	95	57	48	36	054	05400
5,5	6	95	57	48	36	055	05500
5,6	6	95	57	48	36	056	05600
5,7	6	95	57	48	36	057	05700
5,8	6	95	57	48	36	058	05800
5,9	6	95	57	48	36	059	05900
6,0	6	95	57	48	36	060	06000
6,1	8	114	76	64	36	061	06100
6,2	8	114	76	64	36	062	06200
6,3	8	114	76	64	36	063	06300
6,4	8	114	76	64	36	064	06400
6,5	8	114	76	64	36	065	06500
6,6	8	114	76	64	36	066	06600
6,7	8	114	76	64	36	067	06700
6,8	8	114	76	64	36	068	06800
6,9	8	114	76	64	36	069	06900
7,0	8	114	76	64	36	070	07000
7,1	8	114	76	64	36	071	07100
7,2	8	114	76	64	36	072	07200
7,3	8	114	76	64	36	073	07300
7,4	8	114	76	64	36	074	07400

P	○	
M	●	
K	○	
N	○	●
S	●	
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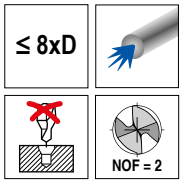
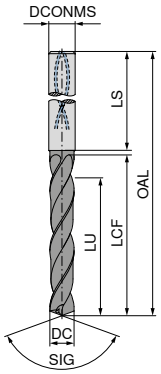
→ v_c Page 113+123

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

Continued on next page

WTX – High Performance Drill, factory standard





SIG 140°
Solid carbide

SIG 135°
Solid carbide

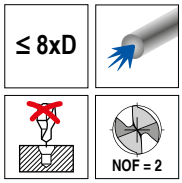
DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 770 ...	10 792 ...
7,5	8	114	76	64	36	075	07500
7,6	8	114	76	64	36	076	07600
7,7	8	114	76	64	36	077	07700
7,8	8	114	76	64	36	078	07800
7,9	8	114	76	64	36	079	07900
8,0	8	114	76	64	36	080	08000
8,1	10	142	95	80	40	081	08100
8,2	10	142	95	80	40	082	08200
8,3	10	142	95	80	40	083	08300
8,4	10	142	95	80	40	084	08400
8,5	10	142	95	80	40	085	08500
8,6	10	142	95	80	40	086	08600
8,7	10	142	95	80	40	087	08700
8,8	10	142	95	80	40	088	08800
8,9	10	142	95	80	40	089	08900
9,0	10	142	95	80	40	090	09000
9,1	10	142	95	80	40	091	09100
9,2	10	142	95	80	40	092	09200
9,3	10	142	95	80	40	093	09300
9,4	10	142	95	80	40	094	09400
9,5	10	142	95	80	40	095	09500
9,6	10	142	95	80	40	096	09600
9,7	10	142	95	80	40	097	09700
9,8	10	142	95	80	40	098	09800
9,9	10	142	95	80	40	099	09900
10,0	10	142	95	80	40	100	10000
10,1	12	162	114	96	45	101	
10,2	12	162	114	96	45	102	10200
10,3	12	162	114	96	45	103	10300
10,4	12	162	114	96	45	104	10400
10,5	12	162	114	96	45	105	10500
10,6	12	162	114	96	45	106	
10,7	12	162	114	96	45	107	10700
10,8	12	162	114	96	45	108	10800
10,9	12	162	114	96	45	109	
11,0	12	162	114	96	45	110	11000
11,1	12	162	114	96	45	111	
11,2	12	162	114	96	45	112	11200
11,3	12	162	114	96	45	113	
11,4	12	162	114	96	45	114	
11,5	12	162	114	96	45	115	11500
11,6	12	162	114	96	45	116	11600
11,7	12	162	114	96	45	117	
11,8	12	162	114	96	45	118	11800
11,9	12	162	114	96	45	119	
P						○	
M						●	
K						○	
N						○	●
S						●	
H							
O							

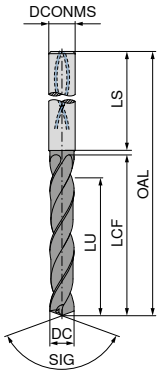
→ v_c Page 113+123

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

Continued on next page

WTX – High Performance Drill, factory standard





VA
Ti700

AL
DLC
DRAGONSKIN

SIG 140°
Solid carbide

SIG 135°
Solid carbide

DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 770 ...		10 792 ...	
12,0	12	162	114	96	45	120			12000
12,2	14	178	131	112	45				12200
12,5	14	178	133	112	45	125			
12,5	14	178	131	112	45				12500
12,8	14	178	133	112	45	128			
12,8	14	178	131	112	45				12800
13,0	14	178	133	112	45	130			
13,0	14	178	131	112	45				13000
13,2	14	178	131	112	45				13200
13,5	14	178	131	112	45				13500
13,5	14	178	133	112	45	135			
13,8	14	178	131	112	45				13800
13,8	14	178	133	112	45	138			
14,0	14	178	133	112	45	140			
14,0	14	178	131	112	45				14000
14,2	16	203	152	128	48				14200
14,5	16	203	152	128	48	145			14500
14,8	16	203	152	128	48	148			14800
15,0	16	203	152	128	48	150			15000
15,2	16	203	152	128	48				15200
15,5	16	203	152	128	48	155			15500
15,8	16	203	152	128	48	158			15800
16,0	16	203	152	128	48	160			16000
16,2	18	222	171	144	48				16200
16,5	18	222	171	144	48	165			16500
16,8	18	222	171	144	48	168			16800
17,0	18	222	171	144	48	170			17000
17,2	18	222	171	144	48				17200
17,5	18	222	171	144	48	175			17500
17,8	18	222	171	144	48	178			17800
18,0	18	222	171	144	48	180			18000
18,2	20	243	190	160	50				18200
18,5	20	243	190	160	50	185			18500
18,8	20	243	190	160	50	188			18800
19,0	20	243	190	160	50	190			19000
19,1	20	243	190	160	50				19100
19,2	20	243	190	160	50				19200
19,5	20	243	190	160	50	195			19500
19,8	20	243	190	160	50	198			19800
20,0	20	243	190	160	50	200			20000
P						○			
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K						○			
N						○		●	
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H									
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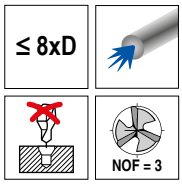
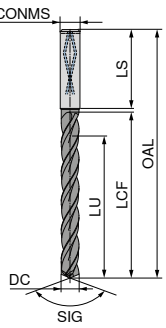
→ v_c Page 113+123

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

WTX – High Feed Drill, factory standard

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





Feed UNI

DPX74S

DRAGONSKIN

SIG 135°

Solid carbide

10 794 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
4,00	6	81	43	36	36	04000
4,10	6	81	43	36	36	04100
4,20	6	81	43	36	36	04200
4,30	6	81	43	36	36	04300
4,40	6	81	43	36	36	04400
4,50	6	81	43	36	36	04500
4,60	6	81	43	36	36	04600
4,70	6	81	43	36	36	04700
4,80	6	95	57	48	36	04800
4,90	6	95	57	48	36	04900
5,00	6	95	57	48	36	05000
5,10	6	95	57	48	36	05100
5,20	6	95	57	48	36	05200
5,30	6	95	57	48	36	05300
5,40	6	95	57	48	36	05400
5,50	6	95	57	48	36	05500
5,55	6	95	57	48	36	05550
5,60	6	95	57	48	36	05600
5,70	6	95	57	48	36	05700
5,80	6	95	57	48	36	05800
5,90	6	95	57	48	36	05900
6,00	6	95	57	48	36	06000
6,10	8	114	76	64	36	06100
6,20	8	114	76	64	36	06200
6,30	8	114	76	64	36	06300
6,40	8	114	76	64	36	06400
6,50	8	114	76	64	36	06500
6,60	8	114	76	64	36	06600
6,70	8	114	76	64	36	06700
6,80	8	114	76	64	36	06800
6,90	8	114	76	64	36	06900
7,00	8	114	76	64	36	07000
7,10	8	114	76	64	36	07100
7,20	8	114	76	64	36	07200
7,30	8	114	76	64	36	07300
7,40	8	114	76	64	36	07400
7,50	8	114	76	64	36	07500
7,60	8	114	76	64	36	07600
7,70	8	114	76	64	36	07700
7,80	8	114	76	64	36	07800
7,90	8	114	76	64	36	07900
8,00	8	114	76	64	36	08000
8,10	10	142	95	80	40	08100
8,20	10	142	95	80	40	08200
8,30	10	142	95	80	40	08300
8,40	10	142	95	80	40	08400
8,50	10	142	95	80	40	08500
8,60	10	142	95	80	40	08600
8,70	10	142	95	80	40	08700
8,80	10	142	95	80	40	08800
8,90	10	142	95	80	40	08900
9,00	10	142	95	80	40	09000

10 794 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
9,10	10	142	95	80	40	09100
9,20	10	142	95	80	40	09200
9,30	10	142	95	80	40	09300
9,40	10	142	95	80	40	09400
9,50	10	142	95	80	40	09500
9,60	10	142	95	80	40	09600
9,70	10	142	95	80	40	09700
9,80	10	142	95	80	40	09800
9,90	10	142	95	80	40	09900
10,00	10	142	95	80	40	10000
10,10	12	162	114	96	45	10100
10,20	12	162	114	96	45	10200
10,30	12	162	114	96	45	10300
10,40	12	162	114	96	45	10400
10,50	12	162	114	96	45	10500
10,60	12	162	114	96	45	10600
10,70	12	162	114	96	45	10700
10,80	12	162	114	96	45	10800
10,90	12	162	114	96	45	10900
11,00	12	162	114	96	45	11000
11,10	12	162	114	96	45	11100
11,20	12	162	114	96	45	11200
11,30	12	162	114	96	45	11300
11,40	12	162	114	96	45	11400
11,50	12	162	114	96	45	11500
11,60	12	162	114	96	45	11600
11,70	12	162	114	96	45	11700
11,80	12	162	114	96	45	11800
11,90	12	162	114	96	45	11900
12,00	12	162	114	96	45	12000
12,20	14	178	131	112	45	12200
12,50	14	178	131	112	45	12500
12,80	14	178	131	112	45	12800
13,00	14	178	131	112	45	13000
13,50	14	178	131	112	45	13500
13,80	14	178	131	112	45	13800
14,00	14	178	131	112	45	14000
14,50	16	203	152	128	48	14500
14,80	16	203	152	128	48	14800
15,00	16	203	152	128	48	15000
15,50	16	203	152	128	48	15500
15,80	16	203	152	128	48	15800
16,00	16	203	152	128	48	16000
16,50	18	222	171	144	48	16500
16,80	18	222	171	144	48	16800
17,00	18	222	171	144	48	17000
17,50	18	222	171	144	48	17500
17,80	18	222	171	144	48	17800
18,00	18	222	171	144	48	18000
18,50	20	243	190	160	50	18500
18,80	20	243	190	160	50	18800
19,00	20	243	190	160	50	19000
19,50	20	243	190	160	50	19500
19,80	20	243	190	160	50	19800
20,00	20	243	190	160	50	20000

P	●
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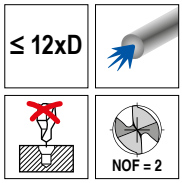
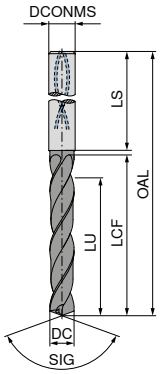
WTX – High Performance Drill, factory standard





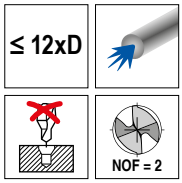
DC h7/m7	DCONMS h6	OAL	LCF	LU	LS	SIG 135° Solid carbide	SIG 140° Solid carbide	SIG 135° Solid carbide
mm	mm	mm	mm	mm	mm	10 774 ...	10 737 ...	10 793 ...
3,0	6	92	54	48	36	03000	03000	03000
3,1	6	92	54	48	36	03100	03100	03100
3,2	6	92	54	48	36	03200	03200	03200
3,3	6	92	54	48	36	03300	03300	03300
3,4	6	92	54	48	36	03400	03400	03400
3,5	6	92	54	48	36	03500	03500	03500
3,6	6	92	54	48	36	03600	03600	03600
3,7	6	92	54	48	36	03700	03700	03700
3,8	6	102	64	58	36	03800	03800	03800
3,9	6	102	64	58	36	03900	03900	03900
4,0	6	102	64	58	36	04000	04000	04000
4,1	6	102	64	58	36	04100	04100	04100
4,2	6	102	64	58	36	04200	04200	04200
4,3	6	102	64	58	36	04300	04300	04300
4,4	6	102	64	58	36	04400	04400	04400
4,5	6	102	64	58	36	04500	04500	04500
4,6	6	102	64	58	36	04600	04600	04600
4,7	6	102	64	58	36	04700	04700	04700
4,8	6	116	78	70	36	04800	04800	04800
4,9	6	116	78	70	36	04900	04900	04900
5,0	6	116	78	70	36	05000	05000	05000
5,1	6	116	78	70	36	05100	05100	05100
5,2	6	116	78	70	36	05200	05200	05200
5,3	6	116	78	70	36	05300	05300	05300
5,4	6	116	78	70	36	05400	05400	05400
5,5	6	116	78	70	36	05500	05500	05500
5,6	6	116	78	70	36	05600	05600	05600
5,7	6	116	78	70	36	05700	05700	05700
5,8	6	116	78	70	36	05800	05800	05800
5,9	6	116	78	70	36	05900	05900	05900
6,0	6	116	78	70	36	06000	06000	06000
6,1	8	146	108	94	36	06100	06100	06100
6,2	8	146	108	94	36	06200	06200	06200
6,3	8	146	108	94	36	06300	06300	06300
6,4	8	146	108	94	36	06400	06400	06400
6,5	8	146	108	94	36	06500	06500	06500
6,6	8	146	108	94	36	06600	06600	06600
6,7	8	146	108	94	36	06700	06700	06700
6,8	8	146	108	94	36	06800	06800	06800
6,9	8	146	108	94	36	06900	06900	06900
7,0	8	146	108	94	36	07000	07000	07000
7,1	8	146	108	94	36	07100	07100	07100
7,2	8	146	108	94	36	07200	07200	07200
P						●	●	
M						●		
K						●	●	
N						○		●
S						●		
H							○	
O								

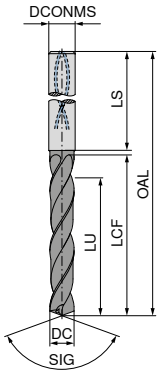
→ v_c Page 118–124

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

Continued on next page

WTX – High Performance Drill, factory standard





						SIG 135° Solid carbide	SIG 140° Solid carbide	SIG 135° Solid carbide
						10 774 ...	10 737 ...	10 793 ...
DC $_{h7/m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm			
7,3	8	146	108	94	36	07300	07300	07300
7,4	8	146	108	94	36	07400	07400	07400
7,5	8	146	108	94	36	07500	07500	07500
7,6	8	146	108	94	36	07600	07600	07600
7,7	8	146	108	94	36	07700	07700	07700
7,8	8	146	108	94	36	07800	07800	07800
7,9	8	146	108	94	36	07900	07900	07900
8,0	8	146	108	94	36	08000	08000	08000
8,1	10	162	120	110	40	08100	08100	08100
8,2	10	162	120	110	40	08200	08200	08200
8,3	10	162	120	110	40	08300	08300	08300
8,4	10	162	120	110	40	08400	08400	08400
8,5	10	162	120	110	40	08500	08500	08500
8,6	10	162	120	110	40	08600	08600	08600
8,7	10	162	120	110	40	08700	08700	08700
8,8	10	162	120	110	40	08800	08800	08800
8,9	10	162	120	110	40	08900	08900	08900
9,0	10	162	120	110	40	09000	09000	09000
9,1	10	162	120	110	40	09100	09100	09100
9,2	10	162	120	110	40	09200	09200	09200
9,3	10	162	120	110	40	09300	09300	09300
9,4	10	162	120	110	40	09400	09400	09400
9,5	10	162	120	110	40	09500	09500	09500
9,6	10	162	120	110	40	09600	09600	09600
9,7	10	162	120	110	40	09700	09700	09700
9,8	10	162	120	110	40	09800	09800	09800
9,9	10	162	120	110	40	09900	09900	09900
10,0	10	162	120	110	40	10000	10000	10000
10,1	12	204	156	142	45	10100	10100	
10,2	12	204	156	142	45	10200	10200	10200
10,3	12	204	156	142	45	10300	10300	
10,4	12	204	156	142	45	10400	10400	
10,5	12	204	156	142	45	10500	10500	10500
10,6	12	204	156	142	45	10600	10600	
10,7	12	204	156	142	45	10700	10700	10700
10,8	12	204	156	142	45	10800	10800	10800
10,9	12	204	156	142	45	10900	10900	
11,0	12	204	156	142	45	11000	11000	11000
11,1	12	204	156	142	45	11100	11100	
11,2	12	204	156	142	45	11200	11200	11200
11,3	12	204	156	142	45	11300	11300	11300
11,4	12	204	156	142	45	11400	11400	
11,5	12	204	156	142	45	11500	11500	11500
P						●	●	
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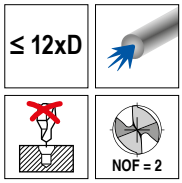
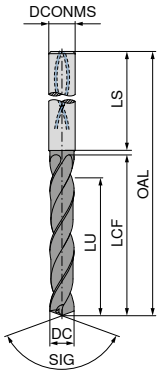
→ v_c Page 118–124

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

Continued on next page

WTX – High Performance Drill, factory standard





						SIG 135° Solid carbide	SIG 140° Solid carbide	SIG 135° Solid carbide
DC h7/m7	DCONMS h6	OAL	LCF	LU	LS	10 774 ...	10 737 ...	10 793 ...
mm	mm	mm	mm	mm	mm			
11,6	12	204	156	142	45	11600	11600	
11,7	12	204	156	142	45	11700	11700	
11,8	12	204	156	142	45	11800	11800	11800
11,9	12	204	156	142	45	11900	11900	
12,0	12	204	156	142	45	12000	12000	12000
12,1	14	230	182	166	45			12100
12,2	14	230	182	166	45	12200		12200
12,5	14	230	182	166	45	12500	12500	12500
12,8	14	230	182	166	45	12800	12800	12800
13,0	14	230	182	166	45	13000	13000	13000
13,2	14	230	182	166	45			13200
13,5	14	230	182	166	45	13500	13500	13500
13,8	14	230	182	166	45	13800	13800	13800
14,0	14	230	182	166	45	14000	14000	14000
14,2	16	260	208	192	48	14200		14200
14,5	16	260	208	192	48	14500	14500	14500
14,7	16	260	208	192	48			14700
14,8	16	260	208	192	48		14800	14800
15,0	16	260	208	192	48	15000	15000	15000
15,1	16	260	208	192	48	15100		
15,2	16	260	208	192	48	15200		15200
15,5	16	260	208	192	48	15500	15500	15500
15,7	16	260	208	192	48			15700
15,8	16	260	208	192	48	15800	15800	15800
16,0	16	260	208	192	48	16000	16000	16000
16,2	18	285	234	216	48			16200
16,5	18	285	234	216	48		16500	16500
16,8	18	285	234	216	48		16800	16800
17,0	18	285	234	216	48	17000	17000	17000
17,2	18	285	234	216	48			17200
17,5	18	285	234	216	48	17500	17500	17500
17,8	18	285	234	216	48		17800	17800
18,0	18	285	234	216	48		18000	18000
18,2	20	310	258	240	50			18200
18,5	20	310	258	240	50			18500
18,7	20	310	258	240	50			18700
18,8	20	310	258	240	50			18800
19,0	20	310	258	240	50			19000
19,2	20	310	258	240	50			19200
19,5	20	310	258	240	50			19500
19,8	20	310	258	240	50			19800
20,0	20	310	258	240	50			20000
P						●	●	
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N						○		●
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H							○	
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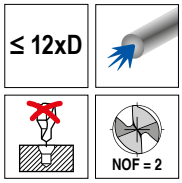
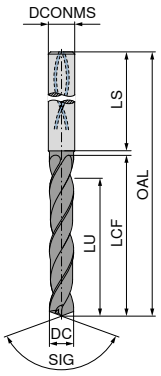
→ v_c Page 118–124

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

High Performance Drill, factory standard





UNI

TiAlN

SIG 135°
Solid carbide

11 705 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
3,0	6	92	54	49,5	36	03000
3,1	6	92	54	49,3	36	03100
3,2	6	92	54	49,2	36	03200
3,3	6	92	54	49,0	36	03300
3,4	6	92	54	48,9	36	03400
3,5	6	92	54	48,7	36	03500
3,6	6	92	54	48,6	36	03600
3,7	6	92	54	48,4	36	03700
3,8	6	102	64	58,3	36	03800
3,9	6	102	64	58,1	36	03900
4,0	6	102	64	58,0	36	04000
4,1	6	102	64	57,8	36	04100
4,2	6	102	64	57,7	36	04200
4,3	6	102	64	57,5	36	04300
4,4	6	102	64	57,4	36	04400
4,5	6	102	64	57,2	36	04500
4,6	6	102	64	57,1	36	04600
4,7	6	102	64	56,9	36	04700
4,8	6	116	78	70,8	36	04800
4,9	6	116	78	70,6	36	04900
5,0	6	116	78	70,5	36	05000
5,1	6	116	78	70,3	36	05100
5,2	6	116	78	70,2	36	05200
5,3	6	116	78	70,0	36	05300
5,4	6	116	78	69,9	36	05400
5,5	6	116	78	69,7	36	05500
5,6	6	116	78	69,6	36	05600
5,7	6	116	78	69,4	36	05700
5,8	6	116	78	69,3	36	05800
5,9	6	116	78	69,1	36	05900
6,0	6	116	78	69,0	36	06000
6,1	8	146	108	98,8	36	06100
6,2	8	146	108	98,7	36	06200
6,3	8	146	108	98,5	36	06300
6,4	8	146	108	98,4	36	06400
6,5	8	146	108	98,2	36	06500
6,6	8	146	108	98,1	36	06600
6,7	8	146	108	97,9	36	06700
6,8	8	146	108	97,8	36	06800
6,9	8	146	108	97,6	36	06900
7,0	8	146	108	97,5	36	07000
7,1	8	146	108	97,3	36	07100
7,2	8	146	108	97,2	36	07200
7,3	8	146	108	97,0	36	07300
7,4	8	146	108	96,9	36	07400
7,5	8	146	108	96,7	36	07500

11 705 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
7,6	8	146	108	96,6	36	07600
7,7	8	146	108	96,4	36	07700
7,8	8	146	108	96,3	36	07800
7,9	8	146	108	96,1	36	07900
8,0	8	146	108	96,0	36	08000
8,1	10	162	120	107,8	40	08100
8,2	10	162	120	107,7	40	08200
8,3	10	162	120	107,5	40	08300
8,4	10	162	120	107,4	40	08400
8,5	10	162	120	107,2	40	08500
8,6	10	162	120	107,1	40	08600
8,7	10	162	120	106,9	40	08700
8,8	10	162	120	106,8	40	08800
8,9	10	162	120	106,6	40	08900
9,0	10	162	120	106,5	40	09000
9,1	10	162	120	106,3	40	09100
9,2	10	162	120	106,2	40	09200
9,3	10	162	120	106,0	40	09300
9,4	10	162	120	105,9	40	09400
9,5	10	162	120	105,7	40	09500
9,6	10	162	120	105,6	40	09600
9,7	10	162	120	105,4	40	09700
9,8	10	162	120	105,3	40	09800
9,9	10	162	120	105,1	40	09900
10,0	10	162	120	105,0	40	10000
10,2	12	204	156	140,7	45	10200
10,5	12	204	156	140,2	45	10500
10,8	12	204	156	139,8	45	10800
11,0	12	204	156	139,5	45	11000
11,5	12	204	156	138,7	45	11500
11,8	12	204	156	138,3	45	11800
12,0	12	204	156	138,0	45	12000
12,5	14	230	182	163,2	45	12500
12,7	14	230	182	162,9	45	12700
12,8	14	230	182	162,8	45	12800
13,0	14	230	182	162,5	45	13000
13,5	14	230	182	161,7	45	13500
13,8	14	230	182	161,3	45	13800
14,0	14	230	182	161,0	45	14000
14,5	16	260	208	186,2	48	14500
14,8	16	260	208	185,8	48	14800
15,0	16	260	208	185,5	48	15000
15,5	16	260	208	184,7	48	15500
15,8	16	260	208	184,3	48	15800
16,0	16	260	208	184,0	48	16000
16,5	18	285	234	209,2	48	16500
17,0	18	285	234	208,5	48	17000
17,5	18	285	234	207,7	48	17500
18,0	18	285	234	207,0	48	18000
18,5	20	310	258	230,2	50	18500
19,0	20	310	258	229,5	50	19000
19,5	20	310	258	228,7	50	19500
20,0	20	310	258	228,0	50	20000

P	●
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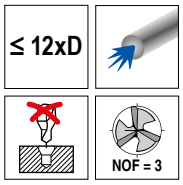
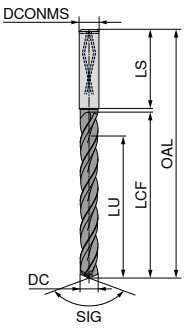
→ v_c Page 131

WTX – High Feed Drill, factory standard

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





SIG 135°
Solid carbide

10 796 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
4,0	6	102	64	58	36	04000
4,1	6	102	64	58	36	04100
4,2	6	102	64	58	36	04200
4,3	6	102	64	58	36	04300
4,4	6	102	64	58	36	04400
4,5	6	102	64	58	36	04500
4,6	6	102	64	58	36	04600
4,7	6	102	64	58	36	04700
4,8	6	116	78	70	36	04800
4,9	6	116	78	70	36	04900
5,0	6	116	78	70	36	05000
5,1	6	116	78	70	36	05100
5,2	6	116	78	70	36	05200
5,3	6	116	78	70	36	05300
5,4	6	116	78	70	36	05400
5,5	6	116	78	70	36	05500
5,6	6	116	78	70	36	05600
5,7	6	116	78	70	36	05700
5,8	6	116	78	70	36	05800
5,9	6	116	78	70	36	05900
6,0	6	116	78	70	36	06000
6,1	8	146	108	94	36	06100
6,2	8	146	108	94	36	06200
6,3	8	146	108	94	36	06300
6,4	8	146	108	94	36	06400
6,5	8	146	108	94	36	06500
6,6	8	146	108	94	36	06600
6,7	8	146	108	94	36	06700
6,8	8	146	108	94	36	06800
6,9	8	146	108	94	36	06900
7,0	8	146	108	94	36	07000
7,1	8	146	108	94	36	07100
7,2	8	146	108	94	36	07200
7,3	8	146	108	94	36	07300
7,4	8	146	108	94	36	07400
7,5	8	146	108	94	36	07500
7,6	8	146	108	94	36	07600
7,7	8	146	108	94	36	07700
7,8	8	146	108	94	36	07800
7,9	8	146	108	94	36	07900
8,0	8	146	108	94	36	08000
8,1	10	162	120	110	40	08100
8,2	10	162	120	110	40	08200
8,3	10	162	120	110	40	08300
8,4	10	162	120	110	40	08400
8,5	10	162	120	110	40	08500
8,6	10	162	120	110	40	08600
8,7	10	162	120	110	40	08700
8,8	10	162	120	110	40	08800
8,9	10	162	120	110	40	08900
9,0	10	162	120	110	40	09000
9,1	10	162	120	110	40	09100

10 796 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
9,2	10	162	120	110	40	09200
9,3	10	162	120	110	40	09300
9,4	10	162	120	110	40	09400
9,5	10	162	120	110	40	09500
9,6	10	162	120	110	40	09600
9,7	10	162	120	110	40	09700
9,8	10	162	120	110	40	09800
9,9	10	162	120	110	40	09900
10,0	10	162	120	110	40	10000
10,1	12	204	156	142	45	10100
10,2	12	204	156	142	45	10200
10,3	12	204	156	142	45	10300
10,4	12	204	156	142	45	10400
10,5	12	204	156	142	45	10500
10,6	12	204	156	142	45	10600
10,7	12	204	156	142	45	10700
10,8	12	204	156	142	45	10800
10,9	12	204	156	142	45	10900
11,0	12	204	156	142	45	11000
11,1	12	204	156	142	45	11100
11,2	12	204	156	142	45	11200
11,3	12	204	156	142	45	11300
11,4	12	204	156	142	45	11400
11,5	12	204	156	142	45	11500
11,6	12	204	156	142	45	11600
11,7	12	204	156	142	45	11700
11,8	12	204	156	142	45	11800
11,9	12	204	156	142	45	11900
12,0	12	204	156	142	45	12000
12,2	14	230	182	166	45	12200
12,5	14	230	182	166	45	12500
12,8	14	230	182	166	45	12800
13,0	14	230	182	166	45	13000
13,5	14	230	182	166	45	13500
13,8	14	230	182	166	45	13800
14,0	14	230	182	166	45	14000
14,5	16	260	208	192	48	14500
14,8	16	260	208	192	48	14800
15,0	16	260	208	192	48	15000
15,5	16	260	208	192	48	15500
15,8	16	260	208	192	48	15800
16,0	16	260	208	192	48	16000
16,5	18	285	234	216	48	16500
16,8	18	285	234	216	48	16800
17,0	18	285	234	216	48	17000
17,5	18	285	234	216	48	17500
17,8	18	285	234	216	48	17800
18,0	18	285	234	216	48	18000
18,5	20	310	258	240	50	18500
18,8	20	310	258	240	50	18800
19,0	20	310	258	240	50	19000
19,5	20	310	258	240	50	19500
19,8	20	310	258	240	50	19800
20,0	20	310	258	240	50	20000

P	●
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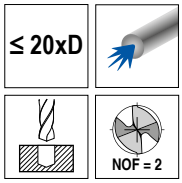
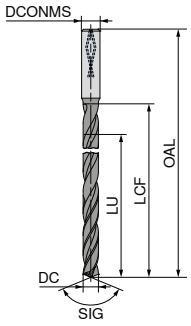
→ v_c Page 117

WTX – Co-pilot deep hole twist drills

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





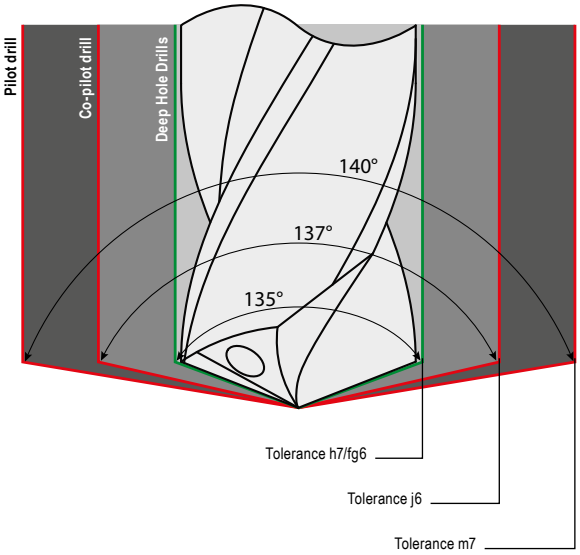
SIG 137°
Solid carbide

11 018 ...

DC j6 mm	DCONMS h5 mm	OAL mm	LCF mm	LU mm	
3,0	6	120	80	60	03000
4,0	6	130	90	80	04000
4,2	6	160	110	84	04200
4,5	6	160	110	90	04500
4,8	6	160	120	96	04800
5,0	6	160	120	100	05000
5,5	6	185	140	110	05500
5,8	6	185	140	116	05800
6,0	6	185	140	120	06000
6,5	8	210	160	130	06500
6,8	8	210	160	136	06800
7,0	8	210	160	140	07000
7,5	8	230	180	150	07500
7,8	8	230	180	156	07800
8,0	8	230	180	160	08000
8,5	10	260	195	170	08500
8,8	10	290	230	176	08800
9,0	10	290	230	180	09000
P					●
M					●
K					●
N					
S					○
H					
O					

→ v_c Page 142

Tolerances and angles



Tolerance table

ISO tolerances for shafts and holes

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

Pilot drill for WTX deep hole twist drill:

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

WTX – High performance deep hole drills

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

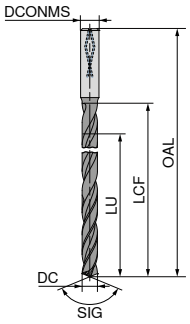
≤ 16xD

NOF = 2

TB 16 UNI | TB 16 ALU

TiAlN | DLC

DRAGONSKIN



SIG 135°
Solid carbide

11 016 ...

SIG 135°
Solid carbide

11 017 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm		
2,0	4	84	42	39	020	020
2,2	4	84	42	39	022	022
2,3	4	84	42	39	023	023
2,4	4	96	54	50	024	024
2,5	4	96	54	50	025	025
2,7	4	96	54	50	027	027
2,8	4	96	54	50	028	028
3,0	6	100	60	55	030	030
3,2	6	100	60	55	032	032
3,3	6	100	60	55	033	033
3,5	6	100	60	55	035	035
3,8	6	115	75	69	038	038
4,0	6	115	75	69	040	040
4,2	6	115	75	69	042	042
4,5	6	130	90	83	045	045
4,8	6	130	90	83	048	048
5,0	6	130	90	83	050	050
5,5	6	150	108	99	055	055
5,8	6	150	108	99	058	058
6,0	6	150	108	99	060	060
6,5	8	165	125	115	065	065
6,8	8	165	125	115	068	068
7,0	8	165	125	115	070	070
7,5	8	180	140	128	075	075
7,8	8	180	140	128	078	078
8,0	8	180	140	128	080	080
8,5	10	205	160	147	085	085
8,8	10	205	160	147	088	088
9,0	10	205	160	147	090	090
9,8	10	225	180	165	098	098
10,0	10	225	180	165	100	100
10,2	12	240	190	174	102	102
10,8	12	240	190	174	108	108
11,8	12	265	215	197	118	118
12,0	12	265	215	197	120	120

P	●	
M	●	
K	●	
N		●
S	○	
H		
O		

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

WTX – High performance deep hole drills

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

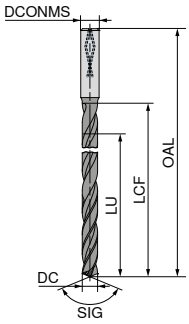
≤ 20xD

NOF = 2

TB 20 UNI | TB 20 ALU

TiAlN | DLC

DRAGONSKIN



SIG 135°
Solid carbide

11 020 ...

SIG 135°
Solid carbide

11 021 ...

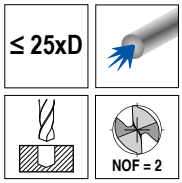
DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm		
2,0	4	92	50	47	020	020
2,2	4	92	50	47	022	022
2,3	4	92	50	47	023	023
2,4	4	112	70	66	024	024
2,5	4	112	70	66	025	025
2,7	4	112	70	66	027	027
2,8	4	112	70	66	028	028
3,0	6	120	80	75	030	030
3,2	6	120	80	75	032	032
3,3	6	120	80	75	033	033
3,5	6	120	80	75	035	035
3,8	6	130	90	84	038	038
4,0	6	130	90	84	040	040
4,2	6	160	110	103	042	042
4,5	6	160	110	103	045	045
4,8	6	160	120	113	048	048
5,0	6	160	120	113	050	050
5,5	6	185	140	131	055	055
5,8	6	185	140	131	058	058
6,0	6	185	140	131	060	060
6,5	8	210	160	150	065	065
6,8	8	210	160	150	068	068
7,0	8	210	160	150	070	070
7,5	8	230	180	168	075	075
7,8	8	230	180	168	078	078
8,0	8	230	180	168	080	080
8,5	10	260	195	182	085	085
8,8	10	290	230	216	088	088
9,0	10	290	230	216	090	090
9,8	10	290	230	216	098	098
10,0	10	290	230	216	100	100
10,2	12	315	268	251	102	102
10,8	12	315	268	251	108	108
11,8	12	315	268	251	118	118
12,0	12	315	268	251	120	120

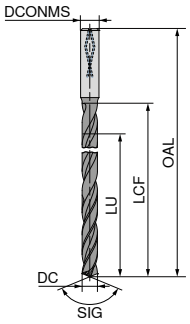
P	●	
M	●	
K	●	
N		●
S	○	
H		
O		

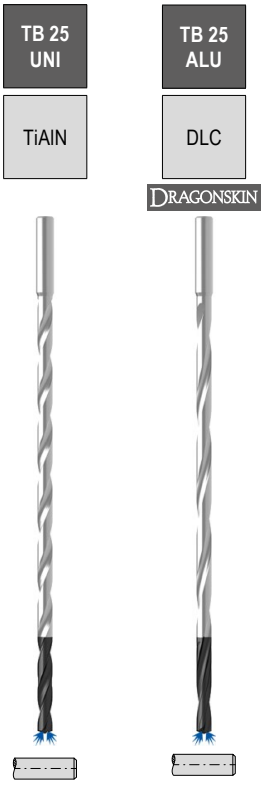
→ v_c Page 143+146
→ Machining information: Page 160

WTX – High performance deep hole drills

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







SIG 135°
Solid carbide

11 025 ...

SIG 135°
Solid carbide

11 026 ...

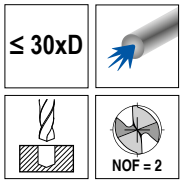
DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm		
2,0	4	104	60	57	020	020
2,2	4	104	60	57	022	022
2,3	4	104	60	57	023	023
2,4	4	125	80	76	024	024
2,5	4	125	80	76	025	025
2,7	4	125	80	76	027	027
2,8	4	125	80	76	028	028
3,0	6	135	98	93	030	030
3,2	6	135	98	93	032	032
3,3	6	150	110	105	033	033
3,5	6	150	110	105	035	035
3,8	6	160	120	114	038	038
4,0	6	160	120	114	040	040
4,2	6	160	120	114	042	042
4,5	6	180	135	128	045	045
4,8	6	180	135	128	048	048
5,0	6	180	135	128	050	050
5,5	6	205	168	159	055	055
5,8	6	205	168	159	058	058
6,0	6	205	168	159	060	060
6,5	8	240	200	190	065	065
6,8	8	240	200	190	068	068
7,0	8	240	200	190	070	070
7,5	8	260	220	208	075	075
7,8	8	260	220	208	078	078
8,0	8	260	220	208	080	080
8,5	10	285	240	227	085	085
8,8	10	310	268	254	088	088
9,0	10	310	268	254	090	090
9,8	10	310	268	254	098	098
10,0	10	310	268	254	100	100
10,2	12	375	325	308	102	102
10,8	12	375	325	308	108	108
11,8	12	375	325	308	118	118
12,0	12	375	325	308	120	120

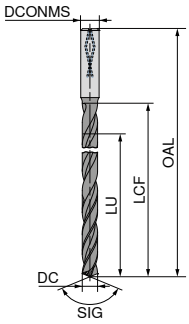
P	●	
M	●	
K	●	
N		●
S	○	
H		
O		

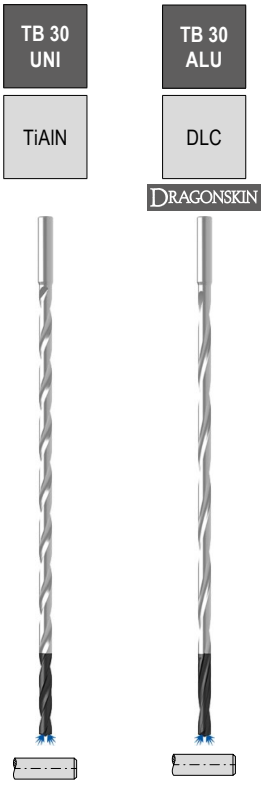
→ v_c Page 144+147
→ Machining information: Page 160

WTX – High performance deep hole drills

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







SIG 135°
Solid carbide

11 030 ...

SIG 135°
Solid carbide

11 031 ...

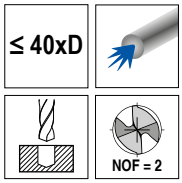
DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm		
2,0	4	115	70	67	020	020
2,2	4	115	70	67	022	022
2,3	4	115	70	67	023	023
2,4	4	138	90	86	024	024
2,5	4	138	90	86	025	025
2,7	4	138	90	86	027	027
2,8	4	138	90	86	028	028
3,0	6	150	105	100	030	030
3,2	6	150	105	100	032	032
3,3	6	185	135	130	033	033
3,5	6	185	135	130	035	035
3,8	6	185	135	130	038	038
4,0	6	185	135	130	040	040
4,2	6	185	135	130	042	042
4,5	6	215	165	158	045	045
4,8	6	215	165	158	048	048
5,0	6	215	165	158	050	050
5,5	6	230	180	171	055	055
5,8	6	230	180	171	058	058
6,0	6	230	180	171	060	060
6,5	8	280	215	205	065	065
6,8	8	280	230	220	068	068
7,0	8	280	230	220	070	070
7,5	8	280	230	220	075	075
7,8	8	315	265	253	078	078
8,0	8	315	265	253	080	080
8,5	10	350	295	282	085	085
8,8	10	380	330	316	088	088
9,0	10	380	330	316	090	090
9,8	10	380	330	316	098	098
10,0	10	380	330	316	100	100
10,2	12	430	380	365	102	102
10,8	12	430	380	365	108	108
11,8	12	430	380	365	118	118
12,0	12	430	380	365	120	120

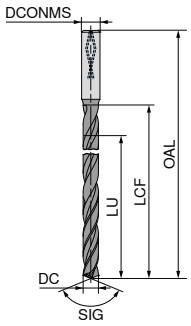
P	●	
M	●	
K	●	
N		●
S	○	
H		
O		

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

WTX – High performance deep hole drills

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





SIG 135°

Solid carbide

11 040 ...

DC fg6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
3,0	6	195	150	146	030
4,0	6	220	175	169	040
4,2	6	245	200	194	042
4,5	6	245	200	194	045
4,8	6	275	230	223	048
5,0	6	275	230	223	050
5,5	6	305	260	251	055
5,8	6	305	260	251	058
6,0	6	305	260	251	060
6,5	8	345	300	290	065
6,8	8	345	300	290	068
7,0	8	345	300	290	070
7,5	8	385	340	328	075
7,8	8	385	340	328	078
8,0	8	385	340	328	080
8,5	10	430	380	367	085
8,8	10	430	380	367	088
9,0	10	430	380	367	090

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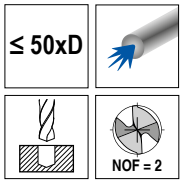
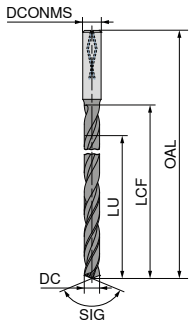
→ v_c Page 145
→ Machining information: Page 160

WTX – High performance deep hole drills

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





SIG 135°

Solid carbide

11 050 ...

DC fg6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
3,0	6	220	175	170	030
4,0	6	265	220	214	040
4,2	6	290	245	238	042
4,5	6	290	245	238	045
4,8	6	320	275	268	048
5,0	6	320	275	268	050
5,5	6	355	310	302	055
5,8	6	355	315	306	058
6,0	6	355	315	306	060
6,5	8	395	350	340	065
6,8	8	425	380	370	068

P	●
M	●
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→ Machining information: Page 160

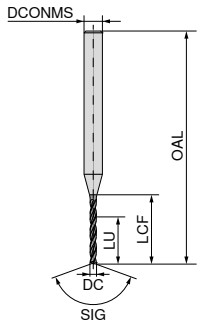
The deep hole twist drills are also available in other dimensions on request.

WTX – High Performance Drills

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

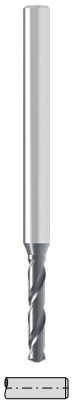
≤ 5xD

NOF = 2



MINI

TiAlN



SIG 140°

Solid carbide

11 770 ...

DC +0,004 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
0,10	3	38	1,2	1,0	00100
0,15	3	38	2,0	1,7	00150
0,20	3	38	3,5	3,0	00200
0,25	3	38	3,5	3,0	00250
0,30	3	38	5,5	5,0	00300
0,35	3	38	5,5	5,0	00350
0,40	3	38	7,0	6,0	00400
0,45	3	38	7,0	6,0	00450
0,50	3	38	7,0	6,0	00500
0,55	3	38	7,0	6,0	00550
0,60	3	38	7,0	6,0	00600
0,65	3	38	7,0	6,0	00650
0,70	3	38	10,5	8,0	00700
0,75	3	38	10,5	8,0	00750
0,80	3	38	10,5	8,0	00800
0,85	3	38	10,5	8,0	00850
0,90	3	38	10,5	8,0	00900
0,95	3	38	10,5	8,0	00950
0,97	3	38	10,5	8,0	00970
0,98	3	38	10,5	8,0	00980
0,99	3	38	10,5	8,0	00990
1,00	3	38	10,5	8,0	01000
1,01	3	38	10,5	8,0	01010
1,02	3	38	10,5	8,0	01020
1,03	3	38	10,5	8,0	01030
1,05	3	38	10,5	8,0	01050
1,10	3	38	10,5	8,0	01100
1,15	3	38	10,5	8,0	01150
1,20	3	38	10,5	8,0	01200
1,25	3	38	10,5	8,0	01250
1,30	3	38	10,5	8,0	01300
1,35	3	38	10,5	8,0	01350
1,40	3	38	10,5	8,0	01400
1,45	3	38	10,5	8,0	01450
1,47	3	38	10,5	8,0	01470
1,48	3	38	10,5	8,0	01480
1,49	3	38	10,5	8,0	01490
1,50	3	38	10,5	8,0	01500
1,51	3	38	10,5	8,0	01510
1,52	3	38	10,5	8,0	01520
1,53	3	38	10,5	8,0	01530
1,55	3	38	10,5	8,0	01550
1,60	3	38	10,5	8,0	01600
1,65	3	38	10,5	8,0	01650
1,70	3	38	10,5	8,0	01700
1,75	3	38	10,5	8,0	01750

11 770 ...

DC +0,004 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
1,80	3	38	10,5	8,0	01800
1,85	3	38	12,0	8,0	01850
1,90	3	38	12,0	8,0	01900
1,95	3	38	12,0	8,0	01950
1,97	3	38	12,0	8,0	01970
1,98	3	38	12,0	8,0	01980
1,99	3	38	12,0	8,0	01990
2,00	3	42	13,0	9,0	02000
2,01	3	42	13,0	9,0	02010
2,02	3	42	13,0	9,0	02020
2,03	3	42	13,0	9,0	02030
2,05	3	42	13,0	9,0	02050
2,10	3	42	13,0	9,0	02100
2,15	3	42	13,0	9,0	02150
2,20	3	46	15,0	10,0	02200
2,25	3	46	15,0	10,0	02250
2,30	3	46	15,0	10,0	02300
2,35	3	46	15,0	10,0	02350
2,40	3	46	15,0	10,0	02400
2,45	3	46	15,0	10,0	02450
2,47	3	46	15,0	10,0	02470
2,48	3	46	15,0	10,0	02480
2,49	3	46	15,0	10,0	02490
2,50	3	46	15,0	10,0	02500
2,51	3	46	15,0	10,0	02510
2,52	3	46	15,0	10,0	02520
2,53	3	46	15,0	10,0	02530
2,60	3	46	15,0	10,0	02600
2,70	3	46	15,0	10,0	02700
2,80	3	46	15,0	10,0	02800
2,90	3	46	15,0	10,0	02900

P	○
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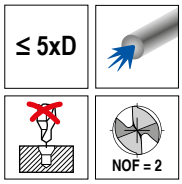
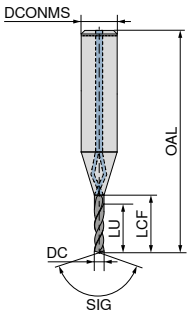
→ v_c Page 136

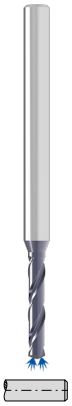
WTX – High Performance Drills

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



MICRO
DPX74M
DRAGONSKIN





SIG 135°
Solid carbide

10 693 ...

DC m6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
0,8	3	39	5,6	4,0	00800
0,9	3	39	6,3	4,5	00900
1,0	3	40	7,0	5,0	01000
1,1	3	41	7,7	5,5	01100
1,2	3	41	8,4	6,0	01200
1,3	3	42	9,1	6,5	01300
1,4	3	42	9,8	7,0	01400
1,5	3	43	10,5	7,5	01500
1,6	3	44	11,2	8,0	01600
1,7	3	44	11,9	8,5	01700
1,8	3	45	12,6	9,0	01800
1,9	3	45	13,3	9,5	01900
2,0	3	46	14,0	10,0	02000
2,1	3	47	14,7	10,5	02100
2,2	3	47	15,4	11,0	02200
2,3	3	48	16,1	11,5	02300
2,4	3	48	16,8	12,0	02400
2,5	3	49	17,5	12,5	02500
2,6	3	50	18,2	13,0	02600
2,7	3	50	18,9	13,5	02700
2,8	3	51	19,6	14,0	02800
2,9	3	51	20,3	14,5	02900

P	●
M	●
K	●
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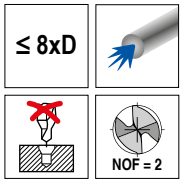
→ v_c Page 137
→ Machining information: Page 161

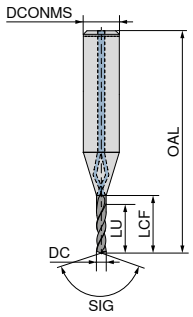
Minimum coolant pressure: 30 bar

WTX – High Performance Drills

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



MICRO
DPX74M
DRAGONSKIN



SIG 128°
Solid carbide

10 694 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
0,8	3	41	8	6,4	00800
0,9	3	42	9	7,2	00900
1,0	3	43	10	8,0	01000
1,1	3	44	11	8,8	01100
1,2	3	45	12	9,6	01200
1,3	3	46	13	10,4	01300
1,4	3	47	14	11,2	01400
1,5	3	47	15	12,0	01500
1,6	3	48	16	12,8	01600
1,7	3	49	17	13,6	01700
1,8	3	50	18	14,4	01800
1,9	3	51	19	15,2	01900
2,0	3	52	20	16,0	02000
2,1	3	53	21	16,8	02100
2,2	3	54	22	17,6	02200
2,3	3	55	23	18,4	02300
2,4	3	56	24	19,2	02400
2,5	3	56	25	20,0	02500
2,6	3	57	26	20,8	02600
2,7	3	58	27	21,6	02700
2,8	3	59	28	22,4	02800
2,9	3	60	29	23,2	02900

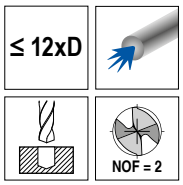
P	●
M	●
K	●
N	
S	○
H	
O	

→ v_c Page 138
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High Performance Drills

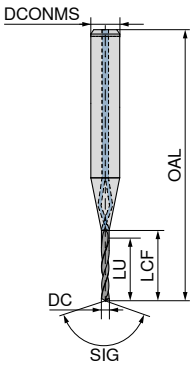
- ▲ Specialised micro drill
- ▲ Universal application
- ▲ Extremely high process security
- ▲ Pilot drill: 5xD WTX Micro – high-performance drill



MICRO

DPX74M

DRAGONSKIN



SIG 128°

Solid carbide

10 695 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
0,8	3	44	11,2	9,6	00800
0,9	3	46	12,6	10,8	00900
1,0	3	47	14,0	12,0	01000
1,1	3	48	15,4	13,2	01100
1,2	3	50	16,8	14,4	01200
1,3	3	51	18,2	15,6	01300
1,4	3	52	19,6	16,8	01400
1,5	3	53	21,0	18,0	01500
1,6	3	55	22,4	19,2	01600
1,7	3	56	23,8	20,4	01700
1,8	3	57	25,2	21,6	01800
1,9	3	59	26,6	22,8	01900
2,0	3	60	28,0	24,0	02000
2,1	3	61	29,4	25,2	02100
2,2	3	63	30,8	26,4	02200
2,3	3	64	32,2	27,6	02300
2,4	3	65	33,6	28,8	02400
2,5	3	67	35,0	30,0	02500
2,6	3	68	36,4	31,2	02600
2,7	3	69	37,8	32,4	02700
2,8	3	70	39,2	33,6	02800
2,9	3	72	40,6	34,8	02900

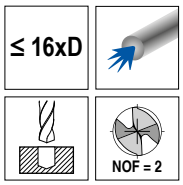
P	●
M	●
K	●
N	
S	○
H	
O	

→ v_c Page 138
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High performance deep hole drills

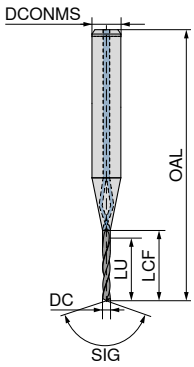
- ▲ Specialised micro deep hole drill
- ▲ Universal application
- ▲ Extremely high process security
- ▲ Pilot drill: 5xD WTX Micro – high-performance drill



MICRO

DPX74M

DRAGONSKIN



SIG 128°

Solid carbide

10 696 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
0,8	3	48	14,4	12,8	00800
0,9	3	49	16,2	14,4	00900
1,0	3	51	18,0	16,0	01000
1,1	3	53	19,8	17,6	01100
1,2	3	54	21,6	19,2	01200
1,3	3	56	23,4	20,8	01300
1,4	3	58	25,2	22,4	01400
1,5	3	60	27,0	24,0	01500
1,6	3	61	28,8	25,6	01600
1,7	3	63	30,6	27,2	01700
1,8	3	65	32,4	28,8	01800
1,9	3	66	34,2	30,4	01900
2,0	3	68	36,0	32,0	02000
2,1	3	70	37,8	33,6	02100
2,2	3	71	39,6	35,2	02200
2,3	3	73	41,4	36,8	02300
2,4	3	75	43,2	38,4	02400
2,5	3	77	45,0	40,0	02500
2,6	3	78	46,8	41,6	02600
2,7	3	80	48,6	43,2	02700
2,8	3	82	50,4	44,8	02800
2,9	3	83	52,2	46,4	02900

P	●
M	●
K	●
N	
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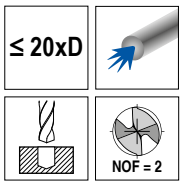
H	
O	

→ v_c Page 139
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High performance deep hole drills

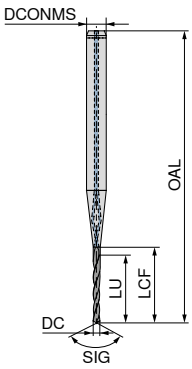
- ▲ Specialised micro deep hole drill
- ▲ Universal application
- ▲ Extremely high process security
- ▲ Pilot drill: 5xD WTX Micro – high-performance drill



MICRO

DPX74M

DRAGONSKIN



SIG 128°

Solid carbide

10 697 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
0,8	3	51	17,6	16	00800
0,9	3	53	19,8	18	00900
1,0	3	55	22,0	20	01000
1,1	3	57	24,2	22	01100
1,2	3	59	26,4	24	01200
1,3	3	61	28,6	26	01300
1,4	3	63	30,8	28	01400
1,5	3	66	33,0	30	01500
1,6	3	68	35,2	32	01600
1,7	3	70	37,4	34	01700
1,8	3	72	39,6	36	01800
1,9	3	74	41,8	38	01900
2,0	3	76	44,0	40	02000
2,1	3	78	46,2	42	02100
2,2	3	80	48,4	44	02200
2,3	3	82	50,6	46	02300
2,4	3	85	52,8	48	02400
2,5	3	87	55,0	50	02500
2,6	3	89	57,2	52	02600
2,7	3	91	59,4	54	02700
2,8	3	93	61,6	56	02800
2,9	3	95	63,8	58	02900

P	●
M	●
K	●
N	
S	
H	
O	

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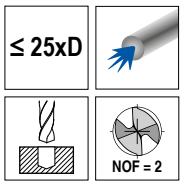
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High performance deep hole drills

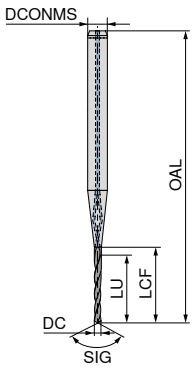
- ▲ Specialised micro deep hole drill
- ▲ Universal application
- ▲ Extremely high process security
- ▲ Pilot drill: 5xD WTX Micro – high-performance drill



MICRO

DPX74M

DRAGONSKIN



SIG 128°

Solid carbide

10 698 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
0,8	3	54	21,6	16,0	00800
0,9	3	57	24,3	20,5	00900
1,0	3	60	27,0	25,0	01000
1,1	3	63	29,7	27,5	01100
1,2	3	65	32,4	30,0	01200
1,3	3	68	35,1	32,5	01300
1,4	3	71	37,8	35,0	01400
1,5	3	73	40,5	37,5	01500
1,6	3	76	43,2	40,0	01600
1,7	3	78	45,9	42,5	01700
1,8	3	81	48,6	45,0	01800
1,9	3	84	51,3	47,5	01900
2,0	3	86	54,0	50,0	02000
2,1	3	89	56,7	52,5	02100
2,2	3	91	59,4	55,0	02200
2,3	3	94	62,1	57,5	02300
2,4	3	97	64,8	60,0	02400
2,5	3	99	67,5	62,5	02500
2,6	3	102	70,2	65,0	02600
2,7	3	104	72,9	67,5	02700
2,8	3	107	75,6	70,0	02800
2,9	3	110	78,3	72,5	02900

P	●
M	●
K	●
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H	
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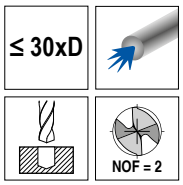
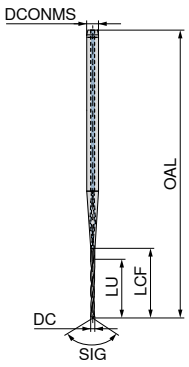
→ v_c Page 139
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High performance deep hole drills

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





SIG 128°
Solid carbide

10 699 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
0,8	3	59	25,6	19,2	00800
0,9	3	62	28,8	24,5	00900
1,0	3	65	32,0	30,0	01000
1,1	3	68	35,2	33,0	01100
1,2	3	71	38,4	36,0	01200
1,3	3	74	41,6	39,0	01300
1,4	3	78	44,8	42,0	01400
1,5	3	81	48,0	45,0	01500
1,6	3	84	51,2	48,0	01600
1,7	3	87	54,4	51,0	01700
1,8	3	90	57,6	54,0	01800
1,9	3	93	60,8	57,0	01900
2,0	3	96	64,0	60,0	02000
2,1	3	99	67,2	63,0	02100
2,2	3	102	70,4	66,0	02200
2,3	3	106	73,6	69,0	02300
2,4	3	109	76,8	72,0	02400
2,5	3	112	80,0	75,0	02500
2,6	3	115	83,2	78,0	02600
2,7	3	118	86,4	81,0	02700
2,8	3	121	89,6	84,0	02800
2,9	3	124	92,8	87,0	02900

P	●
M	●
K	●
N	
S	
H	
O	

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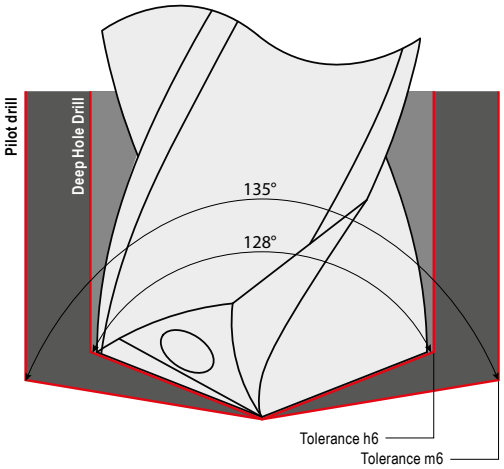
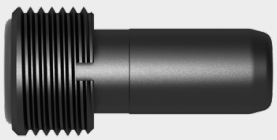
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

Tolerances and angles



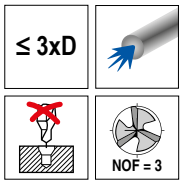
Coolant transfer pipe with strainer
HSK-A 63 / HSK-A 100

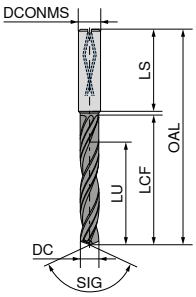


With the help of the new coolant transfer pipe, it is possible to filter very small chips and impurities out of the coolant.
More information on this can be found in the
→ **Catalogue Clamping Technology, chapter 16, page 156**.

WTX – Drill-Reamer 1/100

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





Feed BR100

DPX14S

DRAGONSKIN

SIG 140°

Solid carbide

10 707 ...

DC ±0,003 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
3,97	6	66	24	17	36	03970
3,98	6	66	24	17	36	03980
3,99	6	66	24	17	36	03990
4,00	6	66	24	17	36	04000
4,01	6	66	24	17	36	04010
4,02	6	66	24	17	36	04020
4,97	6	66	28	20	36	04970
4,98	6	66	28	20	36	04980
4,99	6	66	28	20	36	04990
5,00	6	66	28	20	36	05000
5,01	6	66	28	20	36	05010
5,02	6	66	28	20	36	05020
5,97	6	66	28	20	36	05970
5,98	6	66	28	20	36	05980
5,99	6	66	28	20	36	05990
6,00	6	66	28	20	36	06000
6,01	6	66	28	20	36	06010
6,02	6	66	28	20	36	06020
7,97	8	79	41	29	36	07970
7,98	8	79	41	29	36	07980
7,99	8	79	41	29	36	07990
8,00	8	79	41	29	36	08000
8,01	8	79	41	29	36	08010
8,02	8	79	41	29	36	08020
9,97	10	89	47	35	40	09970
9,98	10	89	47	35	40	09980
9,99	10	89	47	35	40	09990
10,00	10	89	47	35	40	10000
10,01	10	89	47	35	40	10010
10,02	10	89	47	35	40	10020
11,97	12	102	55	40	45	11970
11,98	12	102	55	40	45	11980
11,99	12	102	55	40	45	11990
12,00	12	102	55	40	45	12000
12,01	12	102	55	40	45	12010
12,02	12	102	55	40	45	12020

P	●
M	●
K	●
N	
S	
H	
O	

Tolerances

e.g. Ø 8 F7 = 8.02 mm

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

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

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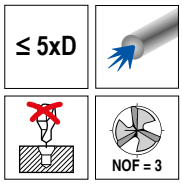
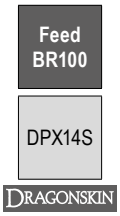
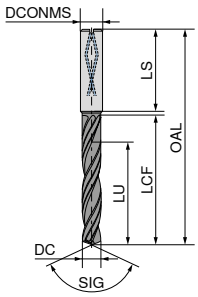
WTX – Drill-Reamer 1/100

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







SIG 140°

Solid carbide

10 713 ...

DC ±0,003 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
3,97	6	74	36	29	36	**03970**
3,98	6	74	36	29	36	**03980**
3,99	6	74	36	29	36	**03990**
4,00	6	74	36	29	36	**04000**
4,01	6	74	36	29	36	**04010**
4,02	6	74	36	29	36	**04020**
4,97	6	82	44	35	36	**04970**
4,98	6	82	44	35	36	**04980**
4,99	6	82	44	35	36	**04990**
5,00	6	82	44	35	36	**05000**
5,01	6	82	44	35	36	**05010**
5,02	6	82	44	35	36	**05020**
5,97	6	82	44	35	36	**05970**
5,98	6	82	44	35	36	**05980**
5,99	6	82	44	35	36	**05990**
6,00	6	82	44	35	36	**06000**
6,01	6	82	44	35	36	**06010**
6,02	6	82	44	35	36	**06020**
7,97	8	91	53	43	36	**07970**
7,98	8	91	53	43	36	**07980**
7,99	8	91	53	43	36	**07990**
8,00	8	91	53	43	36	**08000**
8,01	8	91	53	43	36	**08010**
8,02	8	91	53	43	36	**08020**
9,97	10	103	61	49	40	**09970**
9,98	10	103	61	49	40	**09980**
9,99	10	103	61	49	40	**09990**
10,00	10	103	61	49	40	**10000**
10,01	10	103	61	49	40	**10010**
10,02	10	103	61	49	40	**10020**
11,97	12	118	71	56	45	**11970**
11,98	12	118	71	56	45	**11980**
11,99	12	118	71	56	45	**11990**
12,00	12	118	71	56	45	**12000**
12,01	12	118	71	56	45	**12010**
12,02	12	118	71	56	45	**12020**

P	●
M	●
K	●
N	
S	
H	
O	

Tolerances

e.g. Ø 8 F7 = 8.02 mm

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

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

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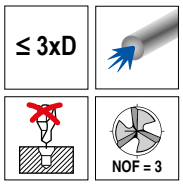
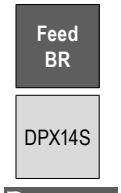
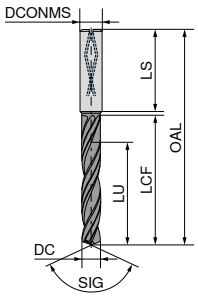
WTX – Drill-Reamer H7

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







SIG 140°

Solid carbide

10 711 ...

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

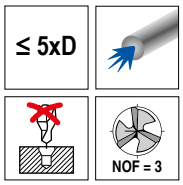
P	●
M	●
K	●
N	
S	
H	
O	

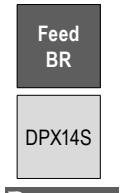
→ v_c Page 140

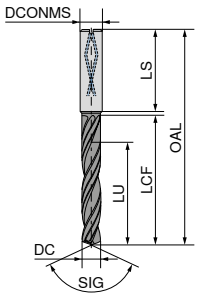
Special dimensions available upon request

WTX – Drill-Reamer H7

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







SIG 140°

Solid carbide

10 719 ...

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

P	●
M	●
K	●
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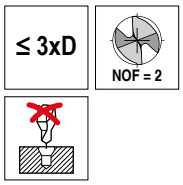
S	
H	
O	

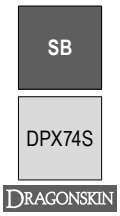
→ v_c Page 141

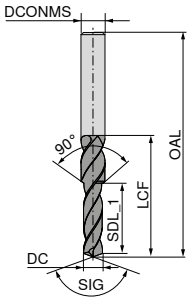
Special dimensions available upon request

WTX – Short 90° step drill

▲ for core hole plus countersink for thread cutting







SIG 140°

Solid carbide

10 767 ...

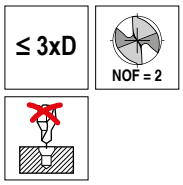
For threads	DC m7 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	
M3	2,5	6	62	8,8	20	**02500**
M4	3,3	6	62	11,4	24	**03300**
M5	4,2	6	66	13,6	28	**04200**
M6	5,0	8	79	16,5	34	**05000**
M8	6,8	10	89	21,0	47	**06800**
M10	8,5	12	102	25,5	55	**08500**
M12	10,2	14	107	30,0	60	**10200**
M14	12,0	16	115	34,5	65	**12000**
M16	14,0	18	123	38,5	73	**14000**

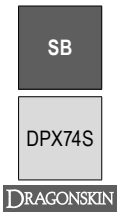
P	●
M	
K	●
N	
S	
H	○
O	

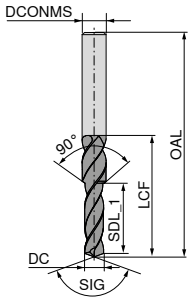
→ v_c Page 135

WTX – Short 90° step drill

▲ for core hole plus countersink for thread forming







SIG 140°

Solid carbide

10 772 ...

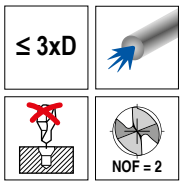
For threads	DC m7 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	
M3	2,80	6	62	8,8	20	**02800**
M4	3,70	6	62	11,4	24	**03700**
M5	4,65	6	66	13,6	28	**04650**
M6	5,55	8	79	16,5	34	**05550**
M8	7,45	10	89	21,0	47	**07450**
M10	9,30	12	102	25,5	55	**09300**
M12	11,20	14	107	30,0	60	**11200**
M14	13,00	16	115	34,5	65	**13000**
M16	15,00	18	123	38,5	73	**15000**

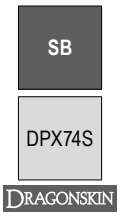
P	●
M	
K	●
N	
S	
H	○
O	

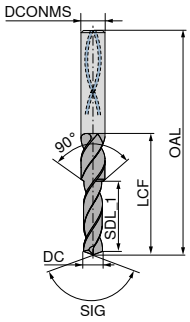
→ v_c Page 135

WTX – Short 90° step drill

▲ for core hole plus countersink for thread cutting







SIG 140°

Solid carbide

10 783 ...

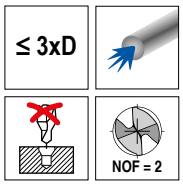
For threads	DC $_{m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	SDL_1 mm	LCF mm	
M4	3,3	6	62	11,4	24	**03300**
M5	4,2	6	66	13,6	28	**04200**
M6	5,0	8	79	16,5	34	**05000**
M8	6,8	10	89	21,0	47	**06800**
M10	8,5	12	102	25,5	55	**08500**
M12	10,2	14	107	30,0	60	**10200**
M14	12,0	16	115	34,5	65	**12000**
M16	14,0	18	123	38,5	73	**14000**

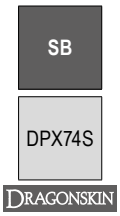
P	●
M	
K	●
N	
S	
H	○
O	

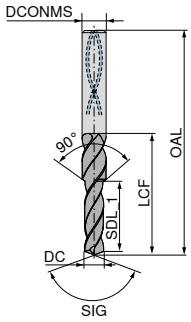
→ v_c Page 135

WTX – Short 90° step drill

▲ for core hole plus countersink for thread forming







SIG 140°

Solid carbide

10 788 ...

For threads	DC $_{m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	SDL_1 mm	LCF mm	
M4	3,70	6	62	11,4	24	**03700**
M5	4,65	6	66	13,6	28	**04650**
M6	5,55	8	79	16,5	34	**05550**
M8	7,45	10	89	21,0	47	**07450**
M10	9,30	12	102	25,5	55	**09300**
M12	11,20	14	107	30,0	60	**11200**
M14	13,00	16	115	34,5	65	**13000**
M16	15,00	18	123	38,5	73	**15000**

P	●
M	
K	●
N	
S	
H	○
O	

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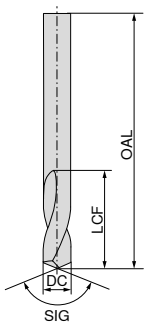
NC Spot Drill, factory standard

▲ spiral flute



			NC-A	NC-A TiAlN	NC-A	NC-A TiAlN	NC-A	NC-A TiAlN				
			SIG 90°	SIG 90°	SIG 120°	SIG 120°	SIG 142°	SIG 142°				
			Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide				
			10 702 ...	**10 716 ...**	**10 703 ...**	**10 717 ...**	**10 704 ...**	**10 718 ...**				
DC $_{js8}$ **mm**	OAL mm	LCF mm										
2	32	6	**002**	**002** [1]	**002**	**002** [1]	**002**	**002** [1]				
3	32	8	**003**	**003** [1]	**003**	**003** [1]	**003**	**003** [1]				
4	40	10	**004**	**004** [1]	**004**	**004** [1]	**004**	**004** [1]				
5	50	13	**005**	**005** [1]	**005**	**005** [1]	**005**	**005** [1]				
6	50	13	**006**	**006**	**006**	**006**	**006**	**006**				
8	60	23	**008**	**008**	**008**	**008**	**008**	**008**				
10	70	24	**010**	**010**	**010**	**010**	**010**	**010**				
12	70	24	**012**	**012**	**012**	**012**	**012**	**012**				
14	75	26	**014**	**014**	**014**	**014**	**014**	**014**				
16	75	29	**016**	**016**	**016**	**016**	**016**	**016**				
18	100	35	**018**	**018**	**018**	**018**	**018**	**018**				
20	100	35	**020**	**020**	**020**	**020**	**020**	**020**				
P			●	●	●	●	●	●				
M												
K			●	●	●	●	●	●				
N			●	●	●	●	●	●				
S												
H				○		○		○				
O												

1) DIN 6535 HA Shank

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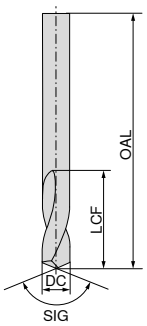
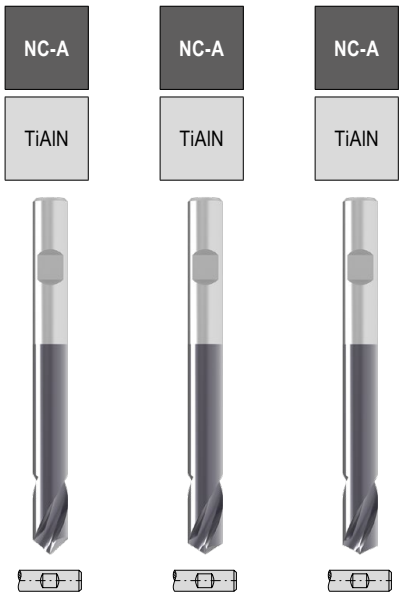
NC Spot Drill, factory standard, long

▲ spiral flutes

2

NOF = 2





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

1) DIN 6535 HA Shank

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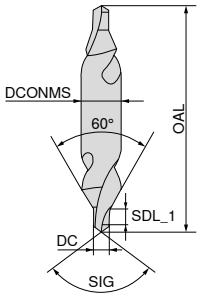
Centre drills, DIN 333, form A

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

ZB



SIG 120°
Solid carbide

DC k13 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	10 708 ...
0,50	3,15	20,0	0,76	**050** 1)
0,80	3,15	20,0	1,07	**080** 1)
1,00	3,15	31,5	1,31	**100**
1,25	3,15	31,5	1,54	**125**
1,60	4,00	35,5	1,94	**160**
2,00	5,00	40,0	2,32	**200**
2,50	6,30	45,0	2,88	**250**
3,15	8,00	50,0	3,49	**315**
4,00	10,00	56,0	4,45	**400**
5,00	12,50	63,0	5,46	**500**
6,30	16,00	71,0	6,78	**630**
P				●
M				
K				●
N				●
S				
H				
O				

1) Single ended

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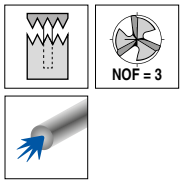
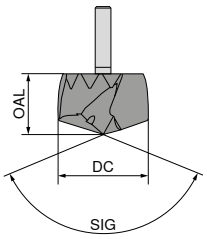
WTX – Drilling Head for Exchangeable drills

▲ extra long head type
▲ three-edged

Scope of supply:
Drill head incl. differential screw





Change Feed UNI
Ti750

SIG 140°
Solid carbide

DC m7 mm	OAL mm	10 925 ...
14,0	13,5	140
14,1	13,5	141
14,2	13,5	142
14,3	13,5	143
14,4	13,5	144
14,5	14,0	145
14,6	14,0	146
14,7	14,0	147
14,8	14,0	148
14,9	14,0	149
15,0	14,4	150
15,1	14,4	151
15,2	14,4	152
15,3	14,4	153
15,4	14,4	154
15,5	15,4	155
15,6	15,4	156
15,7	15,4	157
15,8	15,4	158
15,9	15,4	159
16,0	15,4	160
16,1	15,4	161
16,2	15,4	162
16,3	15,4	163
16,4	15,4	164
16,5	16,3	165
16,6	16,3	166
16,7	16,3	167
16,8	16,3	168
16,9	16,3	169
17,0	16,3	170
17,1	16,3	171
17,2	16,3	172
17,3	16,3	173
17,4	16,3	174
17,5	17,2	175
17,6	17,2	176
17,7	17,2	177
17,8	17,2	178
17,9	17,2	179
18,0	17,2	180
18,1	17,2	181
18,2	17,2	182
18,3	17,2	183
18,4	17,2	184
18,5	18,2	185
18,6	18,2	186
18,7	18,2	187
18,8	18,2	188
18,9	18,2	189

DC m7 mm	OAL mm	10 925 ...
19,0	18,2	190
19,1	18,2	191
19,2	18,2	192
19,3	18,2	193
19,4	18,2	194
19,5	19,1	195
19,6	19,1	196
19,7	19,1	197
19,8	19,1	198
19,9	19,1	199
20,0	19,1	200
20,1	19,1	201
20,2	19,1	202
20,3	19,1	203
20,4	19,1	204
20,5	20,0	205
20,6	20,0	206
20,7	20,0	207
20,8	20,0	208
20,9	20,0	209
21,0	20,0	210
21,1	20,0	211
21,2	20,0	212
21,3	20,0	213
21,4	20,0	214
21,5	21,0	215
21,6	21,0	216
21,7	21,0	217
21,8	21,0	218
21,9	21,0	219
22,0	21,0	220
22,1	21,0	221
22,2	21,0	222
22,3	21,0	223
22,4	21,0	224
22,5	21,9	225
22,6	21,9	226
22,7	21,9	227
22,8	21,9	228
22,9	21,9	229
23,0	21,9	230
23,1	21,9	231
23,2	21,9	232
23,3	21,9	233
23,4	21,9	234
23,5	22,8	235
23,6	22,8	236
23,7	22,8	237
23,8	22,8	238
23,9	22,8	239
24,0	22,8	240
24,1	22,8	241
24,2	22,8	242
24,3	22,8	243
24,4	22,8	244
24,5	23,8	245
24,6	23,8	246
24,7	23,8	247
24,8	23,8	248
24,9	23,8	249
25,0	23,8	250

	10 925 ...
P	●
M	
K	●
N	
S	
H	
O	

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→ Application recommendation on page 162

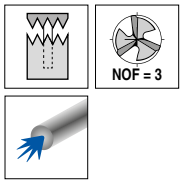
When changing the head, please observe the specified tightening torque.

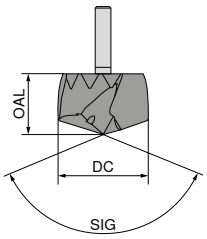
Continued on next page

WTX – Drilling Head for Exchangeable drills

▲ extra long head type
▲ three-edged

Scope of supply:
Drill head incl. differential screw





Change Feed UNI
Ti750

SIG 140°
Solid carbide

DC m7 mm	OAL mm	10 925 ...
25,1	23,8	251
25,2	23,8	252
25,3	23,8	253
25,4	23,8	254
25,5	24,7	255
25,6	24,7	256
25,7	24,7	257
25,8	24,7	258
25,9	24,7	259
26,0	24,7	260
26,1	24,7	261
26,2	24,7	262
26,3	24,7	263
26,4	24,7	264
26,5	25,6	265
26,6	25,6	266
26,7	25,6	267
26,8	25,6	268
26,9	25,6	269
27,0	25,6	270
27,1	25,6	271
27,2	25,6	272
27,3	25,6	273
27,4	25,6	274
27,5	26,6	275
27,6	26,6	276
27,7	26,6	277
27,8	26,6	278
27,9	26,6	279
28,0	26,6	280
28,1	26,6	281
28,2	26,6	282
28,3	26,6	283
28,4	26,6	284
28,5	27,5	285
28,6	27,5	286
28,7	27,5	287
28,8	27,5	288
28,9	27,5	289
29,0	27,5	290
29,1	27,5	291
29,2	27,5	292
29,3	27,5	293
29,4	27,5	294
29,5	28,4	295
29,6	28,4	296
29,7	28,4	297
29,8	28,4	298
29,9	28,4	299
30,0	28,4	300

DC m7 mm	OAL mm	10 925 ...
30,1	28,4	301
30,2	28,4	302
30,3	28,4	303
30,4	28,4	304
30,5	29,3	305
30,6	29,3	306
30,7	29,3	307
30,8	29,3	308
30,9	29,3	309
31,0	29,3	310
31,1	29,3	311
31,2	29,3	312
31,3	29,3	313
31,4	29,3	314
31,5	30,3	315
31,6	30,3	316
31,7	30,3	317
31,8	30,3	318
31,9	30,3	319
32,0	30,3	320

P	●
M	
K	●
N	
S	
H	
O	

→ v_c Page 156
→ Application recommendation on page 162

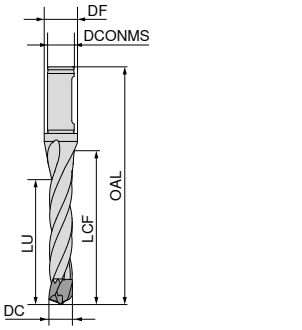
When changing the head, please observe the specified tightening torque.

WTX – Holder for Exchangeable drills

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

≤ 3xD

Change Feed



10 914 ...

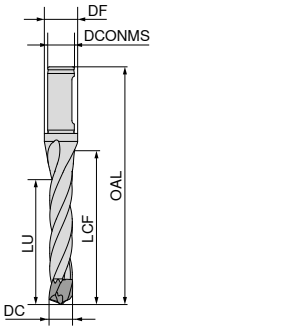
DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	DF mm	torque moment Nm	
14,00 - 14,49	16	120	72	48	20	0,7	140
14,50 - 14,99	16	122	74	49	20	0,7	145
15,00 - 15,49	16	124	76	51	25	0,7	150
15,50 - 16,49	20	131	81	54	25	0,7	155
16,50 - 17,49	20	135	85	58	25	0,7	165
17,50 - 18,49	20	140	90	61	25	1,3	175
18,50 - 19,49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

WTX – Holder for Exchangeable drills

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

≤ 5xD

Change Feed



10 916 ...

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

Interchangeable blade

Blade holder

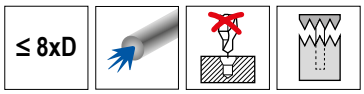
Torque handle

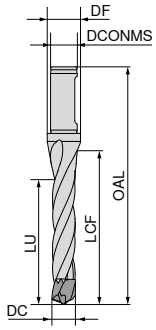
Differential screw

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

WTX – Holder for Exchangeable drills

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





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

Interchangeable blade

Blade holder

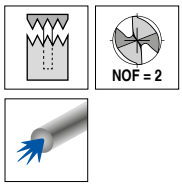
Torque handle

Differential screw

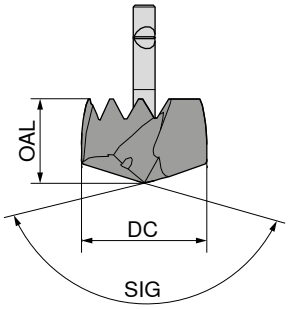
Spare parts DC	80 022 ...	80 020 ...	80 023 ...	10 950 ...
14,00 - 14,49	007	025	012	064
14,50 - 14,99	007	025	012	064
15,00 - 15,49	007	025	012	064
15,50 - 16,49	007	025	012	064
16,50 - 17,49	007	025	012	064
17,50 - 18,49	008	025	060	065
18,50 - 19,49	008	025	060	065
19,50 - 20,49	010	025	060	066
20,50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

WTX – Drilling Head for Exchangeable drills

▲ extra long head type



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



DC $_{h7/m7}$ mm	OAL mm	SIG 140° Solid carbide 10 919 ...	SIG 138° Solid carbide 10 923 ...	SIG 138° Solid carbide 10 921 ...	SIG 140° Solid carbide 10 924 ...	SIG 140° Solid carbide 10 922 ...
12,0	10,7	12000	120	120	120	120
12,1	10,7	12100	121	121	121	121
12,2	10,7	12200	122	122	122	122
12,3	10,7	12300	123	123	123	123
12,4	10,7	12400	124	124	124	124
12,5	10,7	12500	125	125	125	125
12,6	10,7	12600	126	126	126	126
12,7	10,7	12700	127	127	127	127
12,8	10,7	12800	128	128	128	128
12,9	10,7	12900	129	129	129	129
13,0	10,7	13000	130	130	130	130
13,1	10,7	13100	131	131	131	131
13,2	10,7	13200	132	132	132	132
13,3	10,7	13300	133	133	133	133
13,4	10,7	13400	134	134	134	134
13,5	11,3	13500	135	135	135	135
13,6	11,3	13600	136	136	136	136
13,7	11,3	13700	137	137	137	137
13,8	11,3	13800	138	138	138	138
13,9	11,3	13900	139	139	139	139
14,0	11,3	14000	140	140	140	140
14,1	11,3	14100	141	141	141	141
14,2	11,3	14200	142	142	142	142
14,3	11,3	14300	143	143	143	143
14,4	11,3	14400	144	144	144	144
14,5	11,3	14500	145	145	145	145
14,6	11,3	14600	146	146	146	146
14,7	11,3	14700	147	147	147	147
14,8	11,3	14800	148	148	148	148
14,9	11,3	14900	149	149	149	149
15,0	11,3	15000	150	150	150	150
15,1	11,3	15100	151	151	151	151
15,2	11,3	15200	152	152	152	152
15,3	11,3	15300	153	153	153	153
15,4	11,3	15400	154	154	154	154
15,5	11,9	15500	155	155	155	155
15,6	11,9	15600	156	156	156	156
15,7	11,9	15700	157	157	157	157
P		●	●	○		
M				●		
K		●	●	●	●	
N						●
S				●		
H						
O						

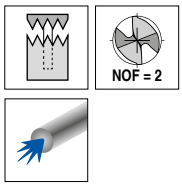
→ v_c Page 152–155
→ Application recommendation on page 162

ⓘ **Ø DC$_{m7}$** for Type UNI, P, GG und AL / **Ø DC$_{h7}$** for Type VA

Continued on next page

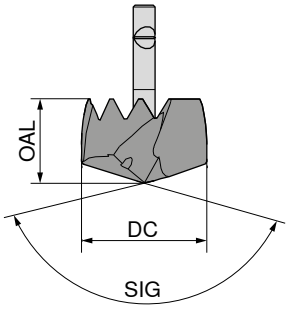
WTX – Drilling Head for Exchangeable drills

▲ extra long head type



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

DRAGONSKIN



DC $_{h7/m7}$ mm	OAL mm	SIG 140° Solid carbide 10 919 ...	SIG 138° Solid carbide 10 923 ...	SIG 138° Solid carbide 10 921 ...	SIG 140° Solid carbide 10 924 ...	SIG 140° Solid carbide 10 922 ...
15,8	11,9	15800	158	158	158	158
15,9	11,9	15900	159	159	159	159
16,0	11,9	16000	160	160	160	160
16,1	11,9	16100	161	161	161	161
16,2	11,9	16200	162	162	162	162
16,3	11,9	16300	163	163	163	163
16,4	11,9	16400	164	164	164	164
16,5	13,4	16500	165	165	165	165
16,6	13,4	16600	166	166	166	166
16,7	13,4	16700	167	167	167	167
16,8	13,4	16800	168	168	168	168
16,9	13,4	16900	169	169	169	169
17,0	13,4	17000	170	170	170	170
17,1	13,4	17100	171	171	171	171
17,2	13,4	17200	172	172	172	172
17,3	13,4	17300	173	173	173	173
17,4	13,4	17400	174	174	174	174
17,5	13,4	17500	175	175	175	175
17,6	13,4	17600	176	176	176	176
17,7	13,4	17700	177	177	177	177
17,8	13,4	17800	178	178	178	178
17,9	13,4	17900	179	179	179	179
18,0	13,4	18000	180	180	180	180
18,1	13,4	18100	181	181	181	181
18,2	13,4	18200	182	182	182	182
18,3	13,4	18300	183	183	183	183
18,4	13,4	18400	184	184	184	184
18,5	13,4	18500	185	185	185	185
18,6	13,4	18600	186	186	186	186
18,7	13,4	18700	187	187	187	187
18,8	13,4	18800	188	188	188	188
18,9	13,4	18900	189	189	189	189
19,0	13,4	19000	190	190	190	190
19,1	13,4	19100	191	191	191	191
19,2	13,4	19200	192	192	192	192
19,3	13,4	19300	193	193	193	193
19,4	13,4	19400	194	194	194	194
19,5	13,4	19500	195	195	195	195
P		●	●	○		
M				●		
K		●	●	●	●	
N						●
S				●		
H						
O						

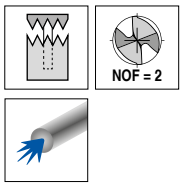
→ v_c Page 152–155
→ Application recommendation on page 162

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

Continued on next page

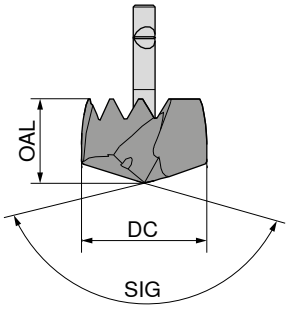
WTX – Drilling Head for Exchangeable drills

▲ extra long head type



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

DRAGONSKIN



DC $_{h7/m7}$ mm	OAL mm	SIG 140° Solid carbide 10 919 ...	SIG 138° Solid carbide 10 923 ...	SIG 138° Solid carbide 10 921 ...	SIG 140° Solid carbide 10 924 ...	SIG 140° Solid carbide 10 922 ...
19,6	13,4	19600	196	196	196	196
19,7	13,4	19700	197	197	197	197
19,8	13,4	19800	198	198	198	198
19,9	13,4	19900	199	199	199	199
20,0	13,4	20000	200	200	200	200
20,1	13,4	20100	201	201	201	201
20,2	13,4	20200	202	202	202	202
20,3	13,4	20300	203	203	203	203
20,4	13,4	20400	204	204	204	204
20,5	15,4	20500	205	205	205	205
20,6	15,4	20600	206	206	206	206
20,7	15,4	20700	207	207	207	207
20,8	15,4	20800	208	208	208	208
20,9	15,4	20900	209	209	209	209
21,0	15,4	21000	210	210	210	210
21,1	15,4	21100	211	211	211	211
21,2	15,4	21200	212	212	212	212
21,3	15,4	21300	213	213	213	213
21,4	15,4	21400	214	214	214	214
21,5	15,4	21500	215	215	215	215
21,6	15,4	21600	216	216	216	216
21,7	15,4	21700	217	217	217	217
21,8	15,4	21800	218	218	218	218
21,9	15,4	21900	219	219	219	219
22,0	15,4	22000	220	220	220	220
22,1	15,4	22100	221	221	221	221
22,2	15,4	22200	222	222	222	222
22,3	15,4	22300	223	223	223	223
22,4	15,4	22400	224	224	224	224
22,5	15,4	22500	225	225	225	225
22,6	15,4	22600	226	226	226	226
22,7	15,4	22700	227	227	227	227
22,8	15,4	22800	228	228	228	228
22,9	15,4	22900	229	229	229	229
23,0	15,4	23000	230	230	230	230
23,1	15,4	23100	231	231	231	231
23,2	15,4	23200	232	232	232	232
23,3	15,4	23300	233	233	233	233
P		●	●	○		
M				●		
K		●	●	●	●	
N						●
S				●		
H						
O						

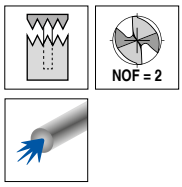
→ v_c Page 152–155
→ Application recommendation on page 162

ⓘ **Ø DC$_{m7}$** for Type UNI, P, GG und AL / **Ø DC$_{h7}$** for Type VA

Continued on next page

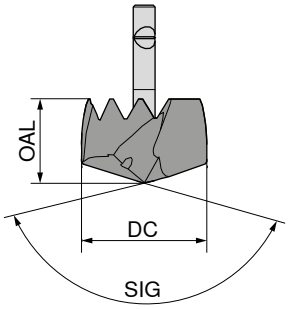
WTX – Drilling Head for Exchangeable drills

▲ extra long head type



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

DRAGONSKIN



DC $_{h7/m7}$ mm	OAL mm	SIG 140° Solid carbide 10 919 ...	SIG 138° Solid carbide 10 923 ...	SIG 138° Solid carbide 10 921 ...	SIG 140° Solid carbide 10 924 ...	SIG 140° Solid carbide 10 922 ...
23,4	15,4	23400	234	234	234	234
23,5	15,4	23500	235	235	235	235
23,6	15,4	23600	236	236	236	236
23,7	15,4	23700	237	237	237	237
23,8	15,4	23800	238	238	238	238
23,9	15,4	23900	239	239	239	239
24,0	15,4	24000	240	240	240	240
24,1	15,4	24100	241	241	241	241
24,2	15,4	24200	242	242	242	242
24,3	15,4	24300	243	243	243	243
24,4	15,4	24400	244	244	244	244
24,5	17,4	24500	245	245	245	245
24,6	17,4	24600	246	246	246	246
24,7	17,4	24700	247	247	247	247
24,8	17,4	24800	248	248	248	248
24,9	17,4	24900	249	249	249	249
25,0	17,4	25000	250	250	250	250
25,1	17,4	25100	251	251	251	251
25,2	17,4	25200	252	252	252	252
25,3	17,4	25300	253	253	253	253
25,4	17,4	25400	254	254	254	254
25,5	17,4	25500	255	255	255	255
25,6	17,4	25600	256	256	256	256
25,7	17,4	25700	257	257	257	257
25,8	17,4	25800	258	258	258	258
25,9	17,4	25900	259	259	259	259
26,0	17,4	26000	260	260	260	260
26,1	17,4	26100	261	261	261	261
26,2	17,4	26200	262	262	262	262
26,3	17,4	26300	263	263	263	263
26,4	17,4	26400	264	264	264	264
26,5	17,4	26500	265	265	265	265
26,6	17,4	26600	266	266	266	266
26,7	17,4	26700	267	267	267	267
26,8	17,4	26800	268	268	268	268
26,9	17,4	26900	269	269	269	269
27,0	17,4	27000	270	270	270	270
27,1	17,4	27100	271	271	271	271
P		●	●	○		
M				●		
K		●	●	●	●	
N						●
S				●		
H						
O						

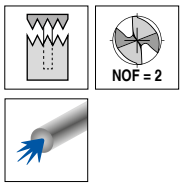
→ v_c Page 152–155
→ Application recommendation on page 162

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

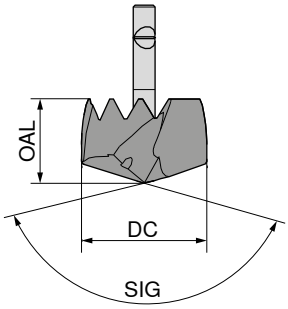
Continued on next page

WTX – Drilling Head for Exchangeable drills

▲ extra long head type



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



		SIG 140° Solid carbide	SIG 138° Solid carbide	SIG 138° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide
		10 919 ...	10 923 ...	10 921 ...	10 924 ...	10 922 ...
DC $_{h7/m7}$ mm	OAL mm					
27,2	17,4	27200	272	272	272	272
27,3	17,4	27300	273	273	273	273
27,4	17,4	27400	274	274	274	274
27,5	17,4	27500	275	275	275	275
27,6	17,4	27600	276	276	276	276
27,7	17,4	27700	277	277	277	277
27,8	17,4	27800	278	278	278	278
27,9	17,4	27900	279	279	279	279
28,0	17,4	28000	280	280	280	280
28,1	17,4	28100	281	281	281	281
28,2	17,4	28200	282	282	282	282
28,3	17,4	28300	283	283	283	283
28,4	17,4	28400	284	284	284	284
28,5	18,4	28500	285	285	285	285
28,6	18,4	28600	286	286	286	286
28,7	18,4	28700	287	287	287	287
28,8	18,4	28800	288	288	288	288
28,9	18,4	28900	289	289	289	289
29,0	18,4	29000	290	290	290	290
29,1	18,4	29100	291	291	291	291
29,2	18,4	29200	292	292	292	292
29,3	18,4	29300	293	293	293	293
29,4	18,4	29400	294	294	294	294
29,5	18,4	29500	295	295	295	295
29,6	18,4	29600	296	296	296	296
29,7	18,4	29700	297	297	297	297
29,8	18,4	29800	298	298	298	298
29,9	18,4	29900	299	299	299	299
30,0	18,4	30000	300	300	300	300
30,1	18,4	30100	301	301	301	301
30,2	18,4	30200	302	302	302	302
30,3	18,4	30300	303	303	303	303
30,4	18,4	30400	304	304	304	304
30,5	18,4	30500	305	305	305	305
30,6	18,4	30600	306	306	306	306
30,7	18,4	30700	307	307	307	307
30,8	18,4	30800	308	308	308	308
30,9	18,4	30900	309	309	309	309
P		●	●	○		
M				●		
K		●	●	●	●	
N						●
S				●		
H						
O						

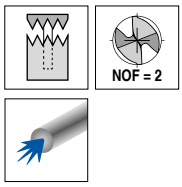
→ v_c Page 152–155
→ Application recommendation on page 162

ⓘ **Ø DC$_{m7}$** for Type UNI, P, GG und AL / **Ø DC$_{h7}$** for Type VA

Continued on next page

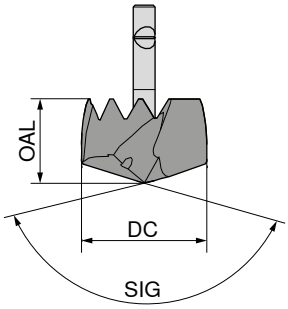
WTX – Drilling Head for Exchangeable drills

▲ extra long head type



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

DRAGONSKIN



DC h7/m7 mm	OAL mm	SIG 140° Solid carbide 10 919 ...		SIG 138° Solid carbide 10 923 ...		SIG 138° Solid carbide 10 921 ...		SIG 140° Solid carbide 10 924 ...		SIG 140° Solid carbide 10 922 ...	
31,0	18,4	31000		310		310		310		310	
31,1	18,4	31100		311		311		311		311	
31,2	18,4	31200		312		312		312		312	
31,3	18,4	31300		313		313		313		313	
31,4	18,4	31400		314		314		314		314	
31,5	18,4	31500		315		315		315		315	
31,6	18,4	31600		316		316		316		316	
31,7	18,4	31700		317		317		317		317	
31,8	18,4	31800		318		318		318		318	
31,9	18,4	31900		319		319		319		319	
32,0	18,4	32000		320		320		320		320	
32,5	24,3	32500		325							
33,0	24,3	33000		330							
33,5	24,3	33500		335							
34,0	24,3	34000		340							
34,5	24,3	34500		345							
35,0	24,3	35000		350							
35,5	26,3	35500		355							
36,0	26,3	36000		360							
36,5	26,3	36500		365							
37,0	26,3	37000		370							
37,5	26,3	37500		375							
38,0	26,3	38000		380							
38,5	26,3	38500		385							
39,0	26,3	39000		390							
39,5	26,3	39500		395							
40,0	26,3	40000		400							
40,5	26,3	40500		405							
41,0	26,3	41000		410							
P		●		●		○					
M						●					
K		●		●		●		●			
N										●	
S						●					
H											
O											

→ v_c Page 152–155
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Ø DC_{m7} for Type UNI, P, GG und AL / **Ø DC_{h7}** for Type VA

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

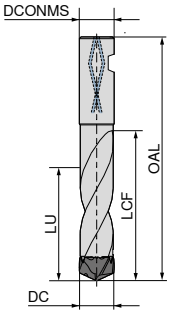
WTX – Holder for Exchangeable drills

▲ with radial teeth

Scope of supply:
Holder incl. screw driver

≤ 1xD

Change



10 911 ...

DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	
12,00 - 12,49	14	81	29	12,5	1,0	120
12,50 - 12,99	14	81	29	13,0	1,0	125
13,00 - 13,49	14	81	31	13,5	1,0	130
13,50 - 13,99	16	86	32	14,0	1,3	135
14,00 - 14,49	16	86	33	14,5	1,3	140
14,50 - 14,99	16	91	34	15,0	1,3	145
15,00 - 15,49	16	91	36	15,5	1,3	150
15,50 - 16,49	20	97	38	16,5	1,3	161
15,50 - 16,49	18	92	38	16,5	1,3	160
16,50 - 17,49	20	99	40	17,5	3,5	166
16,50 - 17,49	18	94	40	17,5	3,5	165
17,50 - 18,49	20	104	43	18,5	3,5	176
17,50 - 18,49	18	99	43	18,5	3,5	175
18,50 - 19,49	20	99	45	19,5	3,5	185
19,50 - 20,49	20	104	47	20,5	3,5	195
20,50 - 21,49	25	111	49	21,5	3,5	205
21,50 - 22,49	25	116	52	22,5	3,5	215
22,50 - 23,49	25	116	54	23,5	3,5	225
23,50 - 24,49	25	121	56	24,5	4,0	235
24,50 - 25,49	25	123	59	25,5	4,0	245
25,50 - 26,49	25	123	61	26,5	4,0	255
26,50 - 27,49	25	128	63	27,5	4,0	265
27,50 - 28,49	25	128	66	28,5	4,0	275
28,50 - 29,49	32	134	68	29,5	4,0	285
29,50 - 30,49	32	139	70	30,5	4,0	295
30,50 - 31,49	32	139	75	31,5	4,0	305
31,50 - 32,49	32	139	75	32,5	4,0	315
32,50 - 33,49	32	150	78	33,5	6,0	325
33,50 - 34,49	32	150	79	34,5	6,0	335
34,50 - 35,49	32	150	82	35,5	6,0	345
35,50 - 37,49	32	152	86	37,5	6,0	355
37,50 - 39,49	32	157	91	39,5	6,0	375
39,50 - 41,00	32	167	95	41,5	6,0	395

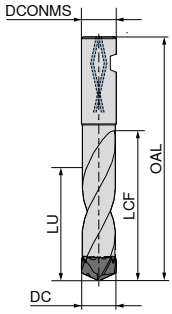
WTX – Holder for Exchangeable drills

▲ with radial teeth

Scope of supply:
Holder incl. screw driver

≤ 3xD

Change

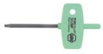


10 913 ...

DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	
12,00 - 12,49	14	100	53	38,0	1,0	120
12,50 - 12,99	14	105	55	39,0	1,0	125
13,00 - 13,49	14	105	57	40,0	1,0	130
13,50 - 13,99	16	110	59	42,0	1,3	135
14,00 - 14,49	16	115	61	43,0	1,3	140
14,50 - 14,99	16	115	63	45,0	1,3	145
15,00 - 15,49	16	115	65	46,0	1,3	150
15,50 - 16,49	18	120	70	50,0	1,3	160
15,50 - 16,49	20	125	70	50,0	1,3	161
16,50 - 17,49	18	125	74	53,0	3,5	165
16,50 - 17,49	20	130	74	50,0	3,5	166
17,50 - 18,49	18	130	78	55,0	3,5	175
17,50 - 18,49	20	135	78	50,0	3,5	176
18,50 - 19,49	20	135	82	58,0	3,5	185
19,50 - 20,49	20	140	87	62,0	3,5	195
20,50 - 21,49	25	150	91	65,0	3,5	205
21,50 - 22,49	25	155	95	67,0	3,5	215
22,50 - 23,49	25	160	99	70,0	3,5	225
23,50 - 24,49	25	165	103	73,0	3,5	235
24,50 - 25,49	25	165	108	77,0	4,0	245
25,50 - 26,49	25	175	112	80,0	4,0	255
26,50 - 27,49	25	175	116	82,0	4,0	265
27,50 - 28,49	25	180	120	85,0	4,0	275
28,50 - 29,49	32	190	124	88,0	4,0	285
29,50 - 30,49	32	195	129	92,0	4,0	295
30,50 - 31,49	32	195	133	94,0	4,0	305
31,50 - 32,49	32	200	137	97,0	4,0	315
32,50 - 33,49	32	210	144	100,5	6,0	325
33,50 - 34,49	32	215	148	103,5	6,0	335
34,50 - 35,49	32	220	153	106,5	6,0	345
35,50 - 37,49	32	227	161	112,5	6,0	355
37,50 - 39,49	32	237	170	118,5	6,0	375
39,50 - 41,00	32	247	178	124,5	6,0	395

Screw driver

80 950 ...



Screw driver

80 950 ...

Grub screw

10 950 ...

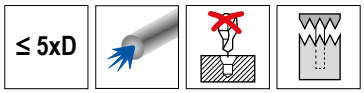
Spare parts DC									
12,00 - 12,49	SW 1,3	132				M2,5 x 0,45 x 5	025
12,50 - 13,49	SW 1,3	132				M2,5 x 0,45 x 6	026
13,50 - 14,49			SW 1,5	133		M3 x 0,5 x 6	031
14,50 - 16,49			SW 1,5	133		M3 x 0,5 x 7	030
16,50 - 20,49			SW 2	134		M4 x 0,5 x 7,5	040
20,50 - 24,49			SW 2	134		M4 x 0,5 x 10	041
24,50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

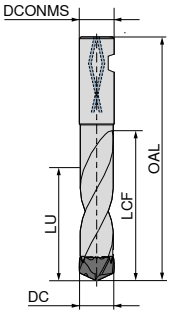
WTX – Holder for Exchangeable drills

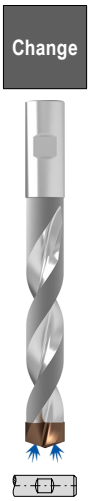
▲ with radial teeth

Scope of supply:

Holder incl. screw driver







10 915 ...

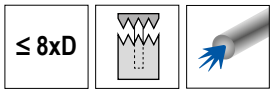
DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	
12,00 - 12,49	14	125	78	62,0	1,0	120
12,50 - 12,99	14	130	81	65,0	1,0	125
13,00 - 13,49	14	130	84	67,0	1,0	130
13,50 - 13,99	16	140	88	70,0	1,3	135
14,00 - 14,49	16	140	90	72,0	1,3	140
14,50 - 14,99	16	145	94	75,0	1,3	145
15,00 - 15,49	16	145	96	77,0	1,3	150
15,50 - 16,49	18	155	103	82,0	1,3	160
15,50 - 16,49	20	160	103	82,0	1,3	161
16,50 - 17,49	18	160	109	87,0	3,5	165
16,50 - 17,49	20	165	109	87,0	3,5	166
17,50 - 18,49	18	165	115	92,0	3,5	175
17,50 - 18,49	20	170	115	92,0	3,5	176
18,50 - 19,49	20	175	121	97,0	3,5	185
19,50 - 20,49	20	180	128	102,0	3,5	195
20,50 - 21,49	25	195	134	107,0	3,5	205
21,50 - 22,49	25	200	140	112,0	3,5	215
22,50 - 23,49	25	205	146	117,0	3,5	225
23,50 - 24,49	25	210	152	122,0	3,5	235
24,50 - 25,49	25	220	159	127,0	4,0	245
25,50 - 26,49	25	225	165	132,0	4,0	255
26,50 - 27,49	25	230	171	137,0	4,0	265
27,50 - 28,49	25	240	177	142,0	4,0	275
28,50 - 29,49	32	250	183	146,0	4,0	285
29,50 - 30,49	32	255	190	152,0	4,0	295
30,50 - 31,49	32	260	196	157,0	4,0	305
31,50 - 32,49	32	265	202	162,0	4,0	315
32,50 - 33,49	32	275	210	167,5	6,0	325
33,50 - 34,49	32	285	217	172,5	6,0	335
34,50 - 35,49	32	290	224	177,5	6,0	345
35,50 - 37,49	32	302	236	187,5	6,0	355
37,50 - 39,49	32	317	249	197,5	6,0	375
39,50 - 41,00	32	327	261	207,5	6,0	395

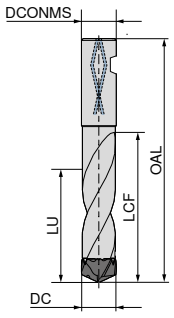
WTX – Holder for Exchangeable drills

▲ Pilot hole is recommended
▲ With radial teeth

Scope of supply:

Holder incl. screw driver



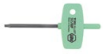


10 918 ...

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

Screw driver

80 950 ...


Screw driver

80 950 ...

Grub screw

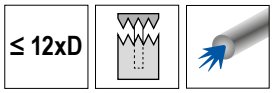
10 950 ...

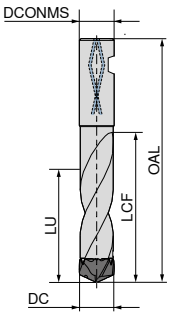
Spare parts DC								
12,00 - 12,49	SW 1,3	132				M2,5 x 0,45 x 5	025
12,50 - 13,49	SW 1,3	132				M2,5 x 0,45 x 6	026
13,50 - 14,49			SW 1,5	133		M3 x 0,5 x 6	031
14,50 - 16,49			SW 1,5	133		M3 x 0,5 x 7	030
16,50 - 20,49			SW 2	134		M4 x 0,5 x 7,5	040
20,50 - 24,49			SW 2	134		M4 x 0,5 x 10	041
24,50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

WTX – Holder for Exchangeable drills

▲ Pilot hole is recommended
▲ With radial teeth

Scope of supply:
Holder incl. screw driver





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

Screw driver

Screw driver

Grub screw

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

WPC – Indexable insert for indexable insert drill

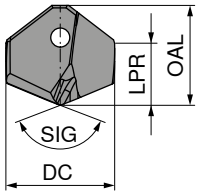
Scope of supply:

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

NEW

Change UNI

TPX74S



SIG 135°

HM

11 910 ...

DC $_{m7}$ mm	OAL mm	LPR mm	S mm	
14,0	12,8	7,73	5,00	**14000**
14,1	12,8	7,73	5,00	**14100**
14,2	12,8	7,73	5,00	**14200**
14,3	12,8	7,73	5,00	**14300**
14,4	12,8	7,73	5,00	**14400**
14,5	13,1	7,84	5,00	**14500**
14,6	13,1	7,84	5,00	**14600**
14,7	13,1	7,84	5,00	**14700**
14,8	13,1	7,84	5,00	**14800**
14,9	13,1	7,84	5,00	**14900**
15,0	13,4	7,95	5,00	**15000**
15,1	13,4	7,95	5,00	**15100**
15,2	13,4	7,95	5,00	**15200**
15,3	13,4	7,95	5,00	**15300**
15,4	13,4	7,95	5,00	**15400**
15,5	13,7	8,05	5,00	**15500**
15,6	13,7	8,05	5,00	**15600**
15,7	13,7	8,05	5,00	**15700**
15,8	13,7	8,05	5,00	**15800**
15,9	13,7	8,05	5,00	**15900**
16,0	14,4	9,06	5,80	**16000**
16,1	14,4	9,06	5,80	**16100**
16,2	14,4	9,06	5,80	**16200**
16,3	14,4	9,06	5,80	**16300**
16,4	14,4	9,06	5,80	**16400**
16,5	14,7	9,17	5,80	**16500**
16,6	14,7	9,17	5,80	**16600**
16,7	14,7	9,17	5,80	**16700**
16,8	14,7	9,17	5,80	**16800**
16,9	14,7	9,17	5,80	**16900**
17,0	15,0	9,28	5,80	**17000**
17,1	15,0	9,28	5,80	**17100**
17,2	15,0	9,28	5,80	**17200**
17,3	15,0	9,28	5,80	**17300**
17,4	15,0	9,28	5,80	**17400**
17,5	15,3	9,39	5,80	**17500**
17,6	15,3	9,39	5,80	**17600**
17,7	15,3	9,39	5,80	**17700**
17,8	15,3	9,39	5,80	**17800**
17,9	15,3	9,39	5,80	**17900**
18,0	16,3	10,19	6,50	**18000**
18,1	16,3	10,19	6,50	**18100**
18,2	16,3	10,19	6,50	**18200**
18,3	16,3	10,19	6,50	**18300**
18,4	16,3	10,19	6,50	**18400**
18,5	16,6	10,30	6,50	**18500**
18,6	16,6	10,30	6,50	**18600**
18,7	16,6	10,30	6,50	**18700**
18,8	16,6	10,30	6,50	**18800**
18,9	16,6	10,30	6,50	**18900**
19,0	16,9	10,41	6,50	**19000**
19,1	16,9	10,41	6,50	**19100**
19,2	16,9	10,41	6,50	**19200**
19,3	16,9	10,41	6,50	**19300**
19,4	16,9	10,41	6,50	**19400**
19,5	17,2	10,52	6,50	**19500**
19,6	17,2	10,52	6,50	**19600**
19,7	17,2	10,52	6,50	**19700**
19,8	17,2	10,52	6,50	**19800**
19,9	17,2	10,52	6,50	**19900**

11 910 ...

DC $_{m7}$ mm	OAL mm	LPR mm	S mm	
20,0	18,2	11,33	7,20	**20000**
20,1	18,2	11,33	7,20	**20100**
20,2	18,2	11,33	7,20	**20200**
20,3	18,2	11,33	7,20	**20300**
20,4	18,2	11,33	7,20	**20400**
20,5	18,5	11,43	7,20	**20500**
20,6	18,5	11,43	7,20	**20600**
20,7	18,5	11,43	7,20	**20700**
20,8	18,5	11,43	7,20	**20800**
20,9	18,5	11,43	7,20	**20900**
21,0	18,8	11,54	7,20	**21000**
21,1	18,8	11,54	7,20	**21100**
21,2	18,8	11,54	7,20	**21200**
21,3	18,8	11,54	7,20	**21300**
21,4	18,8	11,54	7,20	**21400**
21,5	19,1	11,65	7,20	**21500**
21,6	19,1	11,65	7,20	**21600**
21,7	19,1	11,65	7,20	**21700**
21,8	19,1	11,65	7,20	**21800**
21,9	19,1	11,65	7,20	**21900**
22,0	20,2	12,56	7,90	**22000**
22,1	20,2	12,56	7,90	**22100**
22,2	20,2	12,56	7,90	**22200**
22,3	20,2	12,56	7,90	**22300**
22,4	20,2	12,56	7,90	**22400**
22,5	20,5	12,67	7,90	**22500**
22,6	20,5	12,67	7,90	**22600**
22,7	20,5	12,67	7,90	**22700**
22,8	20,5	12,67	7,90	**22800**
22,9	20,5	12,67	7,90	**22900**
23,0	20,8	12,78	7,90	**23000**
23,1	20,8	12,78	7,90	**23100**
23,2	20,8	12,78	7,90	**23200**
23,3	20,8	12,78	7,90	**23300**
23,4	20,8	12,78	7,90	**23400**
23,5	21,1	12,88	7,90	**23500**
23,6	21,1	12,88	7,90	**23600**
23,7	21,1	12,88	7,90	**23700**
23,8	21,1	12,88	7,90	**23800**
23,9	21,1	12,88	7,90	**23900**
24,0	22,1	13,69	8,60	**24000**
24,1	22,1	13,69	8,60	**24100**
24,2	22,1	13,69	8,60	**24200**
24,3	22,1	13,69	8,60	**24300**
24,4	22,1	13,69	8,60	**24400**
24,5	22,4	13,80	8,60	**24500**
24,6	22,4	13,80	8,60	**24600**
24,7	22,4	13,80	8,60	**24700**
24,8	22,4	13,80	8,60	**24800**
24,9	22,4	13,80	8,60	**24900**
25,0	22,7	13,91	8,60	**25000**
25,1	22,7	13,91	8,60	**25100**
25,2	22,7	13,91	8,60	**25200**
25,3	22,7	13,91	8,60	**25300**
25,4	22,7	13,91	8,60	**25400**
25,5	23,0	14,02	8,60	**25500**
25,6	23,0	14,02	8,60	**25600**
25,7	23,0	14,02	8,60	**25700**
25,8	23,0	14,02	8,60	**25800**
25,9	23,0	14,02	8,60	**25900**
26,0	24,1	14,92	9,40	**26000**
26,5	24,4	15,03	9,40	**26500**
27,0	24,7	15,14	9,40	**27000**
27,5	25,0	15,25	9,40	**27500**
28,0	25,3	15,36	9,40	**28000**
28,5	25,6	15,47	9,40	**28500**
29,0	25,9	15,57	9,40	**29000**
29,5	26,2	15,68	9,40	**29500**
30,0	26,2	15,49	9,40	**30000**

P	●
M	
K	●
N	
S	
H	
O	

→ v_c Page 157
→ Application recommendation on page 163

When changing inserts, please observe the specified tightening torque.

WPC – Holder for indexable insert drill

WPC – Holder for indexable insert drill

2

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

Scope of supply:
Holder incl. clamping screw

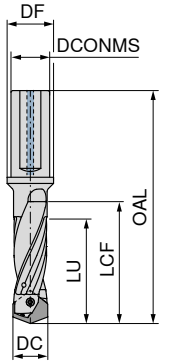
- ▲ Easy handling
- ▲ Insert can be changed in the machine
- ▲ Precise and stable insert seat, clamping via Torx Plus® screw

Scope of supply:
Holder incl. clamping screw

≤ 3xD

NEW

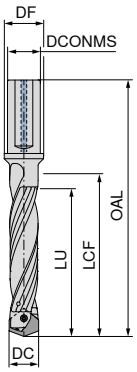
Change



≤ 5xD

NEW

Change



11 903 ...

DC mm	DCONMS mm	OAL mm	LCF mm	LU mm	DF mm	torque moment Nm	
14,00 - 14,49	16	108,9	50,8	43,5	20	0.9	**14000**
14,50 - 14,99	16	111,0	52,5	45,0	20	0.9	**14500**
15,00 - 15,49	20	115,1	54,3	46,5	25	0.9	**15000**
15,50 - 15,99	20	117,2	56,0	48,0	25	0.9	**15500**
16,00 - 16,49	20	119,3	57,8	49,5	25	1.2	**16000**
16,50 - 16,99	20	121,4	59,5	51,0	25	1.2	**16500**
17,00 - 17,49	20	123,5	61,3	52,5	25	1.2	**17000**
17,50 - 17,99	20	125,6	63,0	54,0	25	1.2	**17500**
18,00 - 18,49	20	127,7	64,8	55,5	25	2.2	**18000**
18,50 - 18,99	20	129,8	66,5	57,0	25	2.2	**18500**
19,00 - 19,49	25	137,9	68,3	58,5	30	2.2	**19000**
19,50 - 19,99	25	140,0	70,0	60,0	30	2.2	**19500**
20,00 - 20,49	25	142,1	71,8	61,5	30	2.2	**20000**
20,50 - 20,99	25	144,2	73,5	63,0	30	2.2	**20500**
21,00 - 21,49	25	146,3	75,3	64,5	30	2.2	**21000**
21,50 - 21,99	25	148,4	77,0	66,0	30	2.2	**21500**
22,00 - 22,49	25	150,5	78,8	67,5	30	3.2	**22000**
22,50 - 22,99	25	152,6	80,5	69,0	30	3.2	**22500**
23,00 - 23,49	25	154,7	82,3	70,5	30	3.2	**23000**
23,50 - 23,99	25	156,8	84,0	72,0	30	3.2	**23500**
24,00 - 24,49	32	162,9	85,8	73,5	39	5	**24000**
24,50 - 24,99	32	165,0	87,5	75,0	39	5	**24500**
25,00 - 25,49	32	167,1	89,3	76,5	39	5	**25000**
25,50 - 25,99	32	169,2	91,0	78,0	39	5	**25500**
26,00 - 26,49	32	171,3	92,8	79,5	39	6	**26000**
26,50 - 26,99	32	173,4	94,5	81,0	39	6	**26500**
27,00 - 27,49	32	175,5	96,3	82,5	39	6	**27000**
27,50 - 27,99	32	177,6	98,0	84,0	39	6	**27500**
28,00 - 28,49	32	179,7	99,8	85,5	39	6	**28000**
28,50 - 28,99	32	181,8	101,5	87,0	39	6	**28500**
29,00 - 29,49	32	183,9	103,3	88,5	39	6	**29000**
29,50 - 30,00	32	186,0	105,0	90,0	39	6	**29500**

11 905 ...

DC mm	DCONMS mm	OAL mm	LCF mm	LU mm	DF mm	torque moment Nm	
14,00 - 14,49	16	137,9	79,8	72,5	20	0.9	**14000**
14,50 - 14,99	16	141,0	82,5	75,0	20	0.9	**14500**
15,00 - 15,49	20	146,1	85,3	77,5	25	0.9	**15000**
15,50 - 15,99	20	149,2	88,0	80,0	25	0.9	**15500**
16,00 - 16,49	20	152,3	90,8	82,5	25	1.2	**16000**
16,50 - 16,99	20	155,4	93,5	85,0	25	1.2	**16500**
17,00 - 17,49	20	158,5	96,3	87,5	25	1.2	**17000**
17,50 - 17,99	20	161,6	99,0	90,0	25	1.2	**17500**
18,00 - 18,49	20	164,7	101,8	92,5	25	2.2	**18000**
18,50 - 18,99	20	167,8	104,5	95,0	25	2.2	**18500**
19,00 - 19,49	25	176,9	107,3	97,5	30	2.2	**19000**
19,50 - 19,99	25	180,0	110,0	100,0	30	2.2	**19500**
20,00 - 20,49	25	183,1	112,8	102,5	30	2.2	**20000**
20,50 - 20,99	25	186,2	115,5	105,0	30	2.2	**20500**
21,00 - 21,49	25	189,3	118,3	107,5	30	2.2	**21000**
21,50 - 21,99	25	192,4	121,0	110,0	30	2.2	**21500**
22,00 - 22,49	25	195,5	123,8	112,5	30	3.2	**22000**
22,50 - 22,99	25	198,6	126,5	115,0	30	3.2	**22500**
23,00 - 23,49	25	201,7	129,3	117,5	30	3.2	**23000**
23,50 - 23,99	25	204,8	132,0	120,0	30	3.2	**23500**
24,00 - 24,49	32	211,9	134,8	122,5	39	5	**24000**
24,50 - 24,99	32	215,0	137,5	125,0	39	5	**24500**
25,00 - 25,49	32	218,1	140,3	127,5	39	5	**25000**
25,50 - 25,99	32	221,2	143,0	130,0	39	5	**25500**
26,00 - 26,49	32	224,3	145,8	132,5	39	6	**26000**
26,50 - 26,99	32	227,4	148,5	135,0	39	6	**26500**
27,00 - 27,49	32	230,5	151,3	137,5	39	6	**27000**
27,50 - 27,99	32	233,6	154,0	140,0	39	6	**27500**
28,00 - 28,49	32	236,7	156,8	142,5	39	6	**28000**
28,50 - 28,99	32	239,8	159,5	145,0	39	6	**28500**
29,00 - 29,49	32	242,9	162,3	147,5	39	6	**29000**
29,50 - 30,00	32	246,0	165,0	150,0	39	6	**29500**

Screwdriver

80 950 ...

Replaceable Blade for TORX PLUS®

80 950 ...

Torque screwdrivers

80 950 ...

Clamping screw

11 950 ...

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

MultiChange – Programme Overview

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

Exchangeable heads

→ Chapter 2, Solid carbide drilling

Page No. 2|107

Solid Carbide NC Spot Drills

Ø 8, 10, 12, 16, 20 mm
NOF 2

SIG 90°

SIG 120°

SIG 142°

→ Chapter 4, Reaming and countersinking

Page No. 4|18 + 4|19

Replaceable reaming heads

Ø 8,00 – 30,20 mm

Through hole

Ø 12,20 – 30,20 mm

Blind hole

→ Chapter 14, Solid carbide milling cutters

Page No. 14|198 – 14|202

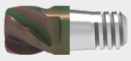
Solid carbide shoulder mills
Ø 8, 10, 12, 16, 20 mm /
ZEFP 3+4

Type PCR-UNI

Type PCR-ALU

Type N

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


Type W

Type N

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

Type NF

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

Type N

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

Type N

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

Type N

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

Type N

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

Type N

Type N

NOF / ZEFP = Number of cutting edges

Tool holder

→ Catalogue – Clamping technology, Chapter 16 Accessories

Page No. 16|259 – 16|261

OAL 60 – 90 mm

Tapered 87° / Steel

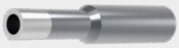
Cylindrical* / Steel

OAL 85 – 120 mm

Tapered 87° / Steel

Cylindrical* / Steel

Tapered 87° /
Solid carbide


Cylindrical* /
Solid carbide

OAL 110 – 150 mm

Tapered 87° / Solid carbide

Cylindrical* / Solid carbide

OAL 150 – 200 mm

Tapered 87° / Solid carbide

Cylindrical* / Steel

Cylindrical* / Solid carbide

OAL 200 – 250 mm

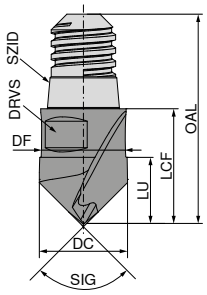
Cylindrical* / Steel

Cylindrical* / Solid carbide

* only conditionally suitable for milling

MultiChange – NC Spot Drill

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



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Material examples for cutting data tables

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

*** Tensile strength**

Cutting data standard values – WTX – Ti

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

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

Cutting data standard values – WTX – UNI

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

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

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

Cutting data standard values – WTX – VA

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

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

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

Cutting data standard values – WTX – Speed UNI

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

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

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

Cutting data standard values – WTX – Feed UNI

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

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

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

Cutting data standard values – WTX – Speed VA

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

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

Cutting data standard values – WTX – H

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

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

Cutting data standard values – WTX – Quattro 4F

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

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

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

Cutting data standard values – WTX – AL

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

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

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

Cutting data standard values – WTX – AL

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

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

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

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

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

Cutting data standard values – WTX – 180

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

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

Application Note:

Spot drilling with reduced feedrate

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

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

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

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

Cutting data standard values – type UNI

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

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

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

Cutting data standard values – type UNI

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

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

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

Cutting data standard values – type VA

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

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

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

Cutting data standard values – Type N – Twist drills

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

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

Cutting data standard values – WTX – SB

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

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

Cutting data standard values – WTX – Mini

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

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

Cutting data standard values – WTX – Micro

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

Cutting data standard values – WTX – Micro

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

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

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

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

Cutting data standard values – WTX – Feed BR

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

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

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

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

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

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

Cutting data standard values – WTX – TB UNI

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

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

Cutting data standard values – WTX – TB UNI

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

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

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

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

Cutting data standard values – WTX – TB ALU

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

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

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

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

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

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

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

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

Cutting data standard values – Solid Carbide NC-A TiAlN

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

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

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

Cutting data standard values – WTX – Change

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

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

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

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

Cutting data standard values – WTX – Change

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

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

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

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

Cutting data standard values – WTX – Change Feed

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

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

Cutting data standard values – WPC – Change

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

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

Type overview – WTX High performance drilling tools

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

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

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

Important application criteria for WTX drills

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

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

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

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

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

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

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

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

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

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

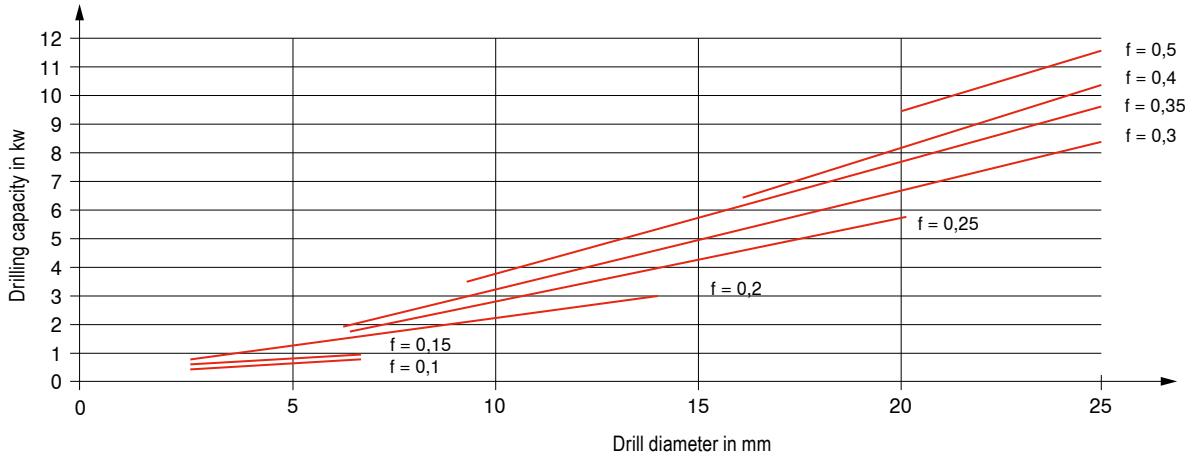
Tool Clamping
With optimum clamping high alignment accuracy and tolerances (IT7-8) are possible.
Due to the high surface quality reaming operations can often be dispensed with.

Machine Requirements
Please note the performance diagram

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

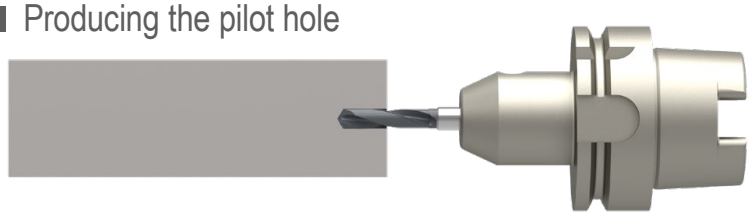
Feed rate f in mm/rev.
Drilling capacity relative to the diameter: v_c = 80 m/min.

Tensile strength of the material = 600 N/mm²



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

1 Producing the pilot hole

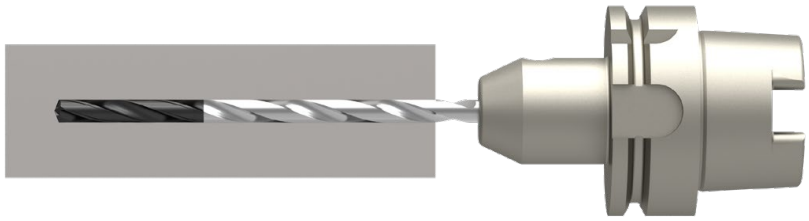


- For the pilot hole, we recommend a WTX drill 3xD / 5xD with the same nominal diameter
- The pilot hole should be 0.01–0.03 mm larger in diameter and at least 3xD deep.
- It is essential to ensure that the point angle of the pilot drill is bigger than the point angle of the deep hole drill.
- From a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

2 Movement of the deep hole drill into the pilot hole

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

3 Drilling to required depth without pecking



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

4 Retracting the drill

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

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

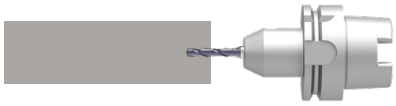
It is essential to ensure that deep hole drills **never** run unsupported at full speed in the machine !

WTX – Micro – recommended application

General references

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

1 Producing the pilot hole



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

2 Entering the pilot hole with a deep hole twist drill

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

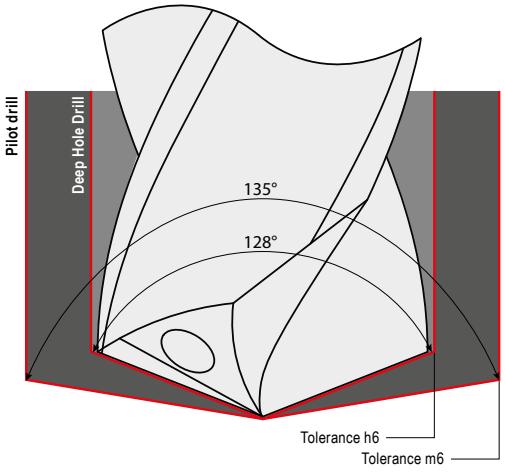
3 Deep hole drilling

- At hole depth without pecking

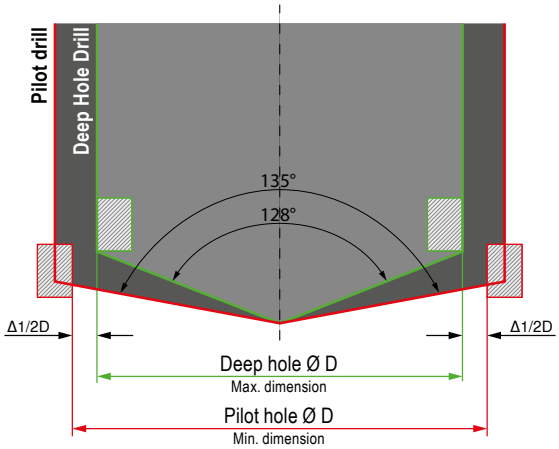
4 Retracting the drill

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

Tolerances and angles



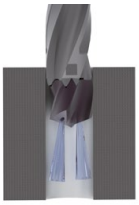
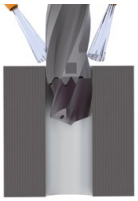
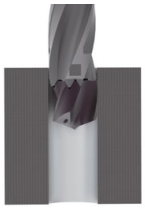
The following must apply to use the pilot and deep hole twist drill consecutively and without collisions:
$\Delta D = ØD$ (pilot hole) – $ØD$ (deep hole) > 0



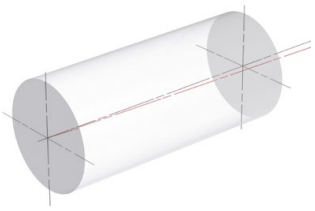
Application notes for WTX – Change Feed and WTX – Change exchangeable head drills

Coolant conditions

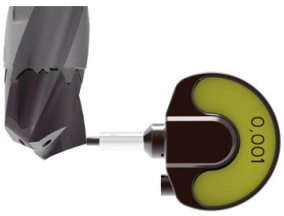
Coolant pressure dependent on drilling depth:

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

Runout accuracy

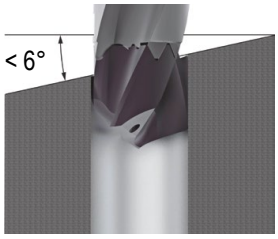


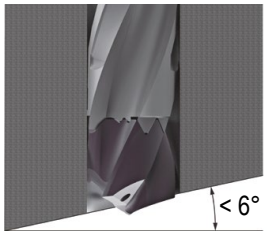
max. 0,02 mm



max. 0,04 mm

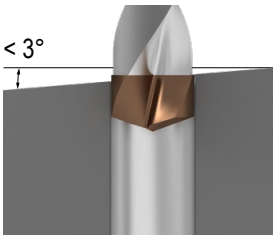
Max. entry and exit angle for the WTX – Change Feed

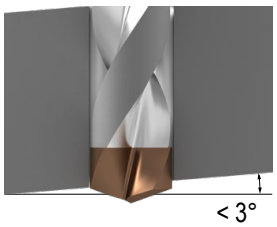




When entering and exiting angled surfaces, reduce v_f by 50 %.

Max. entry and exit angle for the WTX – Change





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

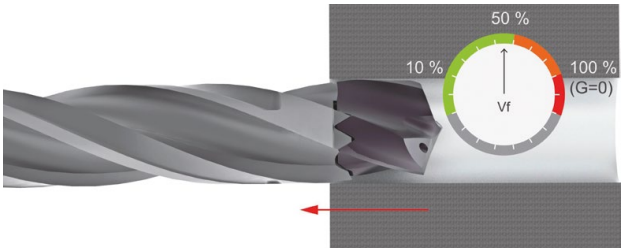
Exiting a through hole

▲ WTX – Change Feed and WTX – Change

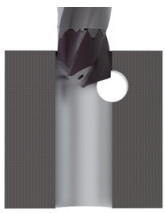
For through holes, it must be ensured that the exchangeable head does not fully protrude from the hole.

Do not retract at rapid feedrate

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

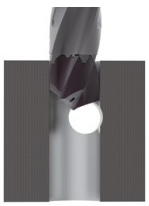


Machining situations



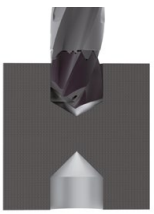
Offset cross hole point is engaged

WTX – Change Feed ✓
WTX – Change ✓



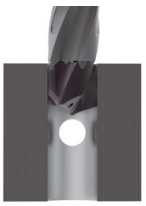
Offset cross hole point is not engaged

WTX – Change Feed ✗
WTX – Change ✗



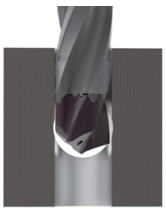
Breakthrough at counterbore

WTX – Change Feed ✓
WTX – Change ✗



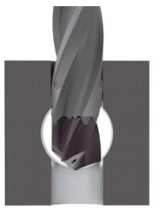
Hole on centre and smaller Ø

WTX – Change Feed ✓
WTX – Change ✓



Hole on centre and same Ø

WTX – Change Feed ✗
WTX – Change ✗

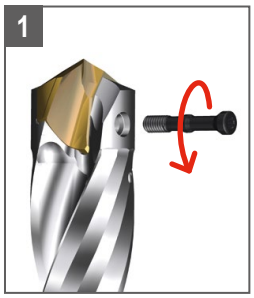


Hole on centre and larger Ø

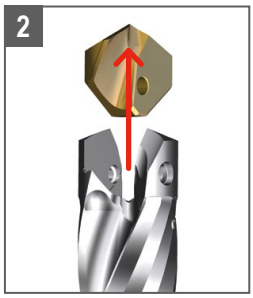
WTX – Change Feed ✗
WTX – Change ✗

Application notes for WPC – Change indexable insert drill

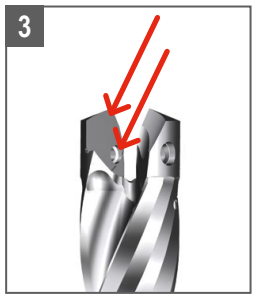
Assembly of the indexable insert



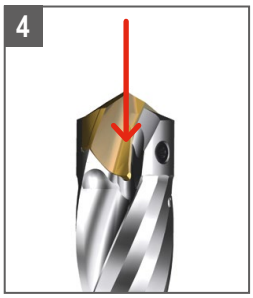
Loosen the clamping screw anti-clockwise using a TORX PLUS® screwdriver (screwdriver not included in the scope of supply).



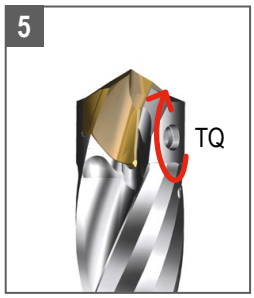
Remove the indexable insert from the insert seat.



Clean the insert seat and screw thread with compressed air.



Insert the new indexable insert in the insert seat.



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

Notes

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

Clamping screws and tightening torques

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

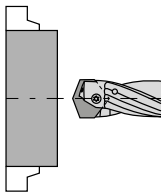
Notes on drilling technology

Solid drilling

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

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

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



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

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

Recommendations for solid carbide drilling operations

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

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

Coatings

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

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

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

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

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

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

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

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

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

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

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

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

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

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

New products for machining technicians

NEW SOGX indexable inserts

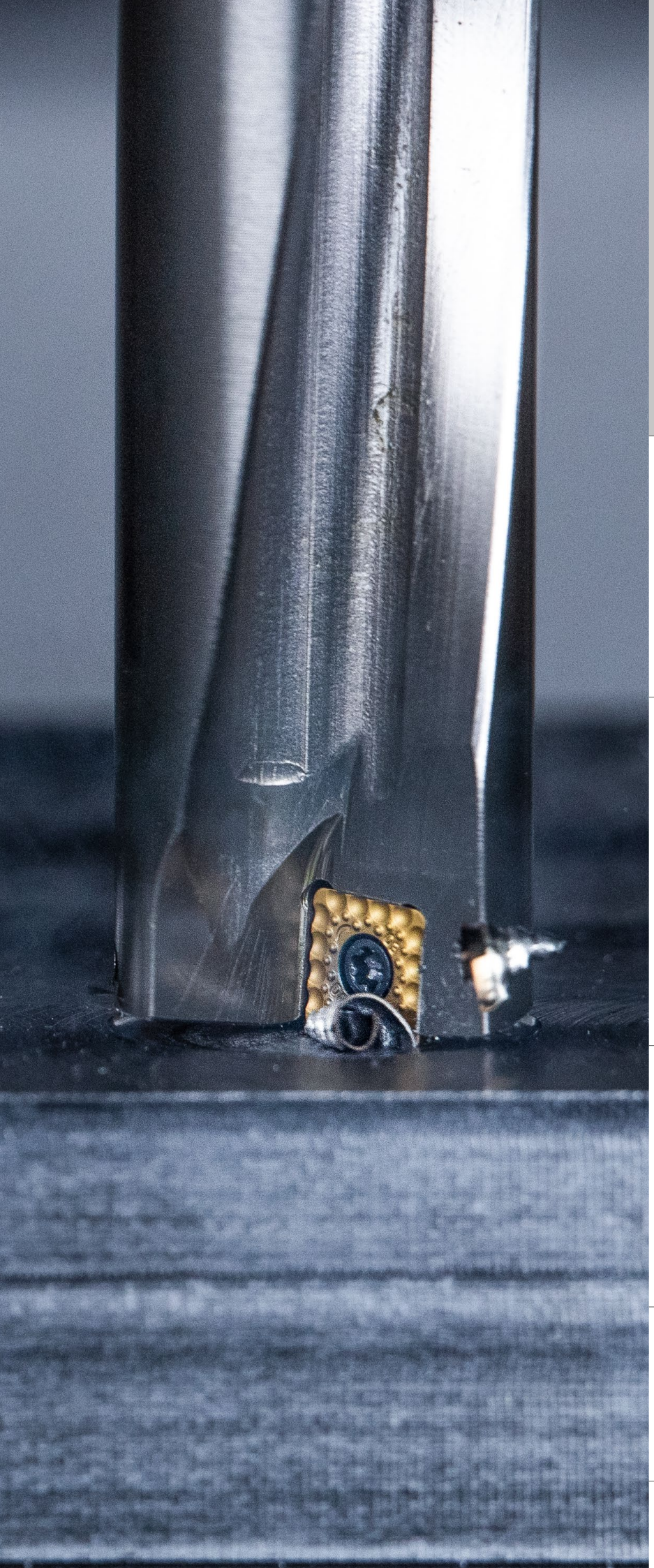
BK8430 -21

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

BK7935 -21

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

→ Page 30



Solid drilling and bore machining

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

Threading

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

Turning

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

Milling

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

Clamping technology

16 Adaptors and Accessories
17 Workpiece clamping

18 Material examples and article no. Index

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

KOMET \ Performance

Premium quality tools for high performance.

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

KOMET \ Standard

Quality tools for standard applications.

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

Symbol explanation

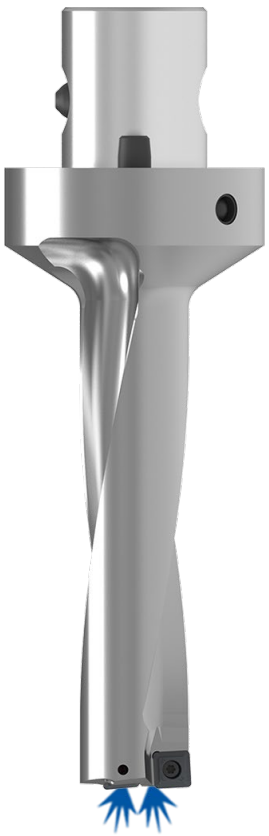
Shank

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

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

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

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



Version

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

left-hand cutting

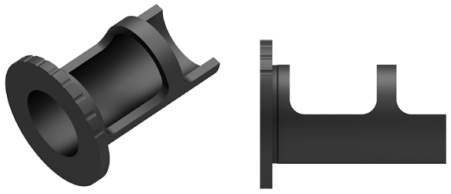
● = **Main Application**
○ = Extended application

Application tips – eccentric sleeves

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

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

Eccentric sleeve for indexable insert drill adapter



Eccentric sleeve for Weldon adapter

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

Designation		Page No.
Adjuster with ABS connection		60

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

Designation	
Adapters with ABS connection	
Indexable insert drill adapter	

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

Toolfinder

KUB Pentron
KOMET \ Performance

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

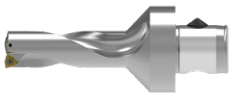
Boring depth	Solid drilling	Boring	Drilling through a transverse hole	Stack plate drilling	Spot drilling uneven surfaces	Spot drilling an edge	Spot drilling convex surfaces	Angled hole entrance	Spot drilling pointed contours	Chain drilling	Drilling through a centre or pre-op
2xD	●	○	●	●	●	●	●	●	●	●	●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

KUB Pentron CS
KOMET \ Performance

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

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

KUB Trigon
KOMET \ Performance



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

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

KUB Centron
KOMET \ Performance

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

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

MaxiDrill 900
KOMET \ Standard

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

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

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

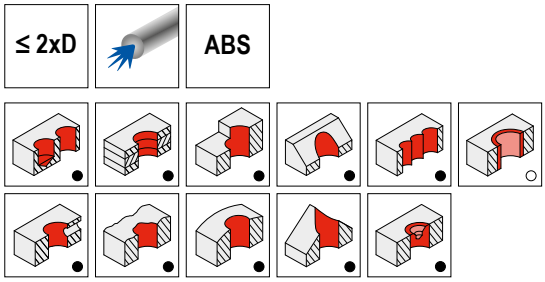
Further information on grades and chip breakers can be found on → **page 85 + 86**.

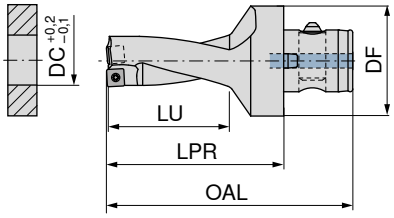
KUB Pentron – Indexable insert drill

▲ ZEFF = Number of Inserts

Scope of supply:

Indexable Insert Drill incl. clamping screws





10 872 ...

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	ZEFF	Insert	
KUB-P.2D.140.R.04-ABS50	U42 51400	14	50	86	28	55	0,38	2	SOGX 040204	14095
KUB-P.2D.145.R.04-ABS50	U42 51450	14,5	50	89	30	58	0,38	2	SOGX 040204	14595
KUB-P.2D.150.R.04-ABS50	U42 51500	15	50	89	30	58	0,38	2	SOGX 040204	15095
KUB-P.2D.155.R.04-ABS50	U42 51550	15,5	50	93	32	62	0,38	2	SOGX 040204	15595
KUB-P.2D.160.R.04-ABS50	U42 51600	16	50	93	32	62	0,38	2	SOGX 040204	16095
KUB-P.2D.165.R.05-ABS50	U42 51650	16,5	50	96	34	65	0,62	2	SOGX 050204	16595
KUB-P.2D.170.R.05-ABS50	U42 51700	17	50	96	34	65	0,62	2	SOGX 050204	17095
KUB-P.2D.175.R.05-ABS50	U42 51750	17,5	50	98	36	67	0,62	2	SOGX 050204	17595
KUB-P.2D.180.R.05-ABS50	U42 51800	18	50	98	36	67	0,62	2	SOGX 050204	18095
KUB-P.2D.185.R.06-ABS50	U42 51850	18,5	50	101	38	70	1,01	2	SOGX 060206	18595
KUB-P.2D.190.R.06-ABS50	U42 51900	19	50	101	38	70	1,01	2	SOGX 060206	19095
KUB-P.2D.195.R.06-ABS50	U42 51950	19,5	50	103	40	72	1,01	2	SOGX 060206	19595
KUB-P.2D.200.R.06-ABS50	U42 52000	20	50	103	40	72	1,01	2	SOGX 060206	20095
KUB-P.2D.205.R.07-ABS50	U42 52050	20,5	50	105	42	74	1,01	2	SOGX 07T208	20595
KUB-P.2D.210.R.07-ABS50	U42 52100	21	50	105	42	74	1,01	2	SOGX 07T208	21095
KUB-P.2D.215.R.07-ABS50	U42 52150	21,5	50	107	44	76	1,01	2	SOGX 07T208	21595
KUB-P.2D.220.R.07-ABS50	U42 52200	22	50	107	44	76	1,01	2	SOGX 07T208	22095
KUB-P.2D.225.R.07-ABS50	U42 52250	22,5	50	109	46	78	1,01	2	SOGX 07T208	22595
KUB-P.2D.230.R.07-ABS50	U42 52300	23	50	109	46	78	1,01	2	SOGX 07T208	23095
KUB-P.2D.235.R.08-ABS50	U42 52350	23,5	50	111	48	80	1,28	2	SOGX 080308	23595
KUB-P.2D.240.R.08-ABS50	U42 52400	24	50	111	48	80	1,28	2	SOGX 080308	24095
KUB-P.2D.245.R.08-ABS50	U42 52450	24,5	50	114	50	83	1,28	2	SOGX 080308	24595
KUB-P.2D.250.R.08-ABS50	U42 52500	25	50	114	50	83	1,28	2	SOGX 080308	25095
KUB-P.2D.255.R.08-ABS50	U42 52550	25,5	50	116	52	85	1,28	2	SOGX 080308	25595
KUB-P.2D.260.R.08-ABS50	U42 52600	26	50	116	52	85	1,28	2	SOGX 080308	26095
KUB-P.2D.265.R.09-ABS50	U42 52650	26,5	50	119	54	88	2,25	2	SOGX 09T308	26595
KUB-P.2D.270.R.09-ABS50	U42 52700	27	50	119	54	88	2,25	2	SOGX 09T308	27095
KUB-P.2D.275.R.09-ABS50	U42 52750	27,5	50	121	56	90	2,25	2	SOGX 09T308	27595
KUB-P.2D.280.R.09-ABS50	U42 52800	28	50	121	56	90	2,25	2	SOGX 09T308	28095
KUB-P.2D.285.R.09-ABS50	U42 52850	28,5	50	124	58	93	2,25	2	SOGX 09T308	28595
KUB-P.2D.290.R.09-ABS50	U42 52900	29	50	124	58	93	2,25	2	SOGX 09T308	29095
KUB-P.2D.295.R.09-ABS50	U42 52950	29,5	50	126	60	95	2,25	2	SOGX 09T308	29595
KUB-P.2D.300.R.09-ABS50	U42 53000	30	50	126	60	95	2,25	2	SOGX 09T308	30095
KUB-P.2D.305.R.10-ABS63	U42 63050	30,5	63	139	62	101	2,8	2	SOGX 100408	30596
KUB-P.2D.310.R.10-ABS63	U42 63100	31	63	139	62	101	2,8	2	SOGX 100408	31096
KUB-P.2D.315.R.10-ABS63	U42 63150	31,5	63	141	64	103	2,8	2	SOGX 100408	31596
KUB-P.2D.320.R.10-ABS63	U42 63200	32	63	141	64	103	2,8	2	SOGX 100408	32096
KUB-P.2D.325.R.10-ABS63	U42 63250	32,5	63	144	66	106	2,8	2	SOGX 100408	32596
KUB-P.2D.330.R.10-ABS63	U42 63300	33	63	144	66	106	2,8	2	SOGX 100408	33096
KUB-P.2D.335.R.11-ABS63	U42 63350	33,5	63	146	68	108	2,8	2	SOGX 110408	33596
KUB-P.2D.340.R.11-ABS63	U42 63400	34	63	146	68	108	2,8	2	SOGX 110408	34096
KUB-P.2D.345.R.11-ABS63	U42 63450	34,5	63	149	70	111	2,8	2	SOGX 110408	34596
KUB-P.2D.350.R.11-ABS63	U42 63500	35	63	149	70	111	2,8	2	SOGX 110408	35096
KUB-P.2D.355.R.11-ABS63	U42 63550	35,5	63	152	72	113	2,8	2	SOGX 110408	35596
KUB-P.2D.360.R.11-ABS63	U42 63600	36	63	152	72	113	2,8	2	SOGX 110408	36096
KUB-P.2D.365.R.11-ABS63	U42 63650	36,5	63	154	74	116	2,8	2	SOGX 110408	36596
KUB-P.2D.370.R.11-ABS63	U42 63700	37	63	154	74	116	2,8	2	SOGX 110408	37096
KUB-P.2D.375.R.12-ABS63	U42 63750	37,5	63	156	76	118	6,25	2	SOGX 120408	37596
KUB-P.2D.380.R.12-ABS63	U42 63800	38	63	156	76	118	6,25	2	SOGX 120408	38096
KUB-P.2D.385.R.12-ABS63	U42 63850	38,5	63	159	78	121	6,25	2	SOGX 120408	38596
KUB-P.2D.390.R.12-ABS63	U42 63900	39	63	159	78	121	6,25	2	SOGX 120408	39096
KUB-P.2D.395.R.12-ABS63	U42 63950	39,5	63	161	80	123	6,25	2	SOGX 120408	39596
KUB-P.2D.400.R.12-ABS63	U42 64000	40	63	161	80	123	6,25	2	SOGX 120408	40096
KUB-P.2D.405.R.12-ABS63	U42 64050	40,5	63	164	82	126	6,25	2	SOGX 120408	40596
KUB-P.2D.410.R.12-ABS63	U42 64100	41	63	164	82	126	6,25	2	SOGX 120408	41096

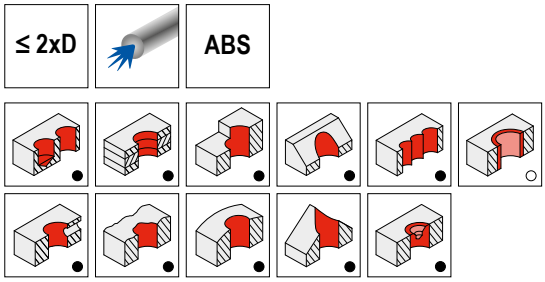
Continued on next page

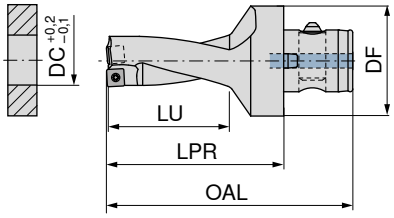
KUB Pentron – Indexable insert drill

▲ ZEFF = Number of Inserts

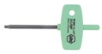
Scope of supply:

Indexable Insert Drill incl. clamping screws





Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	ZEFF	Insert	10 872 ...
KUB-P.2D.415.R.12-ABS63	U42 64150	**41,5**	63	166	84	128	6,25	2	SOGX 120408	**41596**
KUB-P.2D.420.R.12-ABS63	U42 64200	**42**	63	166	84	128	6,25	2	SOGX 120408	**42096**
KUB-P.2D.425.R.13-ABS63	U42 64250	**42,5**	63	169	86	131	6,25	2	SOGX 130508	**42596**
KUB-P.2D.430.R.13-ABS63	U42 64300	**43**	63	169	86	131	6,25	2	SOGX 130508	**43096**
KUB-P.2D.435.R.13-ABS63	U42 64350	**43,5**	63	171	88	133	6,25	2	SOGX 130508	**43596**
KUB-P.2D.440.R.13-ABS63	U42 64400	**44**	63	171	88	133	6,25	2	SOGX 130508	**44096**
KUB-P.2D.445.R.13-ABS63	U42 64450	**44,5**	63	174	90	136	6,25	2	SOGX 130508	**44596**
KUB-P.2D.450.R.13-ABS63	U42 64500	**45**	63	174	90	136	6,25	2	SOGX 130508	**45096**
KUB-P.2D.455.R.13-ABS63	U42 64550	**45,5**	63	173	92	135	6,25	2	SOGX 130508	**45596**
KUB-P.2D.460.R.13-ABS63	U42 64600	**46**	63	173	92	135	6,25	2	SOGX 130508	**46096**
KUB-P.2D.470.R.08-ABS63	U42 64700	**47**	63	187	94	149	1,28	4	SOGX 080308	**47096**
KUB-P.2D.480.R.08-ABS63	U42 64800	**48**	63	189	96	151	1.28	4	SOGX 080308	**48096**
KUB-P.2D.490.R.08-ABS63	U42 64900	**49**	63	191	98	153	1,28	4	SOGX 080308	**49096**
KUB-P.2D.500.R.08-ABS63	U42 65000	**50**	63	193	100	155	1,28	4	SOGX 080308	**50096**
KUB-P.2D.510.R.08-ABS63	U42 65100	**51**	63	195	102	157	1,28	4	SOGX 080308	**51096**
KUB-P.2D.520.R.08-ABS63	U42 65200	**52**	63	197	104	159	1,28	4	SOGX 080308	**52096**
KUB-P.2D.530.R.10-ABS63	U42 65300	**53**	63	199	106	161	2,8	4	SOGX 100408	**53096**
KUB-P.2D.540.R.10-ABS63	U42 65400	**54**	63	201	108	163	2,8	4	SOGX 100408	**54096**
KUB-P.2D.550.R.10-ABS80	U42 75500	**55**	80	208	110	165	2,8	4	SOGX 100408	**55098**
KUB-P.2D.560.R.10-ABS80	U42 75600	**56**	80	210	112	167	2,8	4	SOGX 100408	**56098**
KUB-P.2D.570.R.10-ABS80	U42 75700	**57**	80	212	114	169	2,8	4	SOGX 100408	**57098**
KUB-P.2D.580.R.10-ABS80	U42 75800	**58**	80	214	116	171	2,8	4	SOGX 100408	**58098**
KUB-P.2D.590.R.10-ABS80	U42 75900	**59**	80	216	118	173	2,8	4	SOGX 100408	**59098**
KUB-P.2D.600.R.10-ABS80	U42 76000	**60**	80	218	120	175	2,8	4	SOGX 100408	**60098**
KUB-P.2D.610.R.10-ABS80	U42 76100	**61**	80	220	122	177	2,8	4	SOGX 100408	**61098**
KUB-P.2D.620.R.10-ABS80	U42 76200	**62**	80	222	124	179	2,8	4	SOGX 100408	**62098**
KUB-P.2D.630.R.10-ABS80	U42 76300	**63**	80	224	126	181	2,8	4	SOGX 100408	**63098**
KUB-P.2D.640.R.10-ABS80	U42 76400	**64**	80	226	128	183	2,8	4	SOGX 100408	**64098**
KUB-P.2D.650.R.10-ABS80	U42 76500	**65**	80	228	130	185	2,8	4	SOGX 100408	**65098**



Screwdriver

Key D

Clamping screw

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

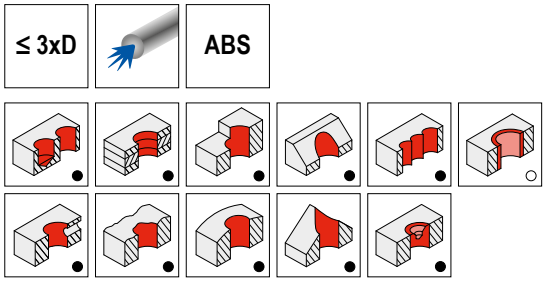
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

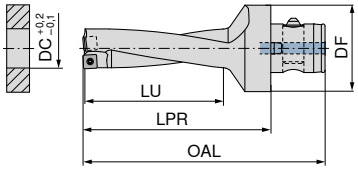
KUB Pentron – Indexable insert drill

▲ ZEFF = Number of Inserts

Scope of supply:

Indexable Insert Drill incl. clamping screws





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Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	ZEFF	Insert	
KUB-P.3D.140.R.04-ABS50	U43 51400	**14**	50	100	42	69	0,38	2	SOGX 040204	**14095**
KUB-P.3D.145.R.04-ABS50	U43 51450	**14,5**	50	104	45	73	0,38	2	SOGX 040204	**14595**
KUB-P.3D.150.R.04-ABS50	U43 51500	**15**	50	104	45	73	0,38	2	SOGX 040204	**15095**
KUB-P.3D.155.R.04-ABS50	U43 51550	**15,5**	50	109	48	78	0,38	2	SOGX 040204	**15595**
KUB-P.3D.160.R.04-ABS50	U43 51600	**16**	50	109	48	78	0,38	2	SOGX 040204	**16095**
KUB-P.3D.165.R.05-ABS50	U43 51650	**16,5**	50	113	51	82	0,62	2	SOGX 050204	**16595**
KUB-P.3D.170.R.05-ABS50	U43 51700	**17**	50	113	51	82	0,62	2	SOGX 050204	**17095**
KUB-P.3D.175.R.05-ABS50	U43 51750	**17,5**	50	116	54	85	0,62	2	SOGX 050204	**17595**
KUB-P.3D.180.R.05-ABS50	U43 51800	**18**	50	116	54	85	0,62	2	SOGX 050204	**18095**
KUB-P.3D.185.R.06-ABS50	U43 51850	**18,5**	50	120	57	89	1,01	2	SOGX 060206	**18595**
KUB-P.3D.190.R.06-ABS50	U43 51900	**19**	50	120	57	89	1,01	2	SOGX 060206	**19095**
KUB-P.3D.195.R.06-ABS50	U43 51950	**19,5**	50	123	60	92	1,01	2	SOGX 060206	**19595**
KUB-P.3D.200.R.06-ABS50	U43 52000	**20**	50	123	60	92	1,01	2	SOGX 060206	**20095**
KUB-P.3D.205.R.07-ABS50	U43 52050	**20,5**	50	126	63	95	1,01	2	SOGX 07T208	**20595**
KUB-P.3D.210.R.07-ABS50	U43 52100	**21**	50	126	63	95	1,01	2	SOGX 07T208	**21095**
KUB-P.3D.215.R.07-ABS50	U43 52150	**21,5**	50	129	66	98	1,01	2	SOGX 07T208	**21595**
KUB-P.3D.220.R.07-ABS50	U43 52200	**22**	50	129	66	98	1,01	2	SOGX 07T208	**22095**
KUB-P.3D.225.R.07-ABS50	U43 52250	**22,5**	50	132	69	101	1,01	2	SOGX 07T208	**22595**
KUB-P.3D.230.R.07-ABS50	U43 52300	**23**	50	132	69	101	1,01	2	SOGX 07T208	**23095**
KUB-P.3D.235.R.08-ABS50	U43 52350	**23,5**	50	135	72	104	1,28	2	SOGX 080308	**23595**
KUB-P.3D.240.R.08-ABS50	U43 52400	**24**	50	135	72	104	1,28	2	SOGX 080308	**24095**
KUB-P.3D.245.R.08-ABS50	U43 52450	**24,5**	50	139	75	108	1,28	2	SOGX 080308	**24595**
KUB-P.3D.250.R.08-ABS50	U43 52500	**25**	50	139	75	108	1,28	2	SOGX 080308	**25095**
KUB-P.3D.255.R.08-ABS50	U43 52550	**25,5**	50	142	78	111	1,28	2	SOGX 080308	**25595**
KUB-P.3D.260.R.08-ABS50	U43 52600	**26**	50	142	78	111	1,28	2	SOGX 080308	**26095**
KUB-P.3D.265.R.09-ABS50	U43 52650	**26,5**	50	146	81	115	2,25	2	SOGX 09T308	**26595**
KUB-P.3D.270.R.09-ABS50	U43 52700	**27**	50	146	81	115	2,25	2	SOGX 09T308	**27095**
KUB-P.3D.275.R.09-ABS50	U43 52750	**27,5**	50	149	84	118	2,25	2	SOGX 09T308	**27595**
KUB-P.3D.280.R.09-ABS50	U43 52800	**28**	50	149	84	118	2,25	2	SOGX 09T308	**28095**
KUB-P.3D.285.R.09-ABS50	U43 52850	**28,5**	50	153	87	122	2,25	2	SOGX 09T308	**28595**
KUB-P.3D.290.R.09-ABS50	U43 52900	**29**	50	153	87	122	2,25	2	SOGX 09T308	**29095**
KUB-P.3D.295.R.09-ABS50	U43 52950	**29,5**	50	156	90	125	2,25	2	SOGX 09T308	**29595**
KUB-P.3D.300.R.09-ABS50	U43 53000	**30**	50	156	90	125	2,25	2	SOGX 09T308	**30095**
KUB-P.3D.305.R.10-ABS63	U43 63050	**30,5**	63	170	93	132	2,8	2	SOGX 100408	**30596**
KUB-P.3D.310.R.10-ABS63	U43 63100	**31**	63	170	93	132	2,8	2	SOGX 100408	**31096**
KUB-P.3D.315.R.10-ABS63	U43 63150	**31,5**	63	173	96	135	2,8	2	SOGX 100408	**31596**
KUB-P.3D.320.R.10-ABS63	U43 63200	**32**	63	173	96	135	2,8	2	SOGX 100408	**32096**
KUB-P.3D.325.R.10-ABS63	U43 63250	**32,5**	63	177	99	139	2,8	2	SOGX 100408	**32596**
KUB-P.3D.330.R.10-ABS63	U43 63300	**33**	63	177	99	139	2,8	2	SOGX 100408	**33096**
KUB-P.3D.335.R.11-ABS63	U43 63350	**33,5**	63	180	102	142	2,8	2	SOGX 110408	**33596**
KUB-P.3D.340.R.11-ABS63	U43 63400	**34**	63	180	102	142	2,8	2	SOGX 110408	**34096**
KUB-P.3D.345.R.11-ABS63	U43 63450	**34,5**	63	184	105	146	2,8	2	SOGX 110408	**34596**
KUB-P.3D.350.R.11-ABS63	U43 63500	**35**	63	184	105	146	2,8	2	SOGX 110408	**35096**
KUB-P.3D.355.R.11-ABS63	U43 63550	**35,5**	63	187	108	149	2,8	2	SOGX 110408	**35596**
KUB-P.3D.360.R.11-ABS63	U43 63600	**36**	63	187	108	149	2,8	2	SOGX 110408	**36096**
KUB-P.3D.365.R.11-ABS63	U43 63650	**36,5**	63	191	111	153	2,8	2	SOGX 110408	**36596**
KUB-P.3D.370.R.11-ABS63	U43 63700	**37**	63	191	111	153	2,8	2	SOGX 110408	**37096**
KUB-P.3D.375.R.12-ABS63	U43 63750	**37,5**	63	194	114	156	6,25	2	SOGX 120408	**37596**
KUB-P.3D.380.R.12-ABS63	U43 63800	**38**	63	194	114	156	6,25	2	SOGX 120408	**38096**
KUB-P.3D.385.R.12-ABS63	U43 63850	**38,5**	63	198	117	160	6,25	2	SOGX 120408	**38596**
KUB-P.3D.390.R.12-ABS63	U43 63900	**39**	63	198	117	160	6,25	2	SOGX 120408	**39096**
KUB-P.3D.395.R.12-ABS63	U43 63950	**39,5**	63	201	120	163	6,25	2	SOGX 120408	**39596**
KUB-P.3D.400.R.12-ABS63	U43 64000	**40**	63	201	120	163	6,25	2	SOGX 120408	**40096**
KUB-P.3D.405.R.12-ABS63	U43 64050	**40,5**	63	205	123	167	6,25	2	SOGX 120408	**40596**
KUB-P.3D.410.R.12-ABS63	U43 64100	**41**	63	205	123	167	6,25	2	SOGX 120408	**41096**

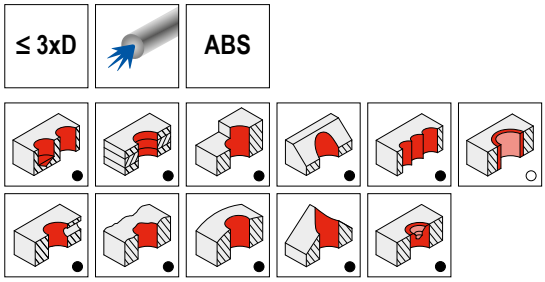
Continued on next page

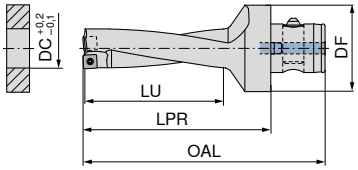
KUB Pentron – Indexable insert drill

▲ ZEFF = Number of Inserts

Scope of supply:

Indexable Insert Drill incl. clamping screws





Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	ZEFF	Insert	10 873 ...
KUB-P.3D.415.R.12-ABS63	U43 64150	41,5	63	208	126	170	6,25	2	SOGX 120408	41596
KUB-P.3D.420.R.12-ABS63	U43 64200	42	63	208	126	170	6,25	2	SOGX 120408	42096
KUB-P.3D.425.R.13-ABS63	U43 64250	42,5	63	212	129	174	6,25	2	SOGX 130508	42596
KUB-P.3D.430.R.13-ABS63	U43 64300	43	63	212	129	174	6,25	2	SOGX 130508	43096
KUB-P.3D.435.R.13-ABS63	U43 64350	43,5	63	215	132	177	6,25	2	SOGX 130508	43596
KUB-P.3D.440.R.13-ABS63	U43 64400	44	63	215	132	177	6,25	2	SOGX 130508	44096
KUB-P.3D.445.R.13-ABS63	U43 64450	44,5	63	219	135	181	6,25	2	SOGX 130508	44596
KUB-P.3D.450.R.13-ABS63	U43 64500	45	63	219	135	181	6,25	2	SOGX 130508	45096
KUB-P.3D.455.R.13-ABS63	U43 64550	45,5	63	219	138	181	6,25	2	SOGX 130508	45596
KUB-P.3D.460.R.13-ABS63	U43 64600	46	63	219	138	181	6,25	2	SOGX 130508	46096
KUB-P.3D.470.R.08-ABS63	U43 64700	47	63	234	141	196	1,28	4	SOGX 080308	47096
KUB-P.3D.480.R.08-ABS63	U43 64800	48	63	237	144	199	1,28	4	SOGX 080308	48096
KUB-P.3D.490.R.08-ABS63	U43 64900	49	63	240	147	202	1,28	4	SOGX 080308	49096
KUB-P.3D.500.R.08-ABS63	U43 65000	50	63	243	150	205	1,28	4	SOGX 080308	50096
KUB-P.3D.510.R.08-ABS63	U43 65100	51	63	246	153	208	1,28	4	SOGX 080308	51096
KUB-P.3D.520.R.08-ABS63	U43 65200	52	63	249	156	211	1,28	4	SOGX 080308	52096
KUB-P.3D.530.R.10-ABS63	U43 65300	53	63	252	159	214	2,8	4	SOGX 100408	53096
KUB-P.3D.540.R.10-ABS63	U43 65400	54	63	255	162	217	2,8	4	SOGX 100408	54096
KUB-P.3D.550.R.10-ABS80	U43 75500	55	80	263	165	220	2,8	4	SOGX 100408	55098
KUB-P.3D.560.R.10-ABS80	U43 75600	56	80	266	168	223	2,8	4	SOGX 100408	56098
KUB-P.3D.570.R.10-ABS80	U43 75700	57	80	269	171	226	2,8	4	SOGX 100408	57098
KUB-P.3D.580.R.10-ABS80	U43 75800	58	80	272	174	229	2,8	4	SOGX 100408	58098
KUB-P.3D.590.R.10-ABS80	U43 75900	59	80	275	177	232	2,8	4	SOGX 100408	59098
KUB-P.3D.600.R.10-ABS80	U43 76000	60	80	278	180	235	2,8	4	SOGX 100408	60098
KUB-P.3D.610.R.10-ABS80	U43 76100	61	80	281	183	238	2,8	4	SOGX 100408	61098
KUB-P.3D.620.R.10-ABS80	U43 76200	62	80	284	186	241	2,8	4	SOGX 100408	62098
KUB-P.3D.630.R.10-ABS80	U43 76300	63	80	287	189	244	2,8	4	SOGX 100408	63098
KUB-P.3D.640.R.10-ABS80	U43 76400	64	80	290	192	247	2,8	4	SOGX 100408	64098
KUB-P.3D.650.R.10-ABS80	U43 76500	65	80	293	195	250	2,8	4	SOGX 100408	65098

Screwdriver

Key D

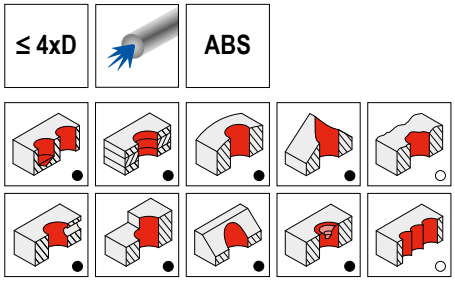
Clamping screw

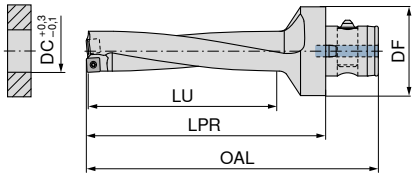
Spare parts DC	Screwdriver 80 950 ...		Key D 80 950 ...		Clamping screw 10 950 ...	
14 - 16	T05 - IP	057			M1,8x3,8 - 05IP	10100
16,5 - 18			T06 - IP	123	M2,0x4,3 - 06IP	10000
18,5 - 23			T06 - IP	123	M2,2x5,5 - 06IP	10700
23,5 - 26			T08 - IP	125	M2,5x6,3 - 08IP	10800
26,5 - 30			T08 - IP	125	M3,0x7,6 - 08IP	10200
30,5 - 37			T15 - IP	128	M3,5x7,5 - 15IP	10300
37,5 - 46			T20 - IP	129	M4,5x10 - 20IP	10400
47 - 52			T08 - IP	125	M2,5x6,3 - 08IP	10800
53 - 65			T08 - IP	125	M3,5x7,5 - 15IP	10300

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

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws





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Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.4D.140.R.04-ABS50	U44 51400	**14**	50	114	56	83	0,38	SOGX 040204	**14095**
KUB-P.4D.145.R.04-ABS50	U44 51450	**14,5**	50	119	60	88	0,38	SOGX 040204	**14595**
KUB-P.4D.150.R.04-ABS50	U44 51500	**15**	50	119	60	88	0,38	SOGX 040204	**15095**
KUB-P.4D.155.R.04-ABS50	U44 51550	**15,5**	50	125	64	94	0,38	SOGX 040204	**15595**
KUB-P.4D.160.R.04-ABS50	U44 51600	**16**	50	125	64	94	0,38	SOGX 040204	**16095**
KUB-P.4D.165.R.05-ABS50	U44 51650	**16,5**	50	130	68	99	0,62	SOGX 050204	**16595**
KUB-P.4D.170.R.05-ABS50	U44 51700	**17**	50	130	68	99	0,62	SOGX 050204	**17095**
KUB-P.4D.175.R.05-ABS50	U44 51750	**17,5**	50	134	72	103	0,62	SOGX 050204	**17595**
KUB-P.4D.180.R.05-ABS50	U44 51800	**18**	50	134	72	103	0,62	SOGX 050204	**18095**
KUB-P.4D.185.R.06-ABS50	U44 51850	**18,5**	50	139	76	108	1,01	SOGX 060206	**18595**
KUB-P.4D.190.R.06-ABS50	U44 51900	**19**	50	139	76	108	1,01	SOGX 060206	**19095**
KUB-P.4D.195.R.06-ABS50	U44 51950	**19,5**	50	143	80	112	1,01	SOGX 060206	**19595**
KUB-P.4D.200.R.06-ABS50	U44 52000	**20**	50	143	80	112	1,01	SOGX 060206	**20095**
KUB-P.4D.205.R.07-ABS50	U44 52050	**20,5**	50	147	84	116	1,01	SOGX 07T208	**20595**
KUB-P.4D.210.R.07-ABS50	U44 52100	**21**	50	147	84	116	1,01	SOGX 07T208	**21095**
KUB-P.4D.215.R.07-ABS50	U44 52150	**21,5**	50	151	88	120	1,01	SOGX 07T208	**21595**
KUB-P.4D.220.R.07-ABS50	U44 52200	**22**	50	151	88	120	1,01	SOGX 07T208	**22095**
KUB-P.4D.225.R.07-ABS50	U44 52250	**22,5**	50	155	92	124	1,01	SOGX 07T208	**22595**
KUB-P.4D.230.R.07-ABS50	U44 52300	**23**	50	155	92	124	1,01	SOGX 07T208	**23095**
KUB-P.4D.235.R.08-ABS50	U44 52350	**23,5**	50	159	96	128	1,28	SOGX 080308	**23595**
KUB-P.4D.240.R.08-ABS50	U44 52400	**24**	50	159	96	128	1,28	SOGX 080308	**24095**
KUB-P.4D.245.R.08-ABS50	U44 52450	**24,5**	50	164	100	133	1,28	SOGX 080308	**24595**
KUB-P.4D.250.R.08-ABS50	U44 52500	**25**	50	164	100	133	1,28	SOGX 080308	**25095**
KUB-P.4D.255.R.08-ABS50	U44 52550	**25,5**	50	168	104	137	1,28	SOGX 080308	**25595**
KUB-P.4D.260.R.08-ABS50	U44 52600	**26**	50	168	104	137	1,28	SOGX 080308	**26095**
KUB-P.4D.265.R.09-ABS50	U44 52650	**26,5**	50	173	108	142	2,25	SOGX 09T308	**26595**
KUB-P.4D.270.R.09-ABS50	U44 52700	**27**	50	173	108	142	2,25	SOGX 09T308	**27095**
KUB-P.4D.275.R.09-ABS50	U44 52750	**27,5**	50	177	112	146	2,25	SOGX 09T308	**27595**
KUB-P.4D.280.R.09-ABS50	U44 52800	**28**	50	177	112	146	2,25	SOGX 09T308	**28095**
KUB-P.4D.285.R.09-ABS50	U44 52850	**28,5**	50	182	116	151	2,25	SOGX 09T308	**28595**
KUB-P.4D.290.R.09-ABS50	U44 52900	**29**	50	182	116	151	2,25	SOGX 09T308	**29095**
KUB-P.4D.295.R.09-ABS50	U44 52950	**29,5**	50	186	120	155	2,25	SOGX 09T308	**29595**
KUB-P.4D.300.R.09-ABS50	U44 53000	**30**	50	186	120	155	2,25	SOGX 09T308	**30095**
KUB-P.4D.305.R.10-ABS63	U44 63050	**30,5**	63	201	124	163	2,8	SOGX 100408	**30596**
KUB-P.4D.310.R.10-ABS63	U44 63100	**31**	63	201	124	163	2,8	SOGX 100408	**31096**
KUB-P.4D.315.R.10-ABS63	U44 63150	**31,5**	63	205	128	167	2,8	SOGX 100408	**31596**
KUB-P.4D.320.R.10-ABS63	U44 63200	**32**	63	205	128	167	2,8	SOGX 100408	**32096**
KUB-P.4D.325.R.10-ABS63	U44 63250	**32,5**	63	210	132	172	2,8	SOGX 100408	**32596**
KUB-P.4D.330.R.10-ABS63	U44 63300	**33**	63	210	132	172	2,8	SOGX 100408	**33096**
KUB-P.4D.335.R.11-ABS63	U44 63350	**33,5**	63	214	136	176	2,8	SOGX 110408	**33596**
KUB-P.4D.340.R.11-ABS63	U44 63400	**34**	63	214	136	176	2,8	SOGX 110408	**34096**
KUB-P.4D.345.R.11-ABS63	U44 63450	**34,5**	63	219	140	181	2,8	SOGX 110408	**34596**
KUB-P.4D.350.R.11-ABS63	U44 63500	**35**	63	219	140	181	2,8	SOGX 110408	**35096**
KUB-P.4D.355.R.11-ABS63	U44 63550	**35,5**	63	223	144	185	2,8	SOGX 110408	**35596**
KUB-P.4D.360.R.11-ABS63	U44 63600	**36**	63	223	144	185	2,8	SOGX 110408	**36096**
KUB-P.4D.365.R.11-ABS63	U44 63650	**36,5**	63	228	148	190	2,8	SOGX 110408	**36596**
KUB-P.4D.370.R.11-ABS63	U44 63700	**37**	63	228	148	190	2,8	SOGX 110408	**37096**
KUB-P.4D.375.R.12-ABS63	U44 63750	**37,5**	63	232	152	194	6,25	SOGX 120408	**37596**
KUB-P.4D.380.R.12-ABS63	U44 63800	**38**	63	232	152	194	6,25	SOGX 120408	**38096**

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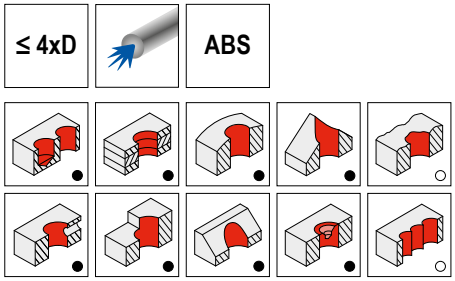
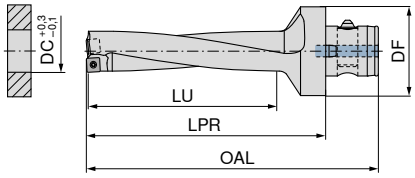
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws





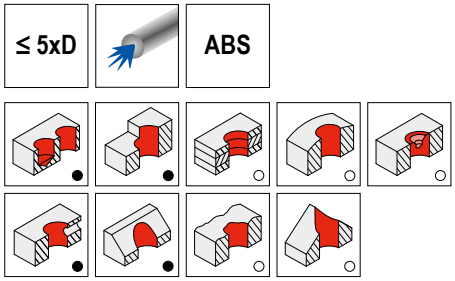
									10 874 ...
Designation	KOMET no.	**DC** mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.4D.385.R.12-ABS63	U44 63850	**38,5**	63	237	156	199	6,25	SOGX 120408	**38596**
KUB-P.4D.390.R.12-ABS63	U44 63900	**39**	63	237	156	199	6,25	SOGX 120408	**39096**
KUB-P.4D.395.R.12-ABS63	U44 63950	**39,5**	63	241	160	203	6,25	SOGX 120408	**39596**
KUB-P.4D.400.R.12-ABS63	U44 64000	**40**	63	241	160	203	6,25	SOGX 120408	**40096**
KUB-P.4D.405.R.12-ABS63	U44 64050	**40,5**	63	246	164	208	6,25	SOGX 120408	**40596**
KUB-P.4D.410.R.12-ABS63	U44 64100	**41**	63	246	164	208	6,25	SOGX 120408	**41096**
KUB-P.4D.415.R.12-ABS63	U44 64150	**41,5**	63	250	168	212	6,25	SOGX 120408	**41596**
KUB-P.4D.420.R.12-ABS63	U44 64200	**42**	63	250	168	212	6,25	SOGX 120408	**42096**
KUB-P.4D.425.R.13-ABS63	U44 64250	**42,5**	63	255	172	217	6,25	SOGX 130508	**42596**
KUB-P.4D.430.R.13-ABS63	U44 64300	**43**	63	255	172	217	6,25	SOGX 130508	**43096**
KUB-P.4D.435.R.13-ABS63	U44 64350	**43,5**	63	259	176	221	6,25	SOGX 130508	**43596**
KUB-P.4D.440.R.13-ABS63	U44 64400	**44**	63	259	176	221	6,25	SOGX 130508	**44096**
KUB-P.4D.445.R.13-ABS63	U44 64450	**44,5**	63	264	180	226	6,25	SOGX 130508	**44596**
KUB-P.4D.450.R.13-ABS63	U44 64500	**45**	63	264	180	226	6,25	SOGX 130508	**45096**
KUB-P.4D.455.R.13-ABS63	U44 64550	**45,5**	63	268	184	230	6,25	SOGX 130508	**45596**
KUB-P.4D.460.R.13-ABS63	U44 64600	**46**	63	268	184	230	6,25	SOGX 130508	**46096**

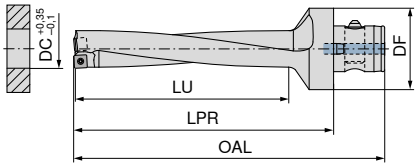
		Screwdriver		Key D		Clamping screw	
		80 950 ...		**80 950 ...**		**10 950 ...**	
Spare parts DC							
14 - 16	T05 - IP	**057**				M1,8x3,8 - 05IP	**10100**
16,5 - 18			T06 - IP	**123**		M2,0x4,3 - 06IP	**10000**
18,5 - 23			T06 - IP	**123**		M2,2x5,5 - 06IP	**10700**
23,5 - 26			T08 - IP	**125**		M2,5x6,3 - 08IP	**10800**
26,5 - 30			T08 - IP	**125**		M3,0x7,6 - 08IP	**10200**
30,5 - 37			T15 - IP	**128**		M3,5x7,5 - 15IP	**10300**
37,5 - 46			T20 - IP	**129**		M4,5x10 - 20IP	**10400**

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

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws





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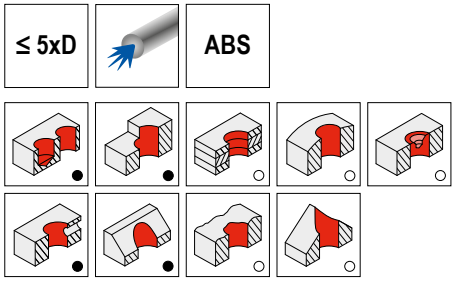
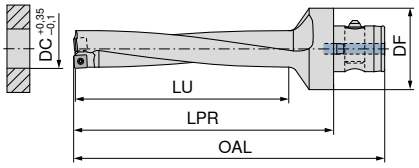
Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.5D.140.R.04-ABS50	U45 51400	**14**	50	128	70	97	0,38	SOGX 040204	**14095**
KUB-P.5D.145.R.04-ABS50	U45 51450	**14,5**	50	134	75	103	0,38	SOGX 040204	**14595**
KUB-P.5D.150.R.04-ABS50	U45 51500	**15**	50	134	75	103	0,38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

Continued on next page

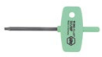
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws





									10 875 ...
Designation	KOMET no.	**DC** mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.5D.385.R.12-ABS63	U45 63850	**38,5**	63	276	195	238	6,25	SOGX 120408	**38596**
KUB-P.5D.390.R.12-ABS63	U45 63900	**39**	63	276	195	238	6,25	SOGX 120408	**39096**
KUB-P.5D.395.R.12-ABS63	U45 63950	**39,5**	63	281	200	243	6,25	SOGX 120408	**39596**
KUB-P.5D.400.R.12-ABS63	U45 64000	**40**	63	281	200	243	6,25	SOGX 120408	**40096**
KUB-P.5D.405.R.12-ABS63	U45 64050	**40,5**	63	287	205	249	6,25	SOGX 120408	**40596**
KUB-P.5D.410.R.12-ABS63	U45 64100	**41**	63	287	205	249	6,25	SOGX 120408	**41096**
KUB-P.5D.415.R.12-ABS63	U45 64150	**41,5**	63	292	210	254	6,25	SOGX 120408	**41596**
KUB-P.5D.420.R.12-ABS63	U45 64200	**42**	63	292	210	254	6,25	SOGX 120408	**42096**
KUB-P.5D.425.R.13-ABS63	U45 64250	**42,5**	63	298	215	260	6,25	SOGX 130508	**42596**
KUB-P.5D.430.R.13-ABS63	U45 64300	**43**	63	298	215	260	6,25	SOGX 130508	**43096**
KUB-P.5D.435.R.13-ABS63	U45 64350	**43,5**	63	303	220	265	6,25	SOGX 130508	**43596**
KUB-P.5D.440.R.13-ABS63	U45 64400	**44**	63	303	220	265	6,25	SOGX 130508	**44096**
KUB-P.5D.445.R.13-ABS63	U45 64450	**44,5**	63	309	225	271	6,25	SOGX 130508	**44596**
KUB-P.5D.450.R.13-ABS63	U45 64500	**45**	63	309	225	271	6,25	SOGX 130508	**45096**
KUB-P.5D.455.R.13-ABS63	U45 64550	**45,5**	63	314	230	276	6,25	SOGX 130508	**45596**
KUB-P.5D.460.R.13-ABS63	U45 64600	**46**	63	314	230	276	6,25	SOGX 130508	**46096**


Screwdriver

Key D

Clamping screw

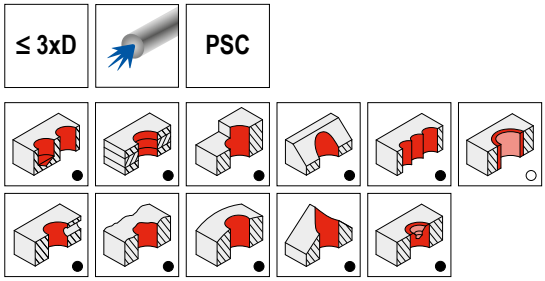
		80 950 ...		80 950 ...		10 950 ...
Spare parts DC						
14 - 16	T05 - IP	**057**			M1,8x3,8 - 05IP	**10100**
16,5 - 18			T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
18,5 - 23			T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**
23,5 - 26			T08 - IP	**125**	M2,5x6,3 - 08IP	**10800**
26,5 - 30			T08 - IP	**125**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

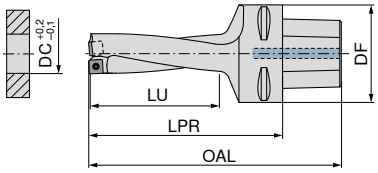
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws





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Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.3D.140.R.04-PSC50	U40 61400	14	50	103	42	73	0,38	SOGX 040204	14055
KUB-P.3D.145.R.04-PSC50	U40 61450	14,5	50	107	45	77	0,38	SOGX 040204	14555
KUB-P.3D.150.R.04-PSC50	U40 61500	15	50	107	45	77	0,38	SOGX 040204	15055
KUB-P.3D.155.R.04-PSC50	U40 61550	15,5	50	112	48	82	0,38	SOGX 040204	15555
KUB-P.3D.160.R.04-PSC50	U40 61600	16	50	112	48	82	0,38	SOGX 040204	16055
KUB-P.3D.160.R.04-PSC63	U40 71600	16	63	124	48	86	0,38	SOGX 040204	16056
KUB-P.3D.165.R.05-PSC50	U40 61650	16,5	50	116	51	86	0,62	SOGX 050204	16555
KUB-P.3D.170.R.05-PSC50	U40 61700	17	50	116	51	86	0,62	SOGX 050204	17055
KUB-P.3D.175.R.05-PSC50	U40 61750	17,5	50	119	54	89	0,62	SOGX 050204	17555
KUB-P.3D.180.R.05-PSC50	U40 61800	18	50	119	54	89	0,62	SOGX 050204	18055
KUB-P.3D.165.R.05-PSC63	U40 71650	16,5	63	128	51	90	0,62	SOGX 050204	16556
KUB-P.3D.170.R.05-PSC63	U40 71700	17	63	128	51	90	0,62	SOGX 050204	17056
KUB-P.3D.175.R.05-PSC63	U40 71750	17,5	63	131	54	93	0,62	SOGX 050204	17556
KUB-P.3D.180.R.05-PSC63	U40 71800	18	63	131	54	93	0,62	SOGX 050204	18056
KUB-P.3D.185.R.06-PSC50	U40 61850	18,5	50	123	57	93	1,01	SOGX 060206	18555
KUB-P.3D.190.R.06-PSC50	U40 61900	19	50	123	57	93	1,01	SOGX 060206	19055
KUB-P.3D.195.R.06-PSC50	U40 61950	19,5	50	126	60	96	1,01	SOGX 060206	19555
KUB-P.3D.200.R.06-PSC50	U40 62000	20	50	126	60	96	1,01	SOGX 060206	20055
KUB-P.3D.185.R.06-PSC63	U40 71850	18,5	63	135	57	97	1,01	SOGX 060206	18556
KUB-P.3D.190.R.06-PSC63	U40 71900	19	63	135	57	97	1,01	SOGX 060206	19056
KUB-P.3D.195.R.06-PSC63	U40 71950	19,5	63	138	60	100	1,01	SOGX 060206	19556
KUB-P.3D.200.R.06-PSC63	U40 72000	20	63	138	60	100	1,01	SOGX 060206	20056
KUB-P.3D.205.R.07-PSC50	U40 62050	20,5	50	130	63	100	1,01	SOGX 07T208	20555
KUB-P.3D.210.R.07-PSC50	U40 62100	21	50	130	63	100	1,01	SOGX 07T208	21055
KUB-P.3D.215.R.07-PSC50	U40 62150	21,5	50	133	66	103	1,01	SOGX 07T208	21555
KUB-P.3D.220.R.07-PSC50	U40 62200	22	50	133	66	103	1,01	SOGX 07T208	22055
KUB-P.3D.225.R.07-PSC50	U40 62250	22,5	50	137	69	107	1,01	SOGX 07T208	22555
KUB-P.3D.230.R.07-PSC50	U40 62300	23	50	137	69	107	1,01	SOGX 07T208	23055
KUB-P.3D.205.R.07-PSC63	U40 72050	20,5	63	142	63	104	1,01	SOGX 07T208	20556
KUB-P.3D.210.R.07-PSC63	U40 72100	21	63	142	63	104	1,01	SOGX 07T208	21056
KUB-P.3D.215.R.07-PSC63	U40 72150	21,5	63	145	66	107	1,01	SOGX 07T208	21556
KUB-P.3D.220.R.07-PSC63	U40 72200	22	63	145	66	107	1,01	SOGX 07T208	22056
KUB-P.3D.225.R.07-PSC63	U40 72250	22,5	63	149	69	111	1,01	SOGX 07T208	22556
KUB-P.3D.230.R.07-PSC63	U40 72300	23	63	149	69	111	1,01	SOGX 07T208	23056
KUB-P.3D.235.R.08-PSC50	U40 62350	23,5	50	140	72	110	1,28	SOGX 080308	23555
KUB-P.3D.240.R.08-PSC50	U40 62400	24	50	140	72	110	1,28	SOGX 080308	24055
KUB-P.3D.245.R.08-PSC50	U40 62450	24,5	50	144	75	114	1,28	SOGX 080308	24555
KUB-P.3D.250.R.08-PSC50	U40 62500	25	50	144	75	114	1,28	SOGX 080308	25055
KUB-P.3D.255.R.08-PSC50	U40 62550	25,5	50	147	78	117	1,28	SOGX 080308	25555
KUB-P.3D.260.R.08-PSC50	U40 62600	26	50	147	78	117	1,28	SOGX 080308	26055
KUB-P.3D.235.R.08-PSC63	U40 72350	23,5	63	152	72	114	1,28	SOGX 080308	23556
KUB-P.3D.240.R.08-PSC63	U40 72400	24	63	152	72	114	1,28	SOGX 080308	24056
KUB-P.3D.245.R.08-PSC63	U40 72450	24,5	63	156	75	118	1,28	SOGX 080308	24556
KUB-P.3D.250.R.08-PSC63	U40 72500	25	63	156	75	118	1,28	SOGX 080308	25056
KUB-P.3D.255.R.08-PSC63	U40 72550	25,5	63	159	78	121	1,28	SOGX 080308	25556
KUB-P.3D.260.R.08-PSC63	U40 72600	26	63	159	78	121	1,28	SOGX 080308	26056
KUB-P.3D.265.R.09-PSC50	U40 62650	26,5	50	151	81	121	2,25	SOGX 09T308	26555
KUB-P.3D.270.R.09-PSC50	U40 62700	27	50	151	81	121	2,25	SOGX 09T308	27055
KUB-P.3D.275.R.09-PSC50	U40 62750	27,5	50	154	84	124	2,25	SOGX 09T308	27555
KUB-P.3D.280.R.09-PSC50	U40 62800	28	50	154	84	124	2,25	SOGX 09T308	28055
KUB-P.3D.285.R.09-PSC50	U40 62850	28,5	50	158	87	128	2,25	SOGX 09T308	28555
KUB-P.3D.290.R.09-PSC50	U40 62900	29	50	158	87	128	2,25	SOGX 09T308	29055
KUB-P.3D.295.R.09-PSC50	U40 62950	29,5	50	161	90	131	2,25	SOGX 09T308	29555
KUB-P.3D.300.R.09-PSC50	U40 63000	30	50	161	90	131	2,25	SOGX 09T308	30055
KUB-P.3D.265.R.09-PSC63	U40 72650	26,5	63	163	81	125	2,25	SOGX 09T308	26556
KUB-P.3D.270.R.09-PSC63	U40 72700	27	63	163	81	125	2,25	SOGX 09T308	27056
KUB-P.3D.275.R.09-PSC63	U40 72750	27,5	63	166	84	128	2,25	SOGX 09T308	27556
KUB-P.3D.280.R.09-PSC63	U40 72800	28	63	166	84	128	2,25	SOGX 09T308	28056
KUB-P.3D.285.R.09-PSC63	U40 72850	28,5	63	170	87	132	2,25	SOGX 09T308	28556

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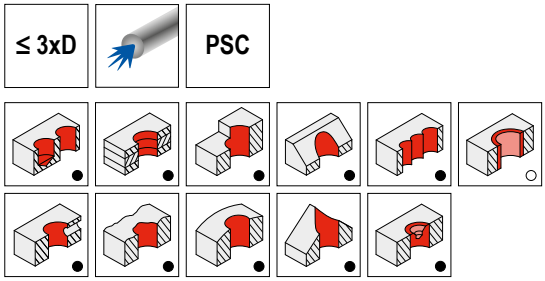
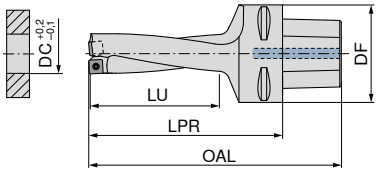
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws





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Designation	KOMET no.	**DC** mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.3D.290.R.09-PSC63	U40 72900	**29**	63	170	87	132	2,25	SOGX 09T308	**29056**
KUB-P.3D.295.R.09-PSC63	U40 72950	**29,5**	63	173	90	135	2,25	SOGX 09T308	**29556**
KUB-P.3D.300.R.09-PSC63	U40 73000	**30**	63	173	90	135	2,25	SOGX 09T308	**30056**
KUB-P.3D.305.R.10-PSC50	U40 63050	**30,5**	50	165	98	135	2,8	SOGX 100408	**30555**
KUB-P.3D.310.R.10-PSC50	U40 63100	**31**	50	165	98	135	2,8	SOGX 100408	**31055**
KUB-P.3D.315.R.10-PSC50	U40 63150	**31,5**	50	168	101	138	2,8	SOGX 100408	**31555**
KUB-P.3D.320.R.10-PSC50	U40 63200	**32**	50	168	101	138	2,8	SOGX 100408	**32055**
KUB-P.3D.325.R.10-PSC50	U40 63250	**32,5**	50	172	104	142	2,8	SOGX 100408	**32555**
KUB-P.3D.330.R.10-PSC50	U40 63300	**33**	50	172	104	142	2,8	SOGX 100408	**33055**
KUB-P.3D.305.R.10-PSC63	U40 73050	**30,5**	63	177	98	139	2,8	SOGX 100408	**30556**
KUB-P.3D.310.R.10-PSC63	U40 73100	**31**	63	177	98	139	2,8	SOGX 100408	**31056**
KUB-P.3D.315.R.10-PSC63	U40 73150	**31,5**	63	180	101	142	2,8	SOGX 100408	**31556**
KUB-P.3D.320.R.10-PSC63	U40 73200	**32**	63	180	101	142	2,8	SOGX 100408	**32056**
KUB-P.3D.325.R.10-PSC63	U40 73250	**32,5**	63	184	104	146	2,8	SOGX 100408	**32556**
KUB-P.3D.330.R.10-PSC63	U40 73300	**33**	63	184	104	146	2,8	SOGX 100408	**33056**
KUB-P.3D.335.R.11-PSC50	U40 63350	**33,5**	50	175	107	145	2,8	SOGX 110408	**33555**
KUB-P.3D.340.R.11-PSC50	U40 63400	**34**	50	175	107	145	2,8	SOGX 110408	**34055**
KUB-P.3D.345.R.11-PSC50	U40 63450	**34,5**	50	179	110	149	2,8	SOGX 110408	**34555**
KUB-P.3D.350.R.11-PSC50	U40 63500	**35**	50	179	110	149	2,8	SOGX 110408	**35055**
KUB-P.3D.355.R.11-PSC50	U40 63550	**35,5**	50	182	113	152	2,8	SOGX 110408	**35555**
KUB-P.3D.360.R.11-PSC50	U40 63600	**36**	50	182	113	152	2,8	SOGX 110408	**36055**
KUB-P.3D.365.R.11-PSC50	U40 63650	**36,5**	50	186	116	156	2,8	SOGX 110408	**36555**
KUB-P.3D.370.R.11-PSC50	U40 63700	**37**	50	186	116	156	2,8	SOGX 110408	**37055**
KUB-P.3D.335.R.11-PSC63	U40 73350	**33,5**	63	187	107	149	2,8	SOGX 110408	**33556**
KUB-P.3D.340.R.11-PSC63	U40 73400	**34**	63	187	107	149	2,8	SOGX 110408	**34056**
KUB-P.3D.345.R.11-PSC63	U40 73450	**34,5**	63	191	110	153	2,8	SOGX 110408	**34556**
KUB-P.3D.350.R.11-PSC63	U40 73500	**35**	63	191	110	153	2,8	SOGX 110408	**35056**
KUB-P.3D.355.R.11-PSC63	U40 73550	**35,5**	63	194	113	156	2,8	SOGX 110408	**35556**
KUB-P.3D.360.R.11-PSC63	U40 73600	**36**	63	194	113	156	2,8	SOGX 110408	**36056**
KUB-P.3D.365.R.11-PSC63	U40 73650	**36,5**	63	198	116	160	2,8	SOGX 110408	**36556**
KUB-P.3D.370.R.11-PSC63	U40 73700	**37**	63	198	116	160	2,8	SOGX 110408	**37056**

Screwdriver

Key D

Clamping screw

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

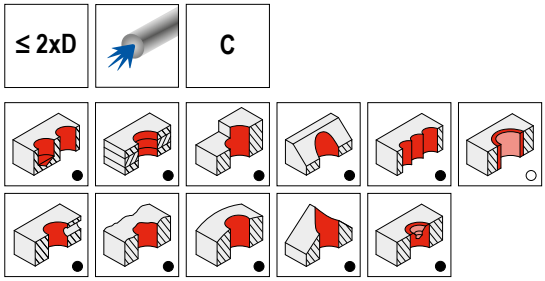
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

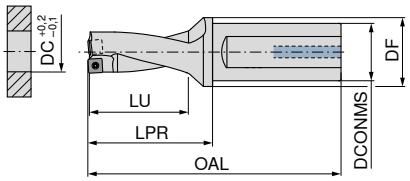
KUB Pentron – Size PSC 40 available on request.

KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws





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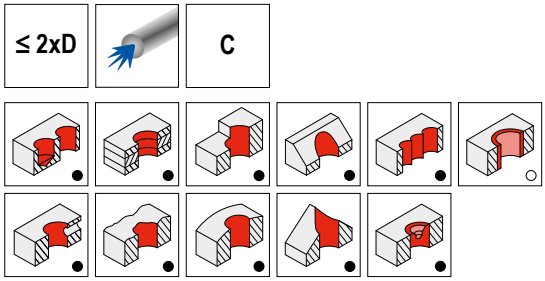
Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.2D.140.R.04-C20	U42 01400	**14**	20	30	91	28	41	0,38	SOGX 040204	**14001**
KUB-P.2D.145.R.04-C20	U42 01450	**14,5**	20	30	94	30	44	0,38	SOGX 040204	**14501**
KUB-P.2D.150.R.04-C20	U42 01500	**15**	20	30	94	30	44	0,38	SOGX 040204	**15001**
KUB-P.2D.155.R.04-C20	U42 01550	**15,5**	20	30	98	32	48	0,38	SOGX 040204	**15501**
KUB-P.2D.160.R.04-C20	U42 01600	**16**	20	30	98	32	48	0,38	SOGX 040204	**16001**
KUB-P.2D.165.R.05-C20	U42 01650	**16,5**	20	30	101	34	51	0,62	SOGX 050204	**16501**
KUB-P.2D.170.R.05-C20	U42 01700	**17**	20	30	101	34	51	0,62	SOGX 050204	**17001**
KUB-P.2D.175.R.05-C25	U42 11750	**17,5**	25	30	109	36	53	0,62	SOGX 050204	**17502**
KUB-P.2D.180.R.05-C25	U42 11800	**18**	25	30	109	36	53	0,62	SOGX 050204	**18002**
KUB-P.2D.185.R.06-C25	U42 11850	**18,5**	25	30	112	38	56	1,01	SOGX 060206	**18502**
KUB-P.2D.190.R.06-C25	U42 11900	**19**	25	30	112	38	56	1,01	SOGX 060206	**19002**
KUB-P.2D.195.R.06-C25	U42 11950	**19,5**	25	30	114	40	58	1,01	SOGX 060206	**19502**
KUB-P.2D.200.R.06-C25	U42 12000	**20**	25	30	114	40	58	1,01	SOGX 060206	**20002**
KUB-P.2D.205.R.07-C25	U42 12050	**20,5**	25	30	117	42	61	1,01	SOGX 07T208	**20502**
KUB-P.2D.210.R.07-C25	U42 12100	**21**	25	30	117	42	61	1,01	SOGX 07T208	**21002**
KUB-P.2D.215.R.07-C25	U42 12150	**21,5**	25	30	119	44	63	1,01	SOGX 07T208	**21502**
KUB-P.2D.220.R.07-C25	U42 12200	**22**	25	30	119	44	63	1,01	SOGX 07T208	**22002**
KUB-P.2D.225.R.07-C25	U42 12250	**22,5**	25	30	122	46	66	1,01	SOGX 07T208	**22502**
KUB-P.2D.230.R.07-C25	U42 12300	**23**	25	30	122	46	66	1,01	SOGX 07T208	**23002**
KUB-P.2D.235.R.08-C32	U42 22350	**23,5**	32	39	128	48	68	1,28	SOGX 080308	**23503**
KUB-P.2D.240.R.08-C32	U42 22400	**24**	32	39	128	48	68	1,28	SOGX 080308	**24003**
KUB-P.2D.245.R.08-C32	U42 22450	**24,5**	32	39	131	50	71	1,28	SOGX 080308	**24503**
KUB-P.2D.250.R.08-C32	U42 22500	**25**	32	39	131	50	71	1,28	SOGX 080308	**25003**
KUB-P.2D.255.R.08-C32	U42 22550	**25,5**	32	39	133	52	73	1,28	SOGX 080308	**25503**
KUB-P.2D.260.R.08-C32	U42 22600	**26**	32	39	133	52	73	1,28	SOGX 080308	**26003**
KUB-P.2D.265.R.09-C32	U42 22650	**26,5**	32	39	136	54	76	2,25	SOGX 09T308	**26503**
KUB-P.2D.270.R.09-C32	U42 22700	**27**	32	39	136	54	76	2,25	SOGX 09T308	**27003**
KUB-P.2D.275.R.09-C32	U42 22750	**27,5**	32	39	138	56	78	2,25	SOGX 09T308	**27503**
KUB-P.2D.280.R.09-C32	U42 22800	**28**	32	39	138	56	78	2,25	SOGX 09T308	**28003**
KUB-P.2D.285.R.09-C32	U42 22850	**28,5**	32	39	141	58	81	2,25	SOGX 09T308	**28503**
KUB-P.2D.290.R.09-C32	U42 22900	**29**	32	39	141	58	81	2,25	SOGX 09T308	**29003**
KUB-P.2D.295.R.09-C32	U42 22950	**29,5**	32	39	143	60	83	2,25	SOGX 09T308	**29503**
KUB-P.2D.300.R.09-C32	U42 23000	**30**	32	39	143	60	83	2,25	SOGX 09T308	**30003**
KUB-P.2D.305.R.10-C40	U42 33050	**30,5**	40	50	154	62	86	2,8	SOGX 100408	**30504**
KUB-P.2D.310.R.10-C40	U42 33100	**31**	40	50	154	62	86	2,8	SOGX 100408	**31004**
KUB-P.2D.315.R.10-C40	U42 33150	**31,5**	40	50	156	64	88	2,8	SOGX 100408	**31504**
KUB-P.2D.320.R.10-C40	U42 33200	**32**	40	50	156	64	88	2,8	SOGX 100408	**32004**
KUB-P.2D.325.R.10-C40	U42 33250	**32,5**	40	50	159	66	91	2,8	SOGX 100408	**32504**
KUB-P.2D.330.R.10-C40	U42 33300	**33**	40	50	159	66	91	2,8	SOGX 100408	**33004**
KUB-P.2D.335.R.11-C40	U42 33350	**33,5**	40	50	161	68	93	2,8	SOGX 110408	**33504**
KUB-P.2D.340.R.11-C40	U42 33400	**34**	40	50	161	68	93	2,8	SOGX 110408	**34004**
KUB-P.2D.345.R.11-C40	U42 33450	**34,5**	40	50	164	70	96	2,8	SOGX 110408	**34504**
KUB-P.2D.350.R.11-C40	U42 33500	**35**	40	50	164	70	96	2,8	SOGX 110408	**35004**
KUB-P.2D.355.R.11-C40	U42 33550	**35,5**	40	50	166	72	98	2,8	SOGX 110408	**35504**
KUB-P.2D.360.R.11-C40	U42 33600	**36**	40	50	166	72	98	2,8	SOGX 110408	**36004**
KUB-P.2D.365.R.11-C40	U42 33650	**36,5**	40	50	169	74	101	2,8	SOGX 110408	**36504**
KUB-P.2D.370.R.11-C40	U42 33700	**37**	40	50	169	74	101	2,8	SOGX 110408	**37004**
KUB-P.2D.375.R.12-C40	U42 33750	**37,5**	40	50	171	76	103	6,25	SOGX 120408	**37504**
KUB-P.2D.380.R.12-C40	U42 33800	**38**	40	50	171	76	103	6,25	SOGX 120408	**38004**
KUB-P.2D.385.R.12-C40	U42 33850	**38,5**	40	50	174	78	106	6,25	SOGX 120408	**38504**

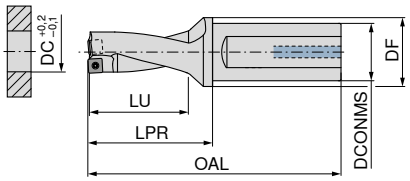
Continued on next page

KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws





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Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 872 ...
KUB-P.2D.390.R.12-C40	U42 33900	**39**	40	50	174	78	106	6,25	SOGX 120408	**39004**
KUB-P.2D.395.R.12-C40	U42 33950	**39,5**	40	50	176	80	108	6,25	SOGX 120408	**39504**
KUB-P.2D.400.R.12-C40	U42 34000	**40**	40	50	176	80	108	6,25	SOGX 120408	**40004**
KUB-P.2D.405.R.12-C40	U42 34050	**40,5**	40	50	179	82	111	6,25	SOGX 120408	**40504**
KUB-P.2D.410.R.12-C40	U42 34100	**41**	40	50	179	82	111	6,25	SOGX 120408	**41004**
KUB-P.2D.415.R.12-C40	U42 34150	**41,5**	40	50	181	84	113	6,25	SOGX 120408	**41504**
KUB-P.2D.420.R.12-C40	U42 34200	**42**	40	50	181	84	113	6,25	SOGX 120408	**42004**
KUB-P.2D.425.R.13-C40	U42 34250	**42,5**	40	50	184	86	116	6,25	SOGX 130508	**42504**
KUB-P.2D.430.R.13-C40	U42 34300	**43**	40	50	184	86	116	6,25	SOGX 130508	**43004**
KUB-P.2D.435.R.13-C40	U42 34350	**43,5**	40	50	186	88	118	6,25	SOGX 130508	**43504**
KUB-P.2D.440.R.13-C40	U42 34400	**44**	40	50	186	88	118	6,25	SOGX 130508	**44004**
KUB-P.2D.445.R.13-C40	U42 34450	**44,5**	40	50	189	90	121	6,25	SOGX 130508	**44504**
KUB-P.2D.450.R.13-C40	U42 34500	**45**	40	50	189	90	121	6,25	SOGX 130508	**45004**
KUB-P.2D.455.R.13-C40	U42 34550	**45,5**	40	50	191	92	123	6,25	SOGX 130508	**45504**
KUB-P.2D.460.R.13-C40	U42 34600	**46**	40	50	191	92	123	6,25	SOGX 130508	**46004**

Screwdriver

Key D

Clamping screw

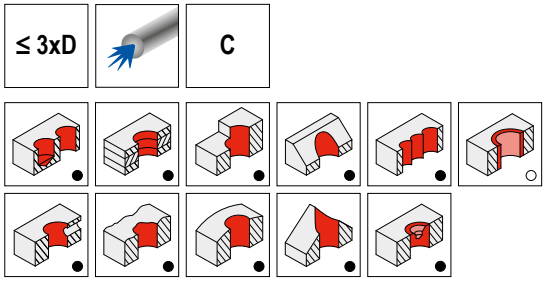
Spare parts DC		80 950 ...		80 950 ...		10 950 ...
14 - 16	T05 - IP	**057**			M1,8x3,8 - 05IP	**10100**
16,5 - 18			T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
18,5 - 23			T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**
23,5 - 26			T08 - IP	**125**	M2,5x6,3 - 08IP	**10800**
26,5 - 30			T08 - IP	**125**	M3,0x7,6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

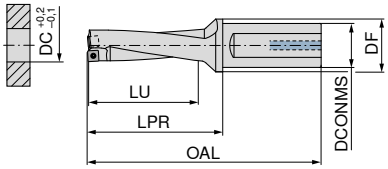
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws





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Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.3D.140.R.04-C20	U43 01400	**14**	20	30	105	42	55	0,38	SOGX 040204	**14001**
KUB-P.3D.145.R.04-C20	U43 01450	**14,5**	20	30	109	45	59	0,38	SOGX 040204	**14501**
KUB-P.3D.150.R.04-C20	U43 01500	**15**	20	30	109	45	59	0,38	SOGX 040204	**15001**
KUB-P.3D.155.R.04-C20	U43 01550	**15,5**	20	30	114	48	64	0,38	SOGX 040204	**15501**
KUB-P.3D.160.R.04-C20	U43 01600	**16**	20	30	114	48	64	0,38	SOGX 040204	**16001**
KUB-P.3D.165.R.05-C20	U43 01650	**16,5**	20	30	118	51	68	0,62	SOGX 050204	**16501**
KUB-P.3D.170.R.05-C20	U43 01700	**17**	20	30	118	51	68	0,62	SOGX 050204	**17001**
KUB-P.3D.175.R.05-C25	U43 11750	**17,5**	25	30	127	54	71	0,62	SOGX 050204	**17501**
KUB-P.3D.180.R.05-C25	U43 11800	**18**	25	30	127	54	71	0,62	SOGX 050204	**18001**
KUB-P.3D.185.R.06-C25	U43 11850	**18,5**	25	30	131	57	75	1,01	SOGX 060206	**18501**
KUB-P.3D.190.R.06-C25	U43 11900	**19**	25	30	131	57	75	1,01	SOGX 060206	**19001**
KUB-P.3D.195.R.06-C25	U43 11950	**19,5**	25	30	134	60	78	1,01	SOGX 060206	**19501**
KUB-P.3D.200.R.06-C25	U43 12000	**20**	25	30	134	60	78	1,01	SOGX 060206	**20001**
KUB-P.3D.205.R.07-C25	U43 12050	**20,5**	25	30	138	63	82	1,01	SOGX 07T208	**20501**
KUB-P.3D.210.R.07-C25	U43 12100	**21**	25	30	138	63	82	1,01	SOGX 07T208	**21001**
KUB-P.3D.215.R.07-C25	U43 12150	**21,5**	25	30	141	66	85	1,01	SOGX 07T208	**21501**
KUB-P.3D.220.R.07-C25	U43 12200	**22**	25	30	141	66	85	1,01	SOGX 07T208	**22002**
KUB-P.3D.225.R.07-C25	U43 12250	**22,5**	25	30	145	69	89	1,01	SOGX 07T208	**22502**
KUB-P.3D.230.R.07-C25	U43 12300	**23**	25	30	145	69	89	1,01	SOGX 07T208	**23002**
KUB-P.3D.235.R.08-C32	U43 22350	**23,5**	32	39	152	72	92	1,28	SOGX 080308	**23503**
KUB-P.3D.240.R.08-C32	U43 22400	**24**	32	39	152	72	92	1,28	SOGX 080308	**24003**
KUB-P.3D.245.R.08-C32	U43 22450	**24,5**	32	39	156	75	96	1,28	SOGX 080308	**24503**
KUB-P.3D.250.R.08-C32	U43 22500	**25**	32	39	156	75	96	1,28	SOGX 080308	**25003**
KUB-P.3D.255.R.08-C32	U43 22550	**25,5**	32	39	159	78	99	1,28	SOGX 080308	**25503**
KUB-P.3D.260.R.08-C32	U43 22600	**26**	32	39	159	78	99	1,28	SOGX 080308	**26003**
KUB-P.3D.265.R.09-C32	U43 22650	**26,5**	32	39	163	81	103	2,25	SOGX 09T308	**26503**
KUB-P.3D.270.R.09-C32	U43 22700	**27**	32	39	163	81	103	2,25	SOGX 09T308	**27003**
KUB-P.3D.275.R.09-C32	U43 22750	**27,5**	32	39	166	84	106	2,25	SOGX 09T308	**27503**
KUB-P.3D.280.R.09-C32	U43 22800	**28**	32	39	166	84	106	2,25	SOGX 09T308	**28003**
KUB-P.3D.285.R.09-C32	U43 22850	**28,5**	32	39	170	87	110	2,25	SOGX 09T308	**28503**
KUB-P.3D.290.R.09-C32	U43 22900	**29**	32	39	170	87	110	2,25	SOGX 09T308	**29003**
KUB-P.3D.295.R.09-C32	U43 22950	**29,5**	32	39	173	90	113	2,25	SOGX 09T308	**29503**
KUB-P.3D.300.R.09-C32	U43 23000	**30**	32	39	173	90	113	2,25	SOGX 09T308	**30003**
KUB-P.3D.305.R.10-C40	U43 33050	**30,5**	40	50	185	93	117	2,8	SOGX 100408	**30504**
KUB-P.3D.310.R.10-C40	U43 33100	**31**	40	50	185	93	117	2,8	SOGX 100408	**31004**
KUB-P.3D.315.R.10-C40	U43 33150	**31,5**	40	50	188	96	120	2,8	SOGX 100408	**31504**
KUB-P.3D.320.R.10-C40	U43 33200	**32**	40	50	188	96	120	2,8	SOGX 100408	**32004**
KUB-P.3D.325.R.10-C40	U43 33250	**32,5**	40	50	192	99	124	2,8	SOGX 100408	**32504**
KUB-P.3D.330.R.10-C40	U43 33300	**33**	40	50	192	99	124	2,8	SOGX 100408	**33004**
KUB-P.3D.335.R.11-C40	U43 33350	**33,5**	40	50	195	102	127	2,8	SOGX 110408	**33504**
KUB-P.3D.340.R.11-C40	U43 33400	**34**	40	50	195	102	127	2,8	SOGX 110408	**34004**
KUB-P.3D.345.R.11-C40	U43 33450	**34,5**	40	50	199	105	131	2,8	SOGX 110408	**34504**
KUB-P.3D.350.R.11-C40	U43 33500	**35**	40	50	199	105	131	2,8	SOGX 110408	**35004**
KUB-P.3D.355.R.11-C40	U43 33550	**35,5**	40	50	202	108	134	2,8	SOGX 110408	**35504**
KUB-P.3D.360.R.11-C40	U43 33600	**36**	40	50	202	108	134	2,8	SOGX 110408	**36004**
KUB-P.3D.365.R.11-C40	U43 33650	**36,5**	40	50	206	111	138	2,8	SOGX 110408	**36504**
KUB-P.3D.370.R.11-C40	U43 33700	**37**	40	50	206	111	138	2,8	SOGX 110408	**37004**
KUB-P.3D.375.R.12-C40	U43 33750	**37,5**	40	50	209	114	141	6,25	SOGX 120408	**37504**
KUB-P.3D.380.R.12-C40	U43 33800	**38**	40	50	209	114	141	6,25	SOGX 120408	**38004**
KUB-P.3D.385.R.12-C40	U43 33850	**38,5**	40	50	213	117	145	6,25	SOGX 120408	**38504**

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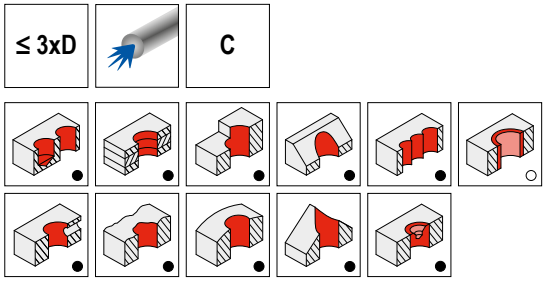
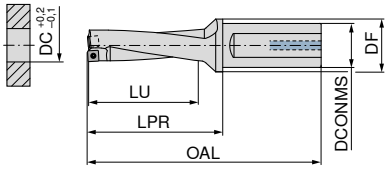
KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws





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Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 873 ...
KUB-P.3D.390.R.12-C40	U43 33900	**39**	40	50	213	117	145	6,25	SOGX 120408	**39004**
KUB-P.3D.395.R.12-C40	U43 33950	**39,5**	40	50	216	120	148	6,25	SOGX 120408	**39504**
KUB-P.3D.400.R.12-C40	U43 34000	**40**	40	50	216	120	148	6,25	SOGX 120408	**40004**
KUB-P.3D.405.R.12-C40	U43 34050	**40,5**	40	50	220	123	152	6,25	SOGX 120408	**40504**
KUB-P.3D.410.R.12-C40	U43 34100	**41**	40	50	220	123	152	6,25	SOGX 120408	**41004**
KUB-P.3D.415.R.12-C40	U43 34150	**41,5**	40	50	223	126	155	6,25	SOGX 120408	**41504**
KUB-P.3D.420.R.12-C40	U43 34200	**42**	40	50	223	126	155	6,25	SOGX 120408	**42004**
KUB-P.3D.425.R.13-C40	U43 34250	**42,5**	40	50	227	129	159	6,25	SOGX 130508	**42504**
KUB-P.3D.430.R.13-C40	U43 34300	**43**	40	50	227	129	159	6,25	SOGX 130508	**43004**
KUB-P.3D.435.R.13-C40	U43 34350	**43,5**	40	50	230	132	162	6,25	SOGX 130508	**43504**
KUB-P.3D.440.R.13-C40	U43 34400	**44**	40	50	230	132	162	6,25	SOGX 130508	**44004**
KUB-P.3D.445.R.13-C40	U43 34450	**44,5**	40	50	234	135	166	6,25	SOGX 130508	**44504**
KUB-P.3D.450.R.13-C40	U43 34500	**45**	40	50	234	135	166	6,25	SOGX 130508	**45004**
KUB-P.3D.455.R.13-C40	U43 34550	**45,5**	40	50	237	138	169	6,25	SOGX 130508	**45504**
KUB-P.3D.460.R.13-C40	U43 34600	**46**	40	50	237	138	169	6,25	SOGX 130508	**46004**

Screwdriver

Key D

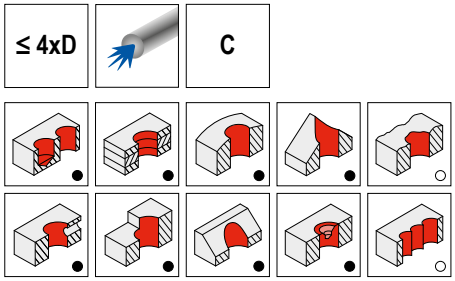
Clamping screw

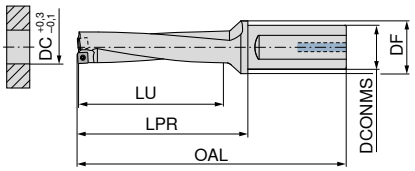
Spare parts DC		80 950 ...		80 950 ...		10 950 ...
14 - 16	T05 - IP	**057**			M1,8x3,8 - 05IP	**10100**
16,5 - 18			T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
18,5 - 23			T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**
23,5 - 26			T08 - IP	**125**	M2,5x6,3 - 08IP	**10800**
26,5 - 30			T08 - IP	**125**	M3,0x7,6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

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

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws





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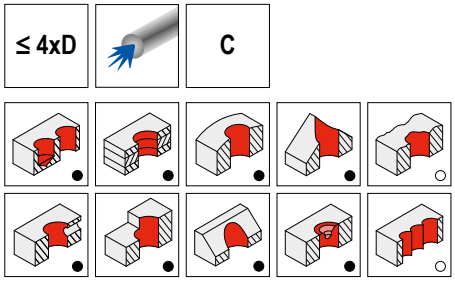
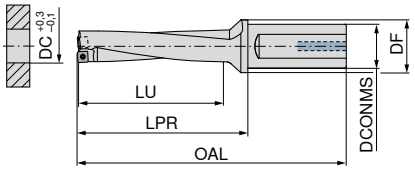
Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.4D.140.R.04-C20	U44 01400	**14**	20	30	119	56	69	0,38	SOGX 040204	**14001**
KUB-P.4D.145.R.04-C20	U44 01450	**14,5**	20	30	124	60	74	0,38	SOGX 040204	**14501**
KUB-P.4D.150.R.04-C20	U44 01500	**15**	20	30	124	60	74	0,38	SOGX 040204	**15001**
KUB-P.4D.155.R.04-C20	U44 01550	**15,5**	20	30	130	64	80	0,38	SOGX 040204	**15501**
KUB-P.4D.160.R.04-C20	U44 01600	**16**	20	30	130	64	80	0,38	SOGX 040204	**16001**
KUB-P.4D.165.R.05-C20	U44 01650	**16,5**	20	30	135	68	85	0,62	SOGX 050204	**16501**
KUB-P.4D.170.R.05-C20	U44 01700	**17**	20	30	135	68	85	0,62	SOGX 050204	**17001**
KUB-P.4D.175.R.05-C25	U44 11750	**17,5**	25	30	145	72	89	0,62	SOGX 050204	**17502**
KUB-P.4D.180.R.05-C25	U44 11800	**18**	25	30	145	72	89	0,62	SOGX 050204	**18002**
KUB-P.4D.185.R.06-C25	U44 11850	**18,5**	25	30	150	76	94	1,01	SOGX 060206	**18502**
KUB-P.4D.190.R.06-C25	U44 11900	**19**	25	30	150	76	94	1,01	SOGX 060206	**19002**
KUB-P.4D.195.R.06-C25	U44 11950	**19,5**	25	30	154	80	98	1,01	SOGX 060206	**19502**
KUB-P.4D.200.R.06-C25	U44 12000	**20**	25	30	154	80	98	1,01	SOGX 060206	**20002**
KUB-P.4D.205.R.07-C25	U44 12050	**20,5**	25	30	159	84	103	1,01	SOGX 07T208	**20502**
KUB-P.4D.210.R.07-C25	U44 12100	**21**	25	30	159	84	103	1,01	SOGX 07T208	**21002**
KUB-P.4D.215.R.07-C25	U44 12150	**21,5**	25	30	163	88	107	1,01	SOGX 07T208	**21502**
KUB-P.4D.220.R.07-C25	U44 12200	**22**	25	30	163	88	107	1,01	SOGX 07T208	**22002**
KUB-P.4D.225.R.07-C25	U44 12250	**22,5**	25	30	168	92	112	1,01	SOGX 07T208	**22502**
KUB-P.4D.230.R.07-C25	U44 12300	**23**	25	30	168	92	112	1,01	SOGX 07T208	**23002**
KUB-P.4D.235.R.08-C32	U44 22350	**23,5**	32	39	176	96	116	1,28	SOGX 080308	**23503**
KUB-P.4D.240.R.08-C32	U44 22400	**24**	32	39	176	96	116	1,28	SOGX 080308	**24003**
KUB-P.4D.245.R.08-C32	U44 22450	**24,5**	32	39	181	100	121	1,28	SOGX 080308	**24503**
KUB-P.4D.250.R.08-C32	U44 22500	**25**	32	39	181	100	121	1,28	SOGX 080308	**25003**
KUB-P.4D.255.R.08-C32	U44 22550	**25,5**	32	39	185	104	125	1,28	SOGX 080308	**25503**
KUB-P.4D.260.R.08-C32	U44 22600	**26**	32	39	185	104	125	1,28	SOGX 080308	**26003**
KUB-P.4D.265.R.09-C32	U44 22650	**26,5**	32	39	190	108	130	2,25	SOGX 09T308	**26503**
KUB-P.4D.270.R.09-C32	U44 22700	**27**	32	39	190	108	130	2,25	SOGX 09T308	**27003**
KUB-P.4D.275.R.09-C32	U44 22750	**27,5**	32	39	194	112	134	2,25	SOGX 09T308	**27503**
KUB-P.4D.280.R.09-C32	U44 22800	**28**	32	39	194	112	134	2,25	SOGX 09T308	**28003**
KUB-P.4D.285.R.09-C32	U44 22850	**28,5**	32	39	199	116	139	2,25	SOGX 09T308	**28503**
KUB-P.4D.290.R.09-C32	U44 22900	**29**	32	39	199	116	139	2,25	SOGX 09T308	**29003**
KUB-P.4D.295.R.09-C32	U44 22950	**29,5**	32	39	203	120	143	2,25	SOGX 09T308	**29503**
KUB-P.4D.300.R.09-C32	U44 23000	**30**	32	39	203	120	143	2,25	SOGX 09T308	**30003**
KUB-P.4D.305.R.10-C40	U44 33050	**30,5**	40	50	216	124	148	2,8	SOGX 100408	**30504**
KUB-P.4D.310.R.10-C40	U44 33100	**31**	40	50	216	124	148	2,8	SOGX 100408	**31004**
KUB-P.4D.315.R.10-C40	U44 33150	**31,5**	40	50	220	128	152	2,8	SOGX 100408	**31504**
KUB-P.4D.320.R.10-C40	U44 33200	**32**	40	50	220	128	152	2,8	SOGX 100408	**32004**
KUB-P.4D.325.R.10-C40	U44 33250	**32,5**	40	50	225	132	157	2,8	SOGX 100408	**32504**
KUB-P.4D.330.R.10-C40	U44 33300	**33**	40	50	225	132	157	2,8	SOGX 100408	**33004**
KUB-P.4D.335.R.11-C40	U44 33350	**33,5**	40	50	229	136	161	2,8	SOGX 110408	**33504**
KUB-P.4D.340.R.11-C40	U44 33400	**34**	40	50	229	136	161	2,8	SOGX 110408	**34004**
KUB-P.4D.345.R.11-C40	U44 33450	**34,5**	40	50	234	140	166	2,8	SOGX 110408	**34504**
KUB-P.4D.350.R.11-C40	U44 33500	**35**	40	50	234	140	166	2,8	SOGX 110408	**35004**
KUB-P.4D.355.R.11-C40	U44 33550	**35,5**	40	50	238	144	170	2,8	SOGX 110408	**35504**
KUB-P.4D.360.R.11-C40	U44 33600	**36**	40	50	238	144	170	2,8	SOGX 110408	**36004**
KUB-P.4D.365.R.11-C40	U44 33650	**36,5**	40	50	243	148	175	2,8	SOGX 110408	**36504**
KUB-P.4D.370.R.11-C40	U44 33700	**37**	40	50	243	148	175	2,8	SOGX 110408	**37004**
KUB-P.4D.375.R.12-C40	U44 33750	**37,5**	40	50	247	152	179	6,25	SOGX 120408	**37504**
KUB-P.4D.380.R.12-C40	U44 33800	**38**	40	50	247	152	179	6,25	SOGX 120408	**38004**
KUB-P.4D.385.R.12-C40	U44 33850	**38,5**	40	50	252	156	184	6,25	SOGX 120408	**38504**

Continued on next page

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws





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Designation	KOMET no.	**DC** mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.4D.390.R.12-C40	U44 33900	**39**	40	50	252	156	184	6,25	SOGX 120408	**39004**
KUB-P.4D.395.R.12-C40	U44 33950	**39,5**	40	50	256	160	188	6,25	SOGX 120408	**39504**
KUB-P.4D.400.R.12-C40	U44 34000	**40**	40	50	256	160	188	6,25	SOGX 120408	**40004**
KUB-P.4D.405.R.12-C40	U44 34050	**40,5**	40	50	261	164	193	6,25	SOGX 120408	**40504**
KUB-P.4D.410.R.12-C40	U44 34100	**41**	40	50	261	164	193	6,25	SOGX 120408	**41004**
KUB-P.4D.415.R.12-C40	U44 34150	**41,5**	40	50	265	166	197	6,25	SOGX 120408	**41504**
KUB-P.4D.420.R.12-C40	U44 34200	**42**	40	50	265	168	197	6,25	SOGX 120408	**42004**
KUB-P.4D.425.R.13-C40	U44 34250	**42,5**	40	50	270	172	202	6,25	SOGX 130508	**42504**
KUB-P.4D.430.R.13-C40	U44 34300	**43**	40	50	270	172	202	6,25	SOGX 130508	**43004**
KUB-P.4D.435.R.13-C40	U44 34350	**43,5**	40	50	274	176	206	6,25	SOGX 130508	**43504**
KUB-P.4D.440.R.13-C40	U44 34400	**44**	40	50	274	176	206	6,25	SOGX 130508	**44004**
KUB-P.4D.445.R.13-C40	U44 34450	**44,5**	40	50	279	180	211	6,25	SOGX 130508	**44504**
KUB-P.4D.450.R.13-C40	U44 34500	**45**	40	50	279	180	211	6,25	SOGX 130508	**45004**
KUB-P.4D.455.R.13-C40	U44 34550	**45,5**	40	50	283	184	215	6,25	SOGX 130508	**45504**
KUB-P.4D.460.R.13-C40	U44 34600	**46**	40	50	283	184	215	6,25	SOGX 130508	**46004**

Screwdriver

Key D

Clamping screw

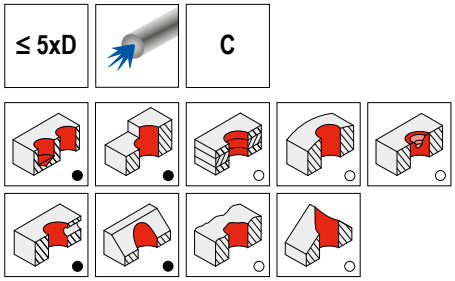
Spare parts DC		**80 950 ...**		**80 950 ...**		**10 950 ...**	
14 - 16	T05 - IP	**057**				M1,8x3,8 - 05IP	**10100**
16,5 - 18			T06 - IP	**123**		M2,0x4,3 - 06IP	**10000**
18,5 - 23			T06 - IP	**123**		M2,2x5,5 - 06IP	**10700**
23,5 - 26			T08 - IP	**125**		M2,5x6,3 - 08IP	**10800**
26,5 - 30			T08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

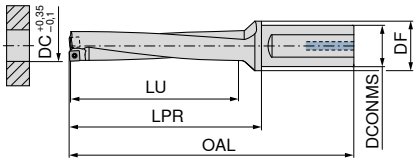
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws





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

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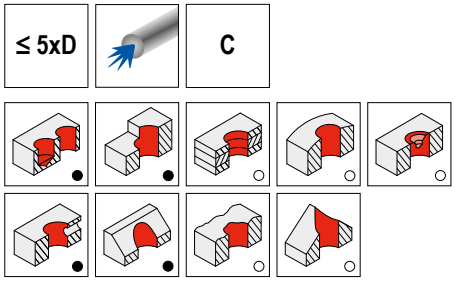
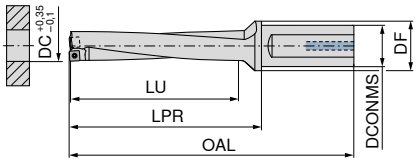
KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws





3

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

Screwdriver

Key D

Clamping screw

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

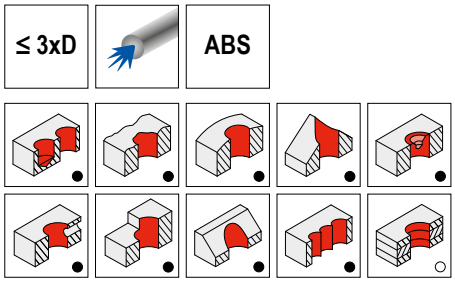
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

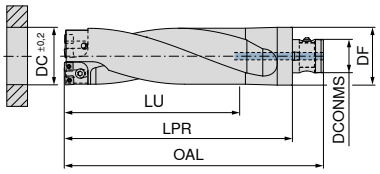
KUB Pentron CS – basic element

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

Scope of supply:

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





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

Clamping key – T

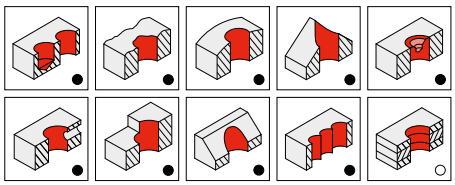
Fixing screw

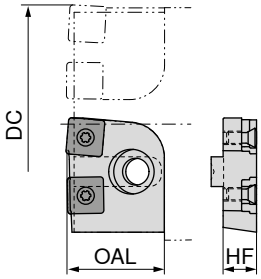
						80 397 ...		10 950 ...	
Spare parts									
DC									
64 - 66						SW5	**050**	M6x16 - SW5	**16700**
67 - 69						SW5	**050**	M6x16 - SW5	**16700**
70 - 72						SW5	**050**	M6x16 - SW5	**16700**
73 - 75						SW5	**050**	M6x16 - SW5	**16700**
76 - 78						SW6	**060**	M8x18 - SW6	**16800**
79 - 81						SW6	**060**	M8x18 - SW6	**16800**
82 - 84						SW6	**060**	M8x18 - SW6	**16800**
85 - 87						SW6	**060**	M8x20 - SW6	**16900**
88 - 90						SW6	**060**	M8x20 - SW6	**16900**
91 - 93						SW6	**060**	M8x20 - SW6	**16900**
94 - 96						SW6	**060**	M8x20 - SW6	**16900**

KUB Pentron CS – internal cartridge

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

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





DC mm	KOMET no.	OAL mm	SZID	HF mm	torque moment Nm	Insert	10 877 ...
64 - 69	D60 06400	28,00	**1**	9	2,8	SOGX 100408	**16400**
70 - 75	D60 07000	30,00	**2**	10	2,8	SOGX 110408	**27000**
76 - 84	D60 07600	33,00	**3**	11	6,25	SOGX 120408	**37600**
85 - 93	D60 08501	35,34	**4**	12	6,25	SOGX 130508	**48501**
94 - 96	D60 09400	35,34	**5**	12	6,25	SOGX 130508	**59400**

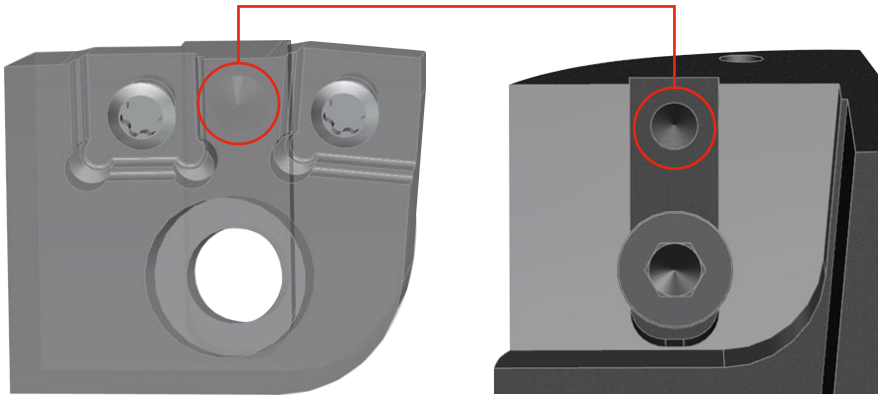
Key D

Clamping screw

Spare parts DC		80 950 ...		10 950 ...
64 - 69	T15 - IP	**128**	M3,5x7,5 - 15IP	**10300**
70 - 75	T15 - IP	**128**	M3,5x7,5 - 15IP	**10300**
76 - 84	T20 - IP	**129**	M4,5x10 - 20IP	**10400**
85 - 93	T20 - IP	**129**	M4,5x10 - 20IP	**10400**
94 - 96	T20 - IP	**129**	M4,5x10 - 20IP	**10400**

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

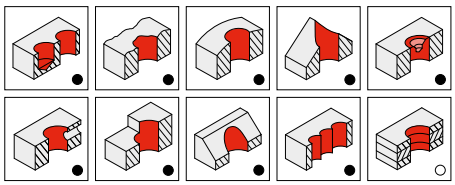
Installation aid

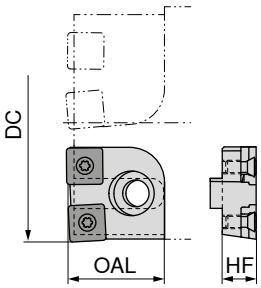


KUB Pentron CS – external cartridge

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

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





DC mm	KOMET no.	OAL mm	SZID	HF mm	torque moment Nm	Insert	10 878 ...
64	D60 16400	27,8	1	9	2,8	SOGX 100408	16400
65	D60 16500	27,8	1	9	2,8	SOGX 100408	16500
66	D60 16600	27,8	1	9	2,8	SOGX 100408	16600
67	D60 16700	27,8	1	9	2,8	SOGX 100408	16700
68	D60 16800	27,8	1	9	2,8	SOGX 100408	16800
69	D60 16900	27,8	1	9	2,8	SOGX 100408	16900
70	D60 17000	29,8	2	10	2,8	SOGX 110408	27000
71	D60 17100	29,8	2	10	2,8	SOGX 110408	27100
72	D60 17200	29,8	2	10	2,8	SOGX 110408	27200
73	D60 17300	29,8	2	10	2,8	SOGX 110408	27300
74	D60 17400	29,8	2	10	2,8	SOGX 110408	27400
75	D60 17500	29,8	2	10	2,8	SOGX 110408	27500
76	D60 17600	32,8	3	11	6,25	SOGX 120408	37600
77	D60 17700	32,8	3	11	6,25	SOGX 120408	37700
78	D60 17800	32,8	3	11	6,25	SOGX 120408	37800
79	D60 17900	32,8	3	11	6,25	SOGX 120408	37900
80	D60 18000	32,8	3	11	6,25	SOGX 120408	38000
81	D60 18100	32,8	3	11	6,25	SOGX 120408	38100
82	D60 18200	32,8	3	11	6,25	SOGX 120408	38200
83	D60 18300	32,8	3	11	6,25	SOGX 120408	38300
84	D60 18400	32,8	3	11	6,25	SOGX 120408	38400
85	D60 18500	35,8	4	12	6,25	SOGX 130508	48500
86	D60 18600	35,8	4	12	6,25	SOGX 130508	48600
87	D60 18700	35,8	4	12	6,25	SOGX 130508	48700
88	D60 18800	35,8	4	12	6,25	SOGX 130508	48800
89	D60 18900	35,8	4	12	6,25	SOGX 130508	48900
90	D60 19000	35,8	4	12	6,25	SOGX 130508	49000
91	D60 19100	35,8	4	12	6,25	SOGX 130508	49100
92	D60 19200	35,8	4	12	6,25	SOGX 130508	49200
93	D60 19300	35,8	4	12	6,25	SOGX 130508	49300
94	D60 19401	35,8	5	12	6,25	SOGX 130508	59400
95	D60 19501	35,8	5	12	6,25	SOGX 130508	59500
96	D60 19601	35,8	5	12	6,25	SOGX 130508	59600

Key D

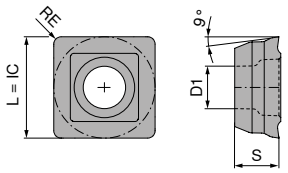
Clamping screw

Spare parts DC		80 950 ...		10 950 ...
64 - 75	T15 - IP	128	M3,5x7,5 - 15IP	10300
76 - 96	T20 - IP	129	M4,5x10 - 20IP	10400

Intermediate dimensions available on request.

SOGX

Designation	L	IC	D1	S
	mm	mm	mm	mm
SOGX 0402..	4,8	4,8	2,05	2,20
SOGX 0502..	5,5	5,5	2,30	2,40
SOGX 0602..	6,2	6,2	2,60	2,75
SOGX 07T2..	7,1	7,1	2,60	2,97
SOGX 0803..	8,0	8,0	2,85	3,40
SOGX 09T3..	8,9	8,9	3,40	3,90
SOGX 1004..	9,8	9,8	4,10	4,20
SOGX 1104..	10,9	10,9	4,10	4,50
SOGX 1204..	12,0	12,0	5,20	4,80
SOGX 1305..	13,2	13,2	5,20	5,20



3

SOGX

-01 BK8425	-01 BK7935	-01 BK6115	-01 BK7710	-03 BK8430
SOGX	SOGX	SOGX	SOGX	SOGX
10 820 ...	10 820 ...	10 820 ...	10 820 ...	10 820 ...

ISO	KOMET no.	RE									
		mm									
040204	W80 10010.046115	0,4					40401				
040204	W80 10010.047710	0,4							90401		
040204	W80 10010.047935	0,4			50401						
040204	W80 10010.048425	0,4	30401								
040204	W80 10030.048430	0,4									00403
050204	W80 12010.046115	0,4					40501				
050204	W80 12010.047710	0,4							90501		
050204	W80 12010.047935	0,4			50501						
050204	W80 12010.048425	0,4	30501								
050204	W80 12030.048430	0,4									00503
060206	W80 18010.066115	0,6					40601				
060206	W80 18010.067710	0,6							90601		
060206	W80 18010.067935	0,6			50601						
060206	W80 18010.068425	0,6	30601								
060206	W80 18030.068430	0,6									00603
07T208	W80 20010.086115	0,8					40701				
07T208	W80 20010.087710	0,8							90701		
07T208	W80 20010.087935	0,8			50701						
07T208	W80 20010.088425	0,8	30701								
07T208	W80 20030.088430	0,8									00703
080308	W80 24010.086115	0,8					40801				
080308	W80 24010.087710	0,8							90801		
080308	W80 24010.087935	0,8			50801						
080308	W80 24010.088425	0,8	30801								
080308	W80 24030.088430	0,8									00803
09T308	W80 28010.086115	0,8					40901				
09T308	W80 28010.087710	0,8							90901		
09T308	W80 28010.087935	0,8			50901						
09T308	W80 28010.088425	0,8	30901								
09T308	W80 28030.088430	0,8									00903
100408	W80 32010.086115	0,8					41001				
100408	W80 32010.087710	0,8							91001		
100408	W80 32010.087935	0,8			51001						
100408	W80 32010.088425	0,8	31001								
100408	W80 32030.088430	0,8									01003
110408	W80 38010.086115	0,8					41101				
110408	W80 38010.087710	0,8							91101		
110408	W80 38010.087935	0,8			51101						
110408	W80 38010.088425	0,8	31101								
110408	W80 38030.088430	0,8									01103
120408	W80 42010.086115	0,8					41201				
120408	W80 42010.087710	0,8							91201		
120408	W80 42010.087935	0,8			51201						
120408	W80 42010.088425	0,8	31201								
120408	W80 42030.088430	0,8									01203
130508	W80 46010.086115	0,8					41301				
130508	W80 46010.087710	0,8							91301		
130508	W80 46010.087935	0,8			51301						
130508	W80 46010.088425	0,8	31301								
130508	W80 46030.088430	0,8									01303
P			●		●		●				●
M			●		●		●				●
K			●		●		●				●
N			○		○				●		○
S			●		●				○		●
H			○				○				○
O					○				○		

→ v_c Page 62–67

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

SOGX

				NEW		NEW			
				-13 BK8425	-21 BK8430	-21 BK7935	-32 BK8425	-34 BK8425	
				SOGX	SOGX	SOGX	SOGX	SOGX	
				10 820 ...	10 820 ...	10 820 ...	10 820 ...	10 820 ...	
ISO	KOMET no.	RE mm							
040204	W80 10130.048425	0,4		30413					
040204	W80 10210.047935	0,4				50421			
040204	W80 10210.048430	0,4			00421				
040204	W80 10320.048425	0,4					30432		
040204	W80 10340.048425	0,4						30434	
050204	W80 12130.048425	0,4		30513					
050204	W80 12210.047935	0,4				50521			
050204	W80 12210.048430	0,4			00521				
050204	W80 12320.048425	0,4					30532		
050204	W80 12340.048425	0,4						30534	
060206	W80 18130.068425	0,6		30613					
060206	W80 18210.067935	0,6				50621			
060206	W80 18210.068430	0,6			00621				
060206	W80 18320.068425	0,6					30632		
060206	W80 18340.068425	0,6						30634	
07T208	W80 20130.088425	0,8		30713					
07T208	W80 20210.087935	0,8				50721			
07T208	W80 20210.088430	0,8			00721				
07T208	W80 20320.088425	0,8					30732		
07T208	W80 20340.088425	0,8						30734	
080308	W80 24130.088425	0,8		30813					
080308	W80 24210.087935	0,8				50821			
080308	W80 24210.088430	0,8			00821				
080308	W80 24320.088425	0,8					30832		
080308	W80 24340.088425	0,8						30834	
09T308	W80 28130.088425	0,8		30913					
09T308	W80 28210.087935	0,8				50921			
09T308	W80 28210.088430	0,8			00921				
09T308	W80 28320.088425	0,8					30932		
09T308	W80 28340.088425	0,8						30934	
100408	W80 32130.088425	0,8		31013					
100408	W80 32210.087935	0,8				51021			
100408	W80 32210.088430	0,8			01021				
100408	W80 32320.088425	0,8					31032		
100408	W80 32340.088425	0,8						31034	
110408	W80 38130.088425	0,8		31113					
110408	W80 38210.087935	0,8				51121			
110408	W80 38210.088430	0,8			01121				
110408	W80 38320.088425	0,8					31132		
110408	W80 38340.088425	0,8						31134	
120408	W80 42130.088425	0,8		31213					
120408	W80 42210.087935	0,8				51221			
120408	W80 42210.088430	0,8			01221				
120408	W80 42320.088425	0,8					31232		
120408	W80 42340.088425	0,8						31234	
130508	W80 46130.088425	0,8		31313					
130508	W80 46210.087935	0,8				51321			
130508	W80 46210.088430	0,8			01321				
130508	W80 46320.088425	0,8					31332		
130508	W80 46340.088425	0,8						31334	
P				●	●	●	●	●	
M				●	●	●	●		
K				●	●	●	●	●	
N				○	○	○	○		
S				●	●	●	●		
H				○	○		○		
O						○			

→ v_c Page 62–67

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

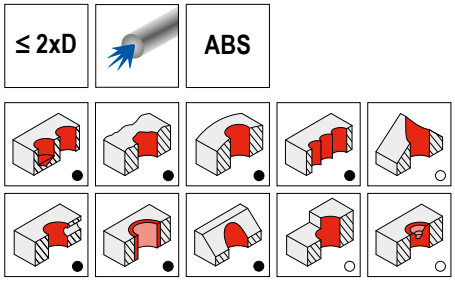
BK8425 -34 is recommended only for KUB Pentron 2xD and 3xD (10 872 ... / 10 873 ...)

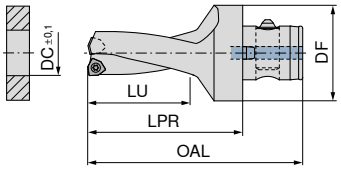
Further information on grades and chip breakers can be found on **page 85 + 86**

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

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws





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

Key D

Clamping screw

Spare parts DC		80 950 ...		10 950 ...
14 - 19	T06 - IP	123	M2,0x4,3 - 06IP	10000
20 - 24	T06 - IP	123	M2,2x5,5 - 06IP	10700
25 - 36	T08 - IP	125	M2,5x7,2 - 08IP	10500
37 - 44	T10 - IP	127	M3,5x7,3 - 10IP	10600

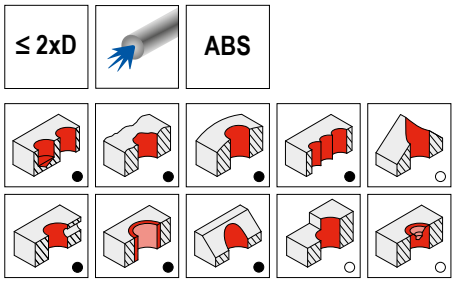
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

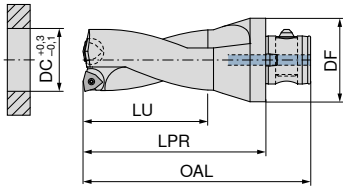
KUB Trigon – Indexable insert drill

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

Scope of supply:

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





10 892 ...

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

		Key D		Clamping screw		Fixing screw	
		80 950 ...		**10 950 ...**		**10 950 ...**	
Spare parts DC							
45 - 54	T15 - IP	**120**	M4,5x9 - 15IP	**12700**	M4,5x9 - 10IP	**17000**
55 - 68	T15 - IP	**120**	M4,5x9 - 15IP	**12700**	M4,5x9 - 10IP	**17000**
69 - 82	T20 - IP	**121**	M5,5x11 - 20IP	**17400**	M5,5x13,5 - 20IP	**17100**

				Cylindrical pin	Indexable insert, internal	Indexable insert, external	
				10 950 ...	**10 897 ...**	**10 898 ...**	
Spare parts DC							
45 - 54			Ø3	**17200**	**14800**	**14800**
55 - 68			Ø3	**17200**	**25300**	**25300**
69 - 82			Ø4	**17300**	**36000**	**36000**

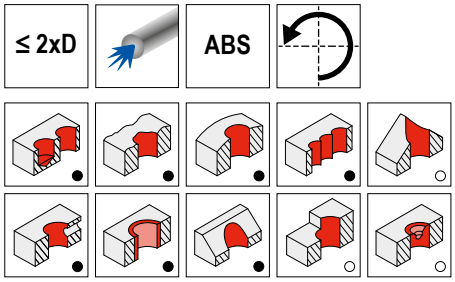
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

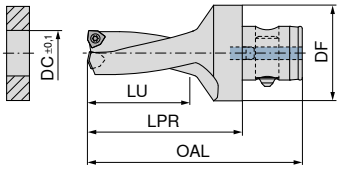
KUB Trigon – Indexable insert drill

▲ left-hand cutting

Scope of supply:

Indexable Insert Drill incl. clamping screws





11 892 ...

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

Key D

80 950 ...

Clamping screw

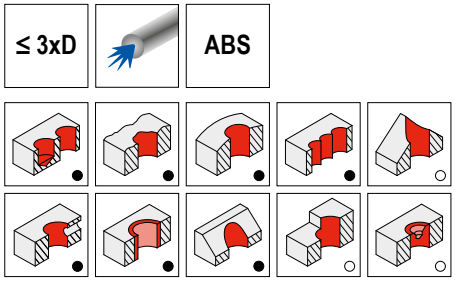
10 950 ...

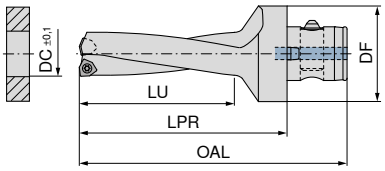
Spare parts DC				
14 - 19	T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
20 - 24	T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**
25 - 36	T08 - IP	**125**	M2,5x7,2 - 08IP	**10500**
37 - 44	T10 - IP	**127**	M3,5x7,3 - 10IP	**10600**

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

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws





10 893 ...

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

Key D

80 950 ...

Clamping screw

10 950 ...

Spare parts DC				
14 - 19	T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
20 - 24	T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**
25 - 36	T08 - IP	**125**	M2,5x7,2 - 08IP	**10500**
37 - 44	T10 - IP	**127**	M3,5x7,3 - 10IP	**10600**

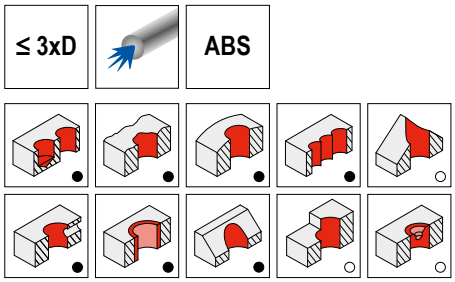
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

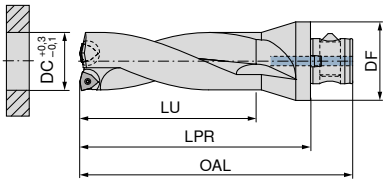
KUB Trigon – Indexable insert drill

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

Scope of supply:

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





10 893 ...

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

		Key D		Clamping screw		Fixing screw	
		80 950 ...		**10 950 ...**		**10 950 ...**	
Spare parts DC							
45 - 54	T15 - IP	**120**	M4,5x9 - 15IP	**12700**	M4,5x9 - 10IP	**17000**
55 - 68	T15 - IP	**120**	M4,5x9 - 15IP	**12700**	M4,5x9 - 10IP	**17000**
69 - 82	T20 - IP	**121**	M5,5x11 - 20IP	**17400**	M5,5x13,5 - 20IP	**17100**

				Cylindrical pin	Indexable insert, internal	Indexable insert, external	
				10 950 ...	**10 897 ...**	**10 898 ...**	
Spare parts DC							
45 - 54			Ø3	**17200**	**14800**	**14800**
55 - 68			Ø3	**17200**	**25300**	**25300**
69 - 82			Ø4	**17300**	**36000**	**36000**

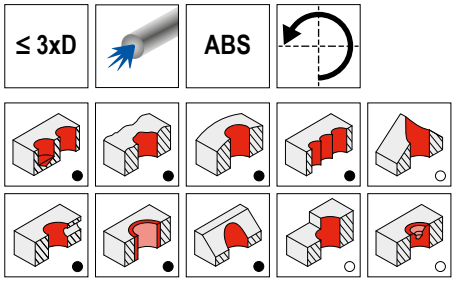
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

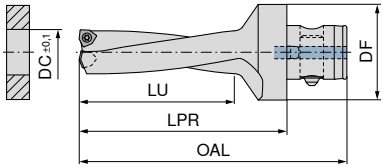
KUB Trigon – Indexable insert drill

▲ left-hand cutting

Scope of supply:

Indexable Insert Drill incl. clamping screws





11 893 ...

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

Key D

80 950 ...

Clamping screw

10 950 ...

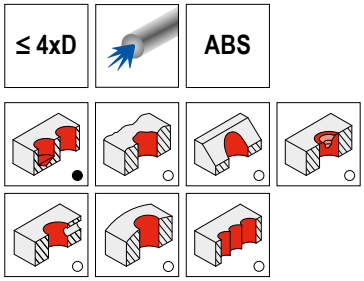
Spare parts

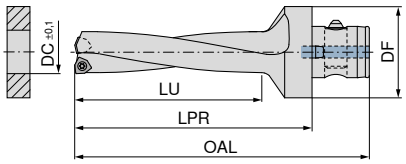
DC				
14 - 19	T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
20 - 24	T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**
25 - 36	T08 - IP	**125**	M2,5x7,2 - 08IP	**10500**
37 - 44	T10 - IP	**127**	M3,5x7,3 - 10IP	**10600**

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

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws





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

Key D

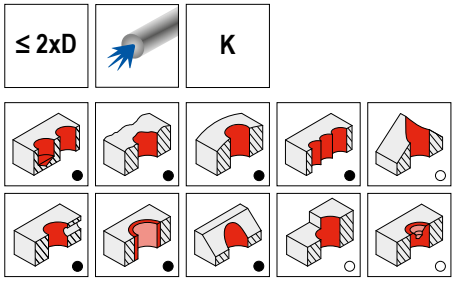
Clamping screw

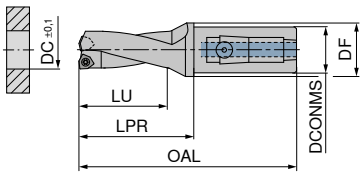
Spare parts DC		80 950 ...		10 950 ...
14 - 19	T06 - IP	123	M2,0x4,3 - 06IP	10000
20 - 24	T06 - IP	123	M2,2x5,5 - 06IP	10700
25 - 36	T08 - IP	125	M2,5x7,2 - 08IP	10500
37 - 44	T10 - IP	127	M3,5x7,3 - 10IP	10600

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

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws





10 892 ...

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

Key D

80 950 ...

Clamping screw

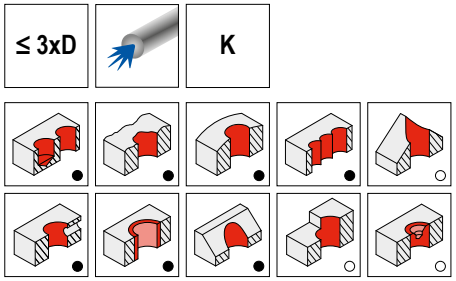
10 950 ...

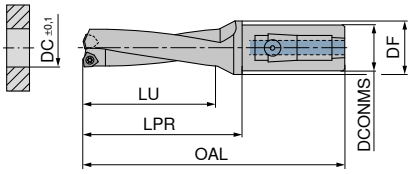
Spare parts DC				
14 - 19	T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
20 - 24	T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**
25 - 36	T08 - IP	**125**	M2,5x7,2 - 08IP	**10500**
37 - 44	T10 - IP	**127**	M3,5x7,3 - 10IP	**10600**

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

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws





10 893 ...

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

Key D

80 950 ...

Clamping screw

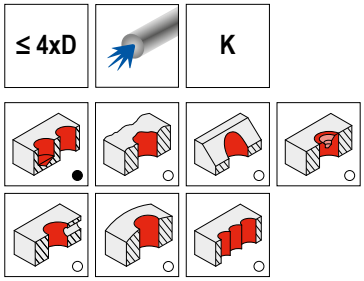
10 950 ...

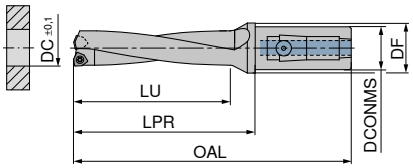
Spare parts DC				
14 - 19	T06 - IP	123	M2,0x4,3 - 06IP	10000
20 - 24	T06 - IP	123	M2,2x5,5 - 06IP	10700
25 - 36	T08 - IP	125	M2,5x7,2 - 08IP	10500
37 - 44	T10 - IP	127	M3,5x7,3 - 10IP	10600

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

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws





10 894 ...

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

Key D

80 950 ...

Clamping screw

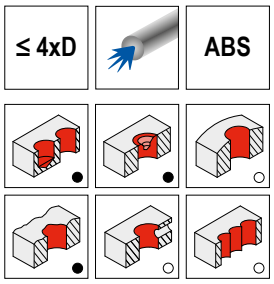
10 950 ...

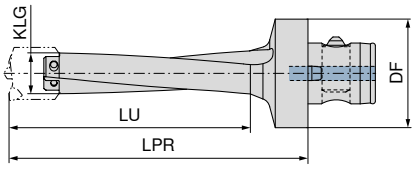
Spare parts DC					
14 - 19	T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
20 - 24	T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**
25 - 35	T08 - IP	**125**	M2,5x7,2 - 08IP	**10500**

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

KUB Centron – basic element

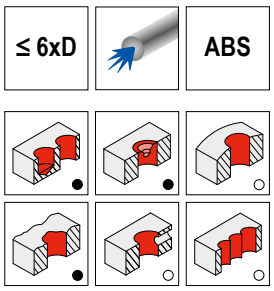
▲ KLG = Coupling Size

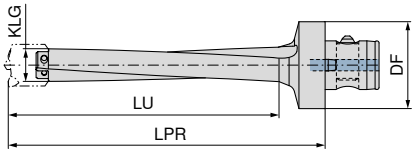




10 864 ...

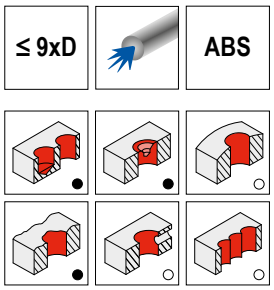
Designation	KOMET no.	DF mm	LU mm	LPR mm	KLG	
KUB-C.GH.4D.190-ABS50	V47 20201	50	113	145	19	19095
KUB-C.GH.4D.250-ABS50	V47 20261	50	130	160	25	25095
KUB-C.GH.4D.320-ABS50	V47 20331	50	160	195	32	32095
KUB-C.GH.4D.385-ABS63	V47 20401	63	185	235	38,5	38596
KUB-C.GH.4D.445-ABS80	V47 20461	80	215	280	44,5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

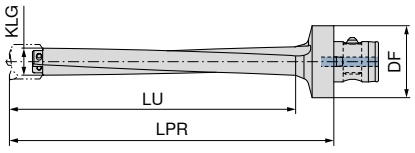




10 866 ...

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





10 869 ...

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

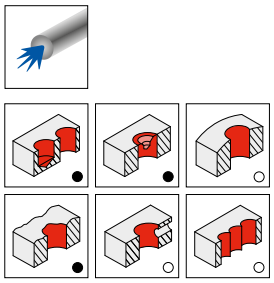
For correct assembly, please observe the operating instructions provided.

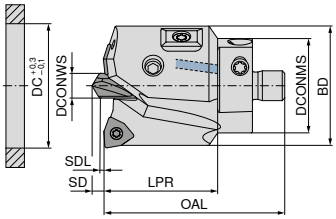
KUB Centron – drill bit Ø 20–64 mm

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

Scope of supply:

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





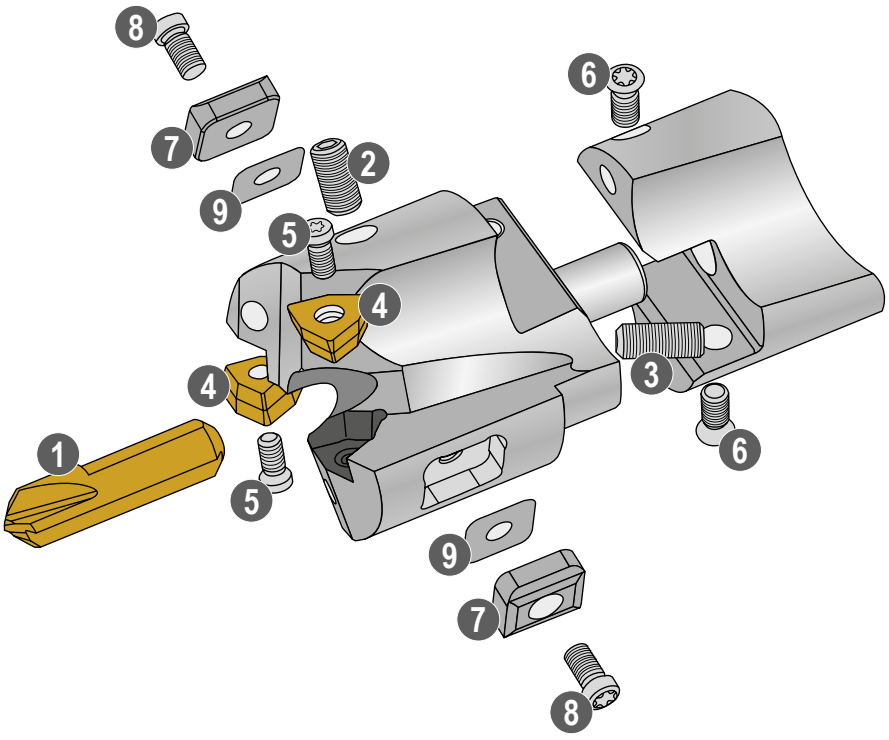
10 860 ...

Designation	KOMET no.	DC mm	OAL mm	LPR mm	SD mm	BD mm	SDL mm	DCONMS mm	DCONWS mm	KLG	torque moment Nm	Insert	
KUB-C.BK.200.R.03-19	V46 50201	**20**	36,5	23	2,25	19,0	1,00	19,0	5	**19**	0,62	WOEX 030204	**20000**
KUB-C.BK.210.R.03-19	V46 50211	**21**	36,5	23	2,25	20,0	1,00	19,0	5	**19**	0,62	WOEX 030204	**21000**
KUB-C.BK.220.R.03-19	V46 50221	**22**	36,5	23	2,25	21,0	1,00	19,0	5	**19**	0,62	WOEX 030204	**22000**
KUB-C.BK.230.R.03-19	V46 50231	**23**	36,5	23	2,25	22,0	1,00	19,0	5	**19**	0,62	WOEX 030204	**23000**
KUB-C.BK.240.R.03-19	V46 50241	**24**	36,5	23	2,25	23,0	1,00	19,0	5	**19**	0,62	WOEX 030204	**24000**
KUB-C.BK.250.R.03-19	V46 50251	**25**	36,5	23	2,25	24,0	1,00	19,0	5	**19**	0,62	WOEX 030204	**25000**
KUB-C.BK.260.R.04-25	V46 50260	**26**	38,0	23	2,65	25,0	1,10	25,0	6	**25**	1,01	WOEX 040304	**26000**
KUB-C.BK.270.R.04-25	V46 50270	**27**	38,0	23	2,65	26,0	1,10	25,0	6	**25**	1,01	WOEX 040304	**27000**
KUB-C.BK.280.R.04-25	V46 50280	**28**	38,0	23	2,65	27,0	1,10	25,0	6	**25**	1,01	WOEX 040304	**28000**
KUB-C.BK.290.R.04-25	V46 50290	**29**	38,0	23	2,65	28,0	1,10	25,0	6	**25**	1,01	WOEX 040304	**29000**
KUB-C.BK.300.R.04-25	V46 50300	**30**	38,0	23	2,65	29,0	1,10	25,0	6	**25**	1,01	WOEX 040304	**30000**
KUB-C.BK.310.R.04-25	V46 50310	**31**	38,0	23	2,65	30,0	1,10	25,0	6	**25**	1,01	WOEX 040304	**31000**
KUB-C.BK.320.R.04-25	V46 50320	**32**	38,0	23	2,65	31,0	1,10	25,0	6	**25**	1,01	WOEX 040304	**32000**
KUB-C.BK.330.R.05-32	V46 50330	**33**	39,2	23	2,65	32,0	1,10	32,0	6	**32**	1,28	WOEX 05T304	**33000**
KUB-C.BK.340.R.05-32	V46 50340	**34**	39,2	23	2,65	33,0	1,10	32,0	6	**32**	1,28	WOEX 05T304	**34000**
KUB-C.BK.350.R.05-32	V46 50350	**35**	39,2	23	2,65	34,0	1,10	32,0	6	**32**	1,28	WOEX 05T304	**35000**
KUB-C.BK.360.R.05-32	V46 50360	**36**	39,2	23	2,65	35,0	1,10	32,0	6	**32**	1,28	WOEX 05T304	**36000**
KUB-C.BK.370.R.05-32	V46 50370	**37**	39,2	23	2,65	36,0	1,10	32,0	6	**32**	1,28	WOEX 05T304	**37000**
KUB-C.BK.380.R.05-32	V46 50380	**38**	39,2	23	2,65	37,0	1,10	32,0	6	**32**	1,28	WOEX 05T304	**38000**
KUB-C.BK.390.R.05-32	V46 50390	**39**	39,2	23	2,65	38,0	1,10	32,0	6	**32**	1,28	WOEX 05T304	**39000**
KUB-C.BK.400.R.05-38,5	V46 50400	**40**	43,1	25	3,38	38,5	1,25	38,5	8	**38,5**	1,28	WOEX 05T304	**40000**
KUB-C.BK.410.R.05-38,5	V46 50410	**41**	43,1	25	3,38	39,5	1,25	38,5	8	**38,5**	1,28	WOEX 05T304	**41000**
KUB-C.BK.420.R.05-38,5	V46 50420	**42**	43,1	25	3,38	40,5	1,09	38,5	8	**38,5**	1,28	WOEX 05T304	**42000**
KUB-C.BK.430.R.05-38,5	V46 50430	**43**	43,1	25	3,38	41,5	1,09	38,5	8	**38,5**	1,28	WOEX 05T304	**43000**
KUB-C.BK.440.R.05-38,5	V46 50440	**44**	43,1	25	3,38	42,5	1,25	38,5	8	**38,5**	1,28	WOEX 05T304	**44000**
KUB-C.BK.450.R.05-38,5	V46 50450	**45**	43,1	25	3,38	43,5	1,25	38,5	8	**38,5**	1,28	WOEX 05T304	**45000**
KUB-C.BK.460.R.06-44,5	V46 50460	**46**	47,0	25	3,86	44,5	1,25	44,5	10	**44,5**	2,8	WOEX 06T304	**46000**
KUB-C.BK.470.R.06-44,5	V46 50470	**47**	47,0	25	3,86	45,5	1,25	44,5	10	**44,5**	2,8	WOEX 06T304	**47000**
KUB-C.BK.480.R.06-44,5	V46 50480	**48**	47,0	25	3,86	46,5	1,25	44,5	10	**44,5**	2,8	WOEX 06T304	**48000**
KUB-C.BK.490.R.06-44,5	V46 50490	**49**	47,0	25	3,86	47,5	1,25	44,5	10	**44,5**	2,8	WOEX 06T304	**49000**
KUB-C.BK.500.R.06-44,5	V46 50500	**50**	47,0	25	3,86	48,5	1,25	44,5	10	**44,5**	2,8	WOEX 06T304	**50000**
KUB-C.BK.510.R.06-44,5	V46 50510	**51**	47,0	25	3,86	49,5	1,25	44,5	10	**44,5**	2,8	WOEX 06T304	**51000**
KUB-C.BK.520.R.06-44,5	V46 50520	**52**	47,0	25	3,86	50,5	1,25	44,5	10	**44,5**	2,8	WOEX 06T304	**52000**
KUB-C.BK.530.R.06-44,5	V46 50530	**53**	47,0	25	3,86	51,5	1,25	44,5	10	**44,5**	2,8	WOEX 06T304	**53000**
KUB-C.BK.540.R.06-44,5	V46 50540	**54**	47,0	25	3,86	52,5	1,25	44,5	10	**44,5**	2,8	WOEX 06T304	**54000**
KUB-C.BK.550.R.08-53,5	V46 50550	**55**	52,0	30	3,86	53,5	1,25	53,5	10	**53,5**	6,25	WOEX 080404	**55000**
KUB-C.BK.560.R.08-53,5	V46 50560	**56**	52,0	30	3,86	54,5	1,25	53,5	10	**53,5**	6,25	WOEX 080404	**56000**
KUB-C.BK.570.R.08-53,5	V46 50570	**57**	52,0	30	3,86	55,5	1,25	53,5	10	**53,5**	6,25	WOEX 080404	**57000**
KUB-C.BK.580.R.08-53,5	V46 50580	**58**	52,0	30	3,86	56,5	1,25	53,5	10	**53,5**	6,25	WOEX 080404	**58000**
KUB-C.BK.590.R.08-53,5	V46 50590	**59**	52,0	30	3,86	57,5	1,25	53,5	10	**53,5**	6,25	WOEX 080404	**59000**
KUB-C.BK.600.R.08-53,5	V46 50600	**60**	52,0	30	3,86	58,5	1,25	53,5	10	**53,5**	6,25	WOEX 080404	**60000**
KUB-C.BK.610.R.08-53,5	V46 50610	**61**	52,0	30	3,86	59,5	1,25	53,5	10	**53,5**	6,25	WOEX 080404	**61000**
KUB-C.BK.620.R.08-53,5	V46 50620	**62**	52,0	30	3,86	60,5	1,25	53,5	10	**53,5**	6,25	WOEX 080404	**62000**
KUB-C.BK.630.R.08-53,5	V46 50630	**63**	52,0	30	3,86	61,5	1,25	53,5	10	**53,5**	6,25	WOEX 080404	**63000**
KUB-C.BK.640.R.08-53,5	V46 50640	**64**	52,0	30	3,86	62,5	1,25	53,5	10	**53,5**	6,25	WOEX 080404	**64000**

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

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

Drill bit Ø 20–64 mm exploded view



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

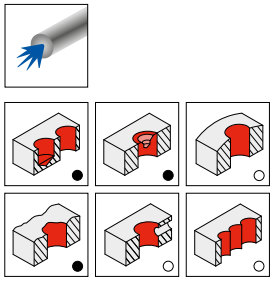
For correct assembly, please observe the operating instructions provided.

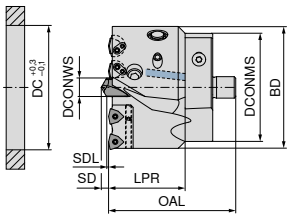
KUB Centron – drill bit Ø 65–81 mm

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

Scope of supply:

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





10 860 ...

Designation	KOMET no.	DC	OAL	LPR	SD	BD	SDL	DCONMS	DCONWS	KLG	torque moment	Insert	
		mm	mm	mm	mm	mm	mm	mm	mm		Nm		
KUB-C.BK.650.R.05-63,5	V46 50650	**65**	63,0	35	4,67	63,5	1,45	63,5	12	**63,5**	1,28	WOEX 05T304	**65000**
KUB-C.BK.660.R.05-63,5	V46 50660	**66**	63,0	35	4,67	64,5	1,45	63,5	12	**63,5**	1,28	WOEX 05T304	**66000**
KUB-C.BK.670.R.05-63,5	V46 50670	**67**	63,0	35	4,67	65,5	1,45	63,5	12	**63,5**	1,28	WOEX 05T304	**67000**
KUB-C.BK.680.R.05-63,5	V46 50680	**68**	63,0	35	4,67	66,5	1,45	63,5	12	**63,5**	1,28	WOEX 05T304	**68000**
KUB-C.BK.690.R.05-63,5	V46 50690	**69**	63,0	35	4,67	67,5	1,45	63,5	12	**63,5**	1,28	WOEX 05T304	**69000**
KUB-C.BK.700.R.05-63,5	V46 50700	**70**	63,0	35	4,67	68,5	1,45	63,5	12	**63,5**	1,28	WOEX 05T304	**70000**
KUB-C.BK.710.R.05-63,5	V46 50710	**71**	63,0	35	4,67	69,5	1,45	63,5	12	**63,5**	1,28	WOEX 05T304	**71000**
KUB-C.BK.720.R.05-70,5	V46 50720	**72**	80,5	50	4,67	70,5	1,45	70,5	12	**70,5**	1,28	WOEX 05T304	**72000**
KUB-C.BK.730.R.05-70,5	V46 50730	**73**	80,5	50	4,67	71,5	1,45	70,5	12	**70,5**	1,28	WOEX 05T304	**73000**
KUB-C.BK.740.R.05-70,5	V46 50740	**74**	80,5	50	4,67	72,5	1,45	70,5	12	**70,5**	1,28	WOEX 05T304	**74000**
KUB-C.BK.750.R.05-70,5	V46 50750	**75**	80,5	50	4,67	73,5	1,45	70,5	12	**70,5**	1,28	WOEX 05T304	**75000**
KUB-C.BK.760.R.05-70,5	V46 50760	**76**	80,5	50	4,67	74,5	1,45	70,5	12	**70,5**	1,28	WOEX 05T304	**76000**
KUB-C.BK.770.R.05-70,5	V46 50770	**77**	80,5	50	4,67	75,5	1,45	70,5	12	**70,5**	1,28	WOEX 05T304	**77000**
KUB-C.BK.780.R.05-70,5	V46 50780	**78**	80,5	50	4,67	76,5	1,45	70,5	12	**70,5**	1,28	WOEX 05T304	**78000**
KUB-C.BK.790.R.05-70,5	V46 50790	**79**	80,5	50	4,67	77,5	1,45	70,5	12	**70,5**	1,28	WOEX 05T304	**79000**
KUB-C.BK.800.R.05-70,5	V46 50800	**80**	80,5	50	4,67	78,5	1,45	70,5	12	**70,5**	1,28	WOEX 05T304	**80000**
KUB-C.BK.810.R.05-70,5	V46 50810	**81**	80,5	50	4,67	79,5	1,45	70,5	12	**70,5**	1,28	WOEX 05T304	**81000**

Grub screw

Copper disc

Indexable insert fixing screw

Indexable insert fixing screw

10 950 ... **10 950 ...** **10 950 ...** **10 950 ...**

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

Indexable insert seat

Indexable insert seat

Indexable insert seat

Cylindrical pin

Indexable insert adjusting screw

Basic element clamping screw

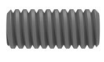
10 950 ... **10 950 ...** **10 950 ...** **10 950 ...** **10 950 ...** **10 950 ...**

Spare parts DC											
65 - 71	**13800**					M4x8 - SW2	**11100**	M6x16 - 20IP - 6,25Nm	**12300**
72 - 75	**13900**	**13700**	**13600**	**11500**	M4x10 - SW2	**11200**	M6x16 - 20IP - 6,25Nm	**12300**
76 - 78	**14000**	**13700**	**13600**	**11500**	M4x10 - SW2	**11200**	M6x16 - 20IP - 6,25Nm	**12300**
79 - 81	**14100**	**13700**	**13600**	**11500**	M4x10 - SW2	**11200**	M6x16 - 20IP - 6,25Nm	**12300**

Carbide bolt key

Carbide bolt

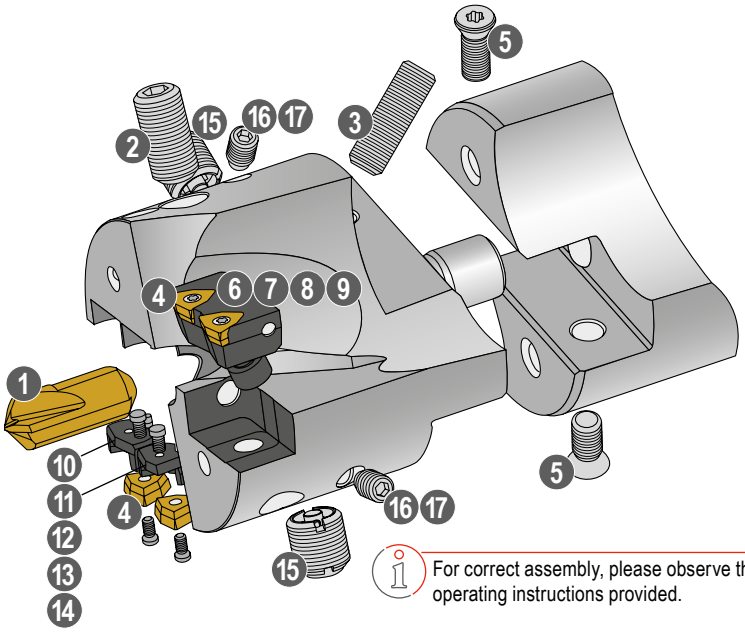
Indexable insert clamping screw


Centring tip clamping screw

10 950 ... **10 950 ...** **10 950 ...** **10 950 ...**

Spare parts DC								
65 - 71	**15500**	M12x1	**15400**	M2,5x7,2 - 08IP	**10500**	M10x20 - SW5 - 16Nm	**13400**
72 - 75	**15500**	M12x1	**15400**	M2,5x7,2 - 08IP	**10500**	M10x20 - SW5 - 16Nm	**13400**
76 - 78	**15500**	M12x1	**15400**	M2,5x7,2 - 08IP	**10500**	M10x20 - SW5 - 16Nm	**13400**
79 - 81	**15500**	M12x1	**15400**	M2,5x7,2 - 08IP	**10500**	M10x20 - SW5 - 16Nm	**13400**

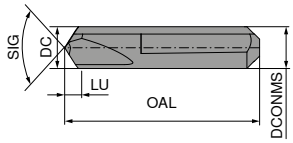
Drill bit Ø 65–81 mm exploded view

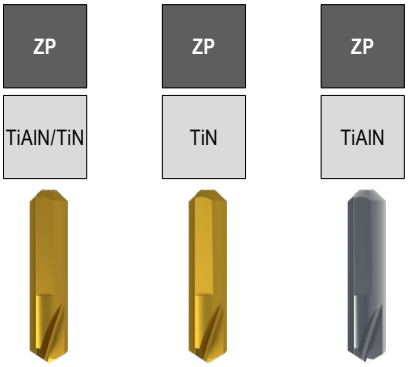


1 Centring tip
2 Clamping screw for centring tip
3 Adjusting screw for centring tip
4 Indexable Insert
5 Clamping screw for basic element
6 Indexable insert seat
7 Fixing screw for indexable insert
8 Adjusting screw for indexable insert
9 Clamping screw for indexable insert
10 Indexable insert seat
11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

For correct assembly, please observe the operating instructions provided.

KUB Centron – centring tip





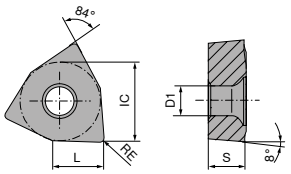
					SIG 120° Solid carbide		SIG 120° HSS		SIG 120° HSS	
					10 863 ...		**10 862 ...**		**10 862 ...**	
DC mm	KOMET no.	OAL mm	LU mm	DCONMS mm						
5	V95 10012.0089	23,0	2,25	5				**00500**		
5	V95 10012.0090	23,0	2,25	5						**10500**
5	V95 10310.8450	23,0	2,25	5	**20500**					
6	V95 10022.0089	23,0	2,65	6				**00600**		
6	V95 10022.0090	23,0	2,65	6						**10600**
6	V95 10320.8450	23,0	2,65	6	**20600**					
8	V95 10032.0089	27,0	3,38	8				**00800**		
8	V95 10032.0090	27,0	3,38	8						**10800**
8	V95 10330.8450	27,0	3,38	8	**20800**					
10	V95 10042.0089	28,0	3,86	10				**01000**		
10	V95 10042.0090	28,0	3,86	10						**11000**
10	V95 10340.8450	28,0	3,86	10	**21000**					
12	V95 10050.0089	30,8	4,67	12				**01200**		
12	V95 10050.0090	30,8	4,67	12						**11200**
P					●		●			
M					●					●
K					●					●
N					●		●			
S					○					●
H										
O					○		○			

→ v_c Page 72+73

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

WOEX

Designation	L	IC	S	D1
	mm	mm	mm	mm
WOEX 0302..	3,2	5,00	2,30	2,30
WOEX 0403..	4,1	6,35	3,18	2,55
WOEX 05T3..	5,3	8,00	3,80	2,85
WOEX 06T3..	6,6	10,00	3,80	4,05
WOEX 0804..	7,9	12,00	4,80	4,90
WOEX 1005..	9,9	15,00	5,30	4,90
WOEX 1206..	11,6	17,60	6,00	5,95



WOEX

	-01 BK8425	-01 BK7935	-01 BK6115	-01 BK7615	-01 BK62
	WOEX	WOEX	WOEX	WOEX	WOEX
	10 821 ...	10 821 ...	10 821 ...	10 821 ...	10 821 ...
ISO	KOMET no.	RE mm								
030204	W29 10010.046115	0,4					40301			
030204	W29 10010.0462	0,4								20301
030204	W29 10010.047615	0,4						05301		
030204	W29 10010.047935	0,4		50301						
030204	W29 10010.048425	0,4	30301							
040304	W29 18010.046115	0,4					40401			
040304	W29 18010.0462	0,4								20401
040304	W29 18010.047615	0,4						05401		
040304	W29 18010.047935	0,4		50401						
040304	W29 18010.048425	0,4	30401							
05T304	W29 24010.046115	0,4					40501			
05T304	W29 24010.0462	0,4								20501
05T304	W29 24010.047615	0,4						05501		
05T304	W29 24010.047935	0,4		50501						
05T304	W29 24010.048425	0,4	30501							
06T304	W29 34010.046115	0,4					40601			
06T304	W29 34010.0462	0,4								20601
06T304	W29 34010.047615	0,4						05601		
06T304	W29 34010.047935	0,4		50601						
06T304	W29 34010.048425	0,4	30601							
080404	W29 42010.046115	0,4					40801			
080404	W29 42010.0462	0,4								20801
080404	W29 42010.047615	0,4						05801		
080404	W29 42010.047935	0,4		50801						
080404	W29 42010.048425	0,4	30801							
100504	W29 50010.046115	0,4					41001			
100504	W29 50010.0462	0,4								21001
100504	W29 50010.047615	0,4						06001		
100504	W29 50010.047935	0,4		51001						
100504	W29 50010.048425	0,4	31001							
120608	W29 58010.086115	0,8					41201			
120608	W29 58010.0862	0,8								28201
120608	W29 58010.087615	0,8						08201		
120608	W29 58010.087935	0,8		53201						
120608	W29 58010.088425	0,8	31201							
P			●	●	●					
M			●	●	●					
K			●	●	●			●		●
N			○	○						
S			●	●						
H			○		○					○
O										

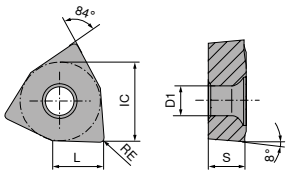
→ v_c Page 68

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

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

WOEX

Designation	L	IC	S	D1
	mm	mm	mm	mm
WOEX 0302..	3,2	5,00	2,30	2,30
WOEX 0403..	4,1	6,35	3,18	2,55
WOEX 05T3..	5,3	8,00	3,80	2,85
WOEX 06T3..	6,6	10,00	3,80	4,05
WOEX 0804..	7,9	12,00	4,80	4,90
WOEX 1005..	9,9	15,00	5,30	4,90
WOEX 1206..	11,6	17,60	6,00	5,95



WOEX

	-03 BK8425	-11 BK77	-11 BK7710	-13 BK8425	-13 BK79
	WOEX	WOEX	WOEX	WOEX	WOEX
	10 821 ...	10 821 ...	10 821 ...	10 821 ...	10 821 ...

ISO	KOMET no.	RE mm									
030204	W29 10110.047710	0,4						90311			
030204	W29 10130.0479	0,4									15313
030204	W29 10130.048425	0,4							30313		
030204	W29 10110.0477	0,4		80311							
030204	W29 10030.048425	0,4	30303								
040304	W29 18110.047710	0,4						90411			
040304	W29 18130.0479	0,4									15413
040304	W29 18130.048425	0,4							30413		
040304	W29 18110.0477	0,4		80411							
040304	W29 18030.048425	0,4	30403								
05T304	W29 24110.047710	0,4						90511			
05T304	W29 24130.0479	0,4									15513
05T304	W29 24130.048425	0,4							30513		
05T304	W29 24110.0477	0,4		80511							
05T304	W29 24030.048425	0,4	30503								
06T304	W29 34110.047710	0,4						90611			
06T304	W29 34130.0479	0,4									15613
06T304	W29 34130.048425	0,4							30613		
06T304	W29 34110.0477	0,4		80611							
06T304	W29 34030.048425	0,4	30603								
080404	W29 42110.047710	0,4						90811			
080404	W29 42130.0479	0,4									15813
080404	W29 42130.048425	0,4							30813		
080404	W29 42110.0477	0,4		80811							
080404	W29 42030.048425	0,4	30803								
100504	W29 50110.047710	0,4						91011			
100504	W29 50130.0479	0,4									16013
100504	W29 50130.048425	0,4							31013		
100504	W29 50110.0477	0,4		81011							
100504	W29 50030.048425	0,4	31003								
120608	W29 58130.088425	0,8							38213		
120608	W29 58130.0879	0,8									16213
120608	W29 58030.088425	0,8	33203								

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

→ v_c Page 68

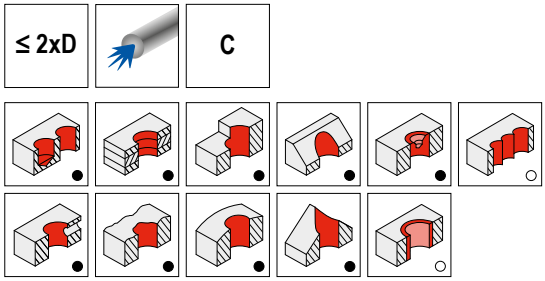
BK6115 -01 / BK8425 -03 are exclusively recommended for use on the peripheral cutting edge!

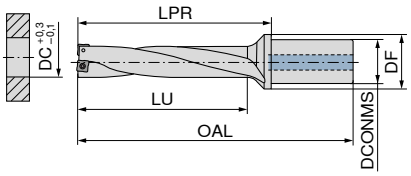
Further information on grades and chip breakers can be found on **page 85 + 86**

MaxiDrill 900 – Indexable insert drill

Scope of supply:

Indexable Insert Drill including clamping screws and key





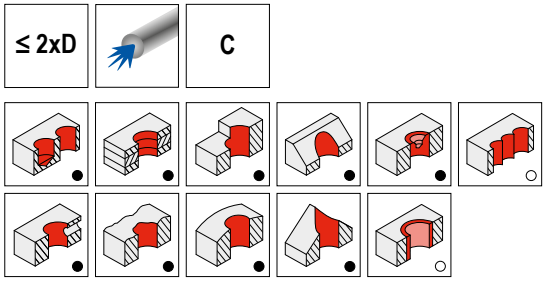
10 852 ...

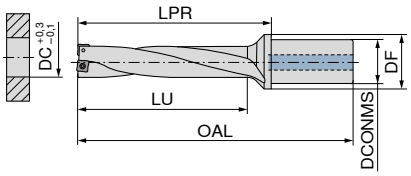
Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
MD900.2D.120.R.03-C20	**12**	20	28	90	24	40	0,4	SONT 031804	**120**
MD900.2D.125.R.03-C20	**12,5**	20	28	91	25	41	0,4	SONT 031804	**125**
MD900.2D.130.R.03-C20	**13**	20	28	92	26	42	0,4	SONT 031804	**130**
MD900.2D.135.R.03-C20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

Continued on next page

MaxiDrill 900 – Indexable insert drill

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





10 852 ...

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

Key D

Clamping screw

80 950 ...

70 950 ...

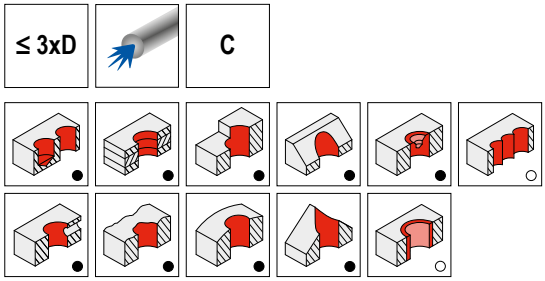
Spare parts DC				
12 - 13,5	T06 - IP	**123**	M1,8x3,6 - IP	**862**
14 - 17,5	T06 - IP	**123**	M2x4,3 - IP	**863**
18 - 23	T07 - IP	**124**	M2,2x5 - IP	**856**
24 - 27	T08 - IP	**125**	M2,5x6 - IP	**857**
28 - 32	T09 - IP	**126**	M3x7 - IP	**819**
33 - 41	T15 - IP	**128**	M3,5x8,6 - IP	**859**
42 - 63	T20 - IP	**129**	M4,5x10,5 - IP	**864**

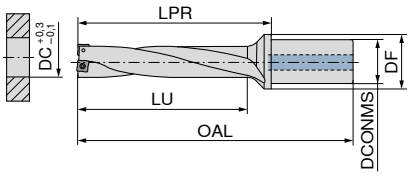
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

MaxiDrill 900 – Indexable insert drill

Scope of supply:

Indexable Insert Drill including clamping screws and key





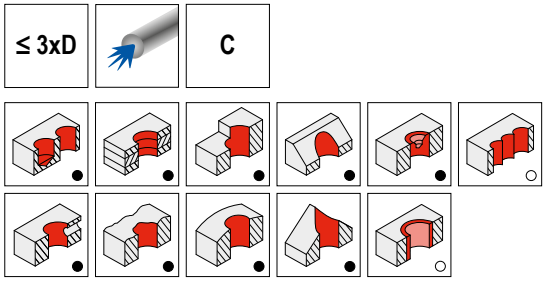
10 853 ...

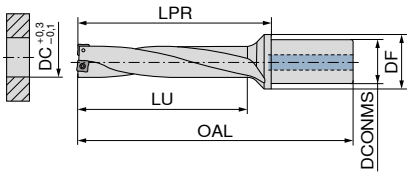
Designation	DC	DCONMS	DF	OAL	LU	LPR	torque moment	Insert	
	mm	mm	mm	mm	mm	mm	Nm		
MD900.3D.120.R.03-C20	**12**	20	28	102	36,0	52	0,4	SONT 031804	**120**
MD900.3D.125.R.03-C20	**12,5**	20	28	104	37,5	54	0,4	SONT 031804	**125**
MD900.3D.130.R.03-C20	**13**	20	28	105	39,0	55	0,4	SONT 031804	**130**
MD900.3D.135.R.03-C20	**13,5**	20	28	107	40,5	57	0,4	SONT 031804	**135**
MD900.3D.140.R.04-C20	**14**	20	30	109	42,0	59	0,7	SONT 042105	**140**
MD900.3D.145.R.04-C20	**14,5**	20	30	111	44,0	61	0,7	SONT 042105	**145**
MD900.3D.150.R.04-C20	**15**	20	30	112	45,0	62	0,7	SONT 042105	**150**
MD900.3D.155.R.04-C20	**15,5**	20	30	114	47,0	64	0,7	SONT 042105	**155**
MD900.3D.160.R.05-C20	**16**	20	30	115	48,0	65	0,7	SONT 052306	**160**
MD900.3D.165.R.05-C20	**16,5**	20	30	117	50,0	67	0,7	SONT 052306	**165**
MD900.3D.170.R.05-C20	**17**	20	30	118	51,0	68	0,7	SONT 052306	**170**
MD900.3D.175.R.05-C20	**17,5**	20	30	120	53,0	70	0,7	SONT 052306	**175**
MD900.3D.180.R.06-C25	**18**	25	32	128	54,0	72	1	SONT 062506	**180**
MD900.3D.185.R.06-C25	**18,5**	25	32	130	56,0	74	1	SONT 062506	**185**
MD900.3D.190.R.06-C25	**19**	25	32	131	57,0	75	1	SONT 062506	**190**
MD900.3D.195.R.06-C25	**19,5**	25	32	133	59,0	77	1	SONT 062506	**195**
MD900.3D.200.R.06-C25	**20**	25	32	134	60,0	78	1	SONT 062506	**200**
MD900.3D.205.R.06-C25	**20,5**	25	32	136	62,0	80	1	SONT 062506	**205**
MD900.3D.210.R.07-C25	**21**	25	32	138	63,0	82	1	SONT 072907	**210**
MD900.3D.215.R.07-C25	**21,5**	25	32	140	65,0	84	1	SONT 072907	**215**
MD900.3D.220.R.07-C25	**22**	25	32	141	66,0	85	1	SONT 072907	**220**
MD900.3D.225.R.07-C25	**22,5**	25	32	143	68,0	87	1	SONT 072907	**225**
MD900.3D.230.R.07-C25	**23**	25	32	144	69,0	88	1	SONT 072907	**230**
MD900.3D.235.R.07-C25	**23,5**	25	32	146	71,0	90	1	SONT 072907	**235**
MD900.3D.240.R.08-C32	**24**	32	40	155	72,0	95	1,2	SONT 083308	**240**
MD900.3D.245.R.08-C32	**24,5**	32	40	157	74,0	97	1,2	SONT 083308	**245**
MD900.3D.250.R.08-C32	**25**	32	40	158	75,0	98	1,2	SONT 083308	**250**
MD900.3D.255.R.08-C32	**25,5**	32	40	160	77,0	100	1,2	SONT 083308	**255**
MD900.3D.260.R.08-C32	**26**	32	40	161	78,0	101	1,2	SONT 083308	**260**
MD900.3D.265.R.08-C32	**26,5**	32	40	163	80,0	103	1,2	SONT 083308	**265**
MD900.3D.270.R.08-C32	**27**	32	40	164	81,0	104	1,2	SONT 083308	**270**
MD900.3D.275.R.08-C32	**27,5**	32	40	166	83,0	106	1,2	SONT 083308	**275**
MD900.3D.280.R.09-C32	**28**	32	40	167	84,0	107	2,2	SONT 093808	**280**
MD900.3D.285.R.09-C32	**28,5**	32	40	169	86,0	109	2,2	SONT 093808	**285**
MD900.3D.290.R.09-C32	**29**	32	40	170	87,0	110	2,2	SONT 093808	**290**
MD900.3D.295.R.09-C32	**29,5**	32	40	172	89,0	112	2,2	SONT 093808	**295**
MD900.3D.300.R.09-C32	**30**	32	40	173	90,0	113	2,2	SONT 093808	**300**
MD900.3D.305.R.09-C32	**30,5**	32	40	175	92,0	115	2,2	SONT 093808	**305**
MD900.3D.310.R.09-C32	**31**	32	40	176	93,0	116	2,2	SONT 093808	**310**
MD900.3D.315.R.09-C32	**31,5**	32	40	178	95,0	118	2,2	SONT 093808	**315**
MD900.3D.320.R.09-C32	**32**	32	40	179	96,0	119	2,2	SONT 093808	**320**
MD900.3D.325.R.10-C40	**32,5**	40	50	192	98,0	124	3,2	SONT 104408	**325**
MD900.3D.330.R.10-C40	**33**	40	50	193	99,0	125	3,2	SONT 104408	**330**
MD900.3D.335.R.10-C40	**33,5**	40	50	195	101,0	127	3,2	SONT 104408	**335**
MD900.3D.340.R.10-C40	**34**	40	50	196	102,0	128	3,2	SONT 104408	**340**
MD900.3D.345.R.10-C40	**34,5**	40	50	198	104,0	130	3,2	SONT 104408	**345**
MD900.3D.350.R.10-C40	**35**	40	50	199	105,0	131	3,2	SONT 104408	**350**
MD900.3D.355.R.10-C40	**35,5**	40	50	201	107,0	133	3,2	SONT 104408	**355**
MD900.3D.360.R.10-C40	**36**	40	50	202	108,0	134	3,2	SONT 104408	**360**
MD900.3D.365.R.10-C40	**36,5**	40	50	204	110,0	136	3,2	SONT 104408	**365**
MD900.3D.370.R.12-C40	**37**	40	56	211	111,0	141	3,2	SONT 124810	**370**
MD900.3D.380.R.12-C40	**38**	40	56	214	114,0	144	3,2	SONT 124810	**380**

Continued on next page

MaxiDrill 900 – Indexable insert drill

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





10 853 ...

Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
MD900.3D.390.R.12-C40	39	40	56	217	117,0	147	3,2	SONT 124810	390
MD900.3D.400.R.12-C40	40	40	56	220	120,0	150	3,2	SONT 124810	400
MD900.3D.410.R.12-C40	41	40	56	223	123,0	153	3,2	SONT 124810	410
MD900.3D.420.R.13-C40	42	40	60	229	126,0	159	5	SONT 135012	420
MD900.3D.430.R.13-C40	43	40	60	232	129,0	162	5	SONT 135012	430
MD900.3D.440.R.13-C40	44	40	60	235	132,0	165	5	SONT 135012	440
MD900.3D.450.R.13-C40	45	40	60	238	135,0	168	5	SONT 135012	450
MD900.3D.460.R.13-C40	46	40	60	241	138,0	171	5	SONT 135012	460
MD900.3D.470.R.15-C40	47	40	60	245	141,0	175	5	SONT 155312	470
MD900.3D.480.R.15-C40	48	40	60	248	144,0	178	5	SONT 155312	480
MD900.3D.490.R.15-C40	49	40	60	251	147,0	181	5	SONT 155312	490
MD900.3D.500.R.15-C40	50	40	60	254	150,0	184	5	SONT 155312	500
MD900.3D.510.R.15-C40	51	40	60	257	153,0	187	5	SONT 155312	510
MD900.3D.520.R.15-C40	52	40	60	260	156,0	190	5	SONT 155312	520
MD900.3D.530.R.15-C40	53	40	60	263	159,0	193	5	SONT 155312	530
MD900.3D.540.R.15-C40	54	40	60	266	162,0	196	5	SONT 155312	540
MD900.3D.550.R.17-C40	55	40	60	270	165,0	200	5	SONT 175612	550
MD900.3D.560.R.17-C40	56	40	60	273	168,0	203	5	SONT 175612	560
MD900.3D.570.R.17-C40	57	40	60	276	171,0	206	5	SONT 175612	570
MD900.3D.580.R.17-C40	58	40	60	279	174,0	209	5	SONT 175612	580
MD900.3D.590.R.17-C40	59	40	60	282	177,0	212	5	SONT 175612	590
MD900.3D.600.R.17-C40	60	40	62	285	180,0	215	5	SONT 175612	600
MD900.3D.610.R.17-C40	61	40	62	288	183,0	218	5	SONT 175612	610
MD900.3D.620.R.17-C40	62	40	64	291	186,0	221	5	SONT 175612	620
MD900.3D.630.R.17-C40	63	40	64	294	189,0	224	5	SONT 175612	630

Key D

Clamping screw

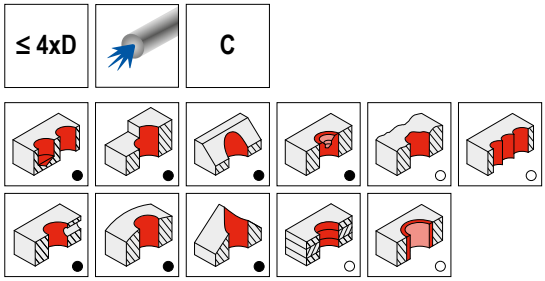
Spare parts DC				
	80 950 ...		**70 950 ...**	
12 - 13,5	T06 - IP	123	M1,8x3,6 - IP	862
14 - 17,5	T06 - IP	123	M2x4,3 - IP	863
18 - 23,5	T07 - IP	124	M2,2x5 - IP	856
24 - 27,5	T08 - IP	125	M2,5x6 - IP	857
28 - 32	T09 - IP	126	M3x7 - IP	819
32,5 - 41	T15 - IP	128	M3,5x8,6 - IP	859
42 - 63	T20 - IP	129	M4,5x10,5 - IP	864

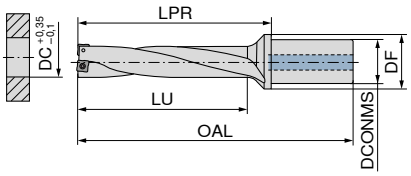
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

MaxiDrill 900 – Indexable insert drill

Scope of supply:

Indexable Insert Drill including clamping screws and key





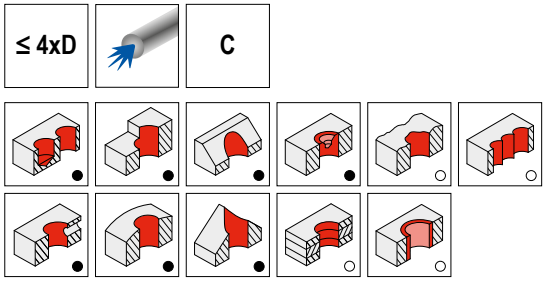
10 854 ...

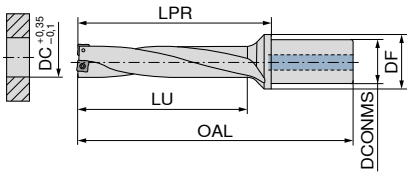
Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
MD900.4D.120.R.03-C20	**12**	20	28	114	48	64	0,4	SONT 031804	**120**
MD900.4D.125.R.03-C20	**12,5**	20	28	116	50	66	0,4	SONT 031804	**125**
MD900.4D.130.R.03-C20	**13**	20	28	118	52	68	0,4	SONT 031804	**130**
MD900.4D.135.R.03-C20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

Continued on next page

MaxiDrill 900 – Indexable insert drill

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





10 854 ...

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

Key D

80 950 ...

Clamping screw

70 950 ...

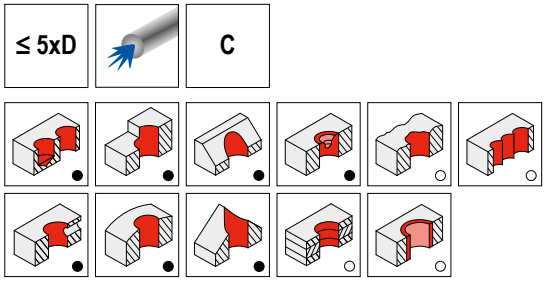
Spare parts DC				
12 - 13,5	T06 - IP	**123**	M1,8x3,6 - IP	**862**
14 - 17,5	T06 - IP	**123**	M2x4,3 - IP	**863**
18 - 23	T07 - IP	**124**	M2,2x5 - IP	**856**
24 - 27	T08 - IP	**125**	M2,5x6 - IP	**857**
28 - 32	T09 - IP	**126**	M3x7 - IP	**819**
33 - 41	T15 - IP	**128**	M3,5x8,6 - IP	**859**
42 - 54	T20 - IP	**129**	M4,5x10,5 - IP	**864**

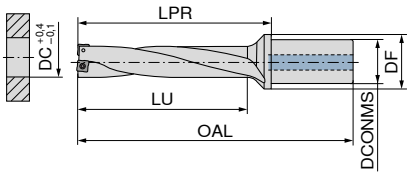
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

MaxiDrill 900 – Indexable insert drill

Scope of supply:

Indexable Insert Drill including clamping screws and key





10 855 ...

Designation	DC	DCONMS	DF	OAL	LU	LPR	torque moment	Insert	
	mm	mm	mm	mm	mm	mm	Nm		
MD900.5D.120.R.03-C20	**12**	20	28	126	60,0	76,0	0,4	SONT 031804	**120**
MD900.5D.125.R.03-C20	**12,5**	20	28	128	62,5	78,0	0,4	SONT 031804	**125**
MD900.5D.130.R.03-C20	**13**	20	28	131	65,0	81,0	0,4	SONT 031804	**130**
MD900.5D.135.R.03-C20	**13,5**	20	28	132	67,5	82,0	0,4	SONT 031804	**135**
MD900.5D.140.R.04-C20	**14**	20	30	137	70,0	87,0	0,7	SONT 042105	**140**
MD900.5D.145.R.04-C20	**14,5**	20	30	139	72,5	89,0	0,7	SONT 042105	**145**
MD900.5D.150.R.04-C20	**15**	20	30	142	75,0	92,0	0,7	SONT 042105	**150**
MD900.5D.155.R.04-C20	**15,5**	20	30	144	77,5	94,5	0,7	SONT 042105	**155**
MD900.5D.160.R.05-C20	**16**	20	30	147	80,0	97,0	0,7	SONT 052306	**160**
MD900.5D.165.R.05-C20	**16,5**	20	30	149	82,5	99,0	0,7	SONT 052306	**165**
MD900.5D.170.R.05-C20	**17**	20	30	152	85,0	102,0	0,7	SONT 052306	**170**
MD900.5D.175.R.05-C20	**17,5**	20	30	154	87,5	104,0	0,7	SONT 052306	**175**
MD900.5D.180.R.06-C25	**18**	25	32	164	90,0	108,0	1	SONT 062506	**180**
MD900.5D.185.R.06-C25	**18,5**	25	32	166	92,5	110,0	1	SONT 062506	**185**
MD900.5D.190.R.06-C25	**19**	25	32	169	95,0	113,0	1	SONT 062506	**190**
MD900.5D.195.R.06-C25	**19,5**	25	32	171	97,5	115,0	1	SONT 062506	**195**
MD900.5D.200.R.06-C25	**20**	25	32	174	100,0	118,0	1	SONT 062506	**200**
MD900.5D.205.R.06-C25	**20,5**	25	32	175	102,5	119,0	1	SONT 062506	**205**
MD900.5D.210.R.07-C25	**21**	25	32	180	105,0	124,0	1	SONT 072907	**210**
MD900.5D.220.R.07-C25	**22**	25	32	184	110,0	128,0	1	SONT 072907	**220**
MD900.5D.230.R.07-C25	**23**	25	32	189	115,0	133,0	1	SONT 072907	**230**
MD900.5D.240.R.08-C32	**24**	32	40	203	120,0	143,0	1,2	SONT 083308	**240**
MD900.5D.250.R.08-C32	**25**	32	40	208	125,0	148,0	1,2	SONT 083308	**250**
MD900.5D.260.R.08-C32	**26**	32	40	212	130,0	152,0	1,2	SONT 083308	**260**
MD900.5D.270.R.08-C32	**27**	32	40	217	135,0	157,0	1,2	SONT 083308	**270**
MD900.5D.280.R.09-C32	**28**	32	40	221	140,0	161,0	2,2	SONT 093808	**280**
MD900.5D.290.R.09-C32	**29**	32	40	226	145,0	166,0	2,2	SONT 093808	**290**
MD900.5D.300.R.09-C32	**30**	32	40	230	150,0	170,0	2,2	SONT 093808	**300**
MD900.5D.310.R.09-C32	**31**	32	40	235	155,0	175,0	2,2	SONT 093808	**310**
MD900.5D.320.R.09-C32	**32**	32	40	239	160,0	179,0	2,2	SONT 093808	**320**
MD900.5D.330.R.10-C40	**33**	40	50	259	165,0	191,0	3,2	SONT 104408	**330**
MD900.5D.340.R.10-C40	**34**	40	50	264	170,0	196,0	3,2	SONT 104408	**340**
MD900.5D.350.R.10-C40	**35**	40	50	269	175,0	201,0	3,2	SONT 104408	**350**
MD900.5D.360.R.10-C40	**36**	40	50	274	180,0	206,0	3,2	SONT 104408	**360**
MD900.5D.370.R.12-C40	**37**	40	56	285	185,0	215,0	3,2	SONT 124810	**370**
MD900.5D.380.R.12-C40	**38**	40	56	290	190,0	220,0	3,2	SONT 124810	**380**
MD900.5D.390.R.12-C40	**39**	40	56	295	195,0	225,0	3,2	SONT 124810	**390**
MD900.5D.400.R.12-C40	**40**	40	56	300	200,0	230,0	3,2	SONT 124810	**400**
MD900.5D.410.R.12-C40	**41**	40	56	305	205,0	235,0	3,2	SONT 124810	**410**

Key D

Clamping screw

80 950 ...

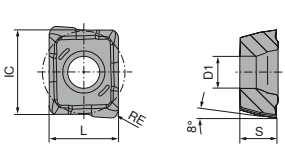
70 950 ...

Spare parts DC				
12 - 13,5	T06 - IP	**123**	M1,8x3,6 - IP	**862**
14 - 17,5	T06 - IP	**123**	M2x4,3 - IP	**863**
18 - 23	T07 - IP	**124**	M2,2x5 - IP	**856**
24 - 27	T08 - IP	**125**	M2,5x6 - IP	**857**
28 - 32	T09 - IP	**126**	M3x7 - IP	**819**
33 - 41	T15 - IP	**128**	M3,5x8,6 - IP	**859**

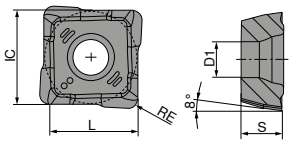
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

SONT

Designation	IC mm	D1 mm	L mm	S mm
SONT 0318..	5,4	2,10	3,8	1,80
SONT 0421..	4,6	2,25	4,2	2,10
SONT 0523..	5,3	2,25	4,8	2,30
SONT 0625..	5,9	2,50	5,5	2,50
SONT 0729..	6,5	2,50	6,1	2,90
SONT 0833..	7,7	2,90	7,3	3,30
SONT 0938..	8,9	3,50	8,5	3,80
SONT 1044..	10,1	4,10	9,6	4,40
SONT 1248..	11,6	4,10	11,0	4,80
SONT 1350..	13,0	5,30	12,2	5,00
SONT 1553..	15,2	5,30	14,4	5,30
SONT 1756..	17,5	5,30	16,7	5,60



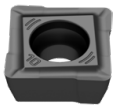
SONT 03..



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

3

SONT

	-M30 CTPP430 DRAGONSKIN	-M30 CTPP430 DRAGONSKIN	-M30 CTCP420 DRAGONSKIN	-M30 CTCP420 DRAGONSKIN
	SONT	SONT	SONT	 SONT
	10 830 ...	**10 830 ...**	**10 830 ...**	**10 830 ...**
ISO RE mm				
031804 0,4	**103** [1]		**703** [1]	
042105 0,5		**104**		**704**
052306 0,6		**105**		**705**
062506 0,6		**106**		**706**
072907 0,7		**107**		**707**
083308 0,8		**108**		**708**
093808 0,8		**109**		**709**
104408 0,8		**110**		**710**
124810 1,0		**112**		**712**
135012 1,2		**113**		**713**
155312 1,2		**115**		**715**
175612 1,2		**117**		**717**
P	●	●	●	●
M	●	●		
K	○	○	●	●
N	○	○		
S	○	○		
H				
O				

1) two usable cutting edges

→ v_c Page 74–77

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

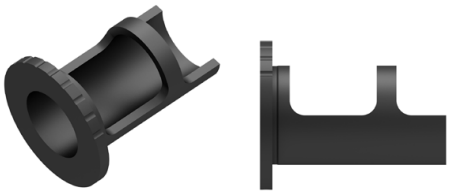
Further information on grades and chip breakers can be found on **page 85 + 86**

Application tips – eccentric sleeves

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

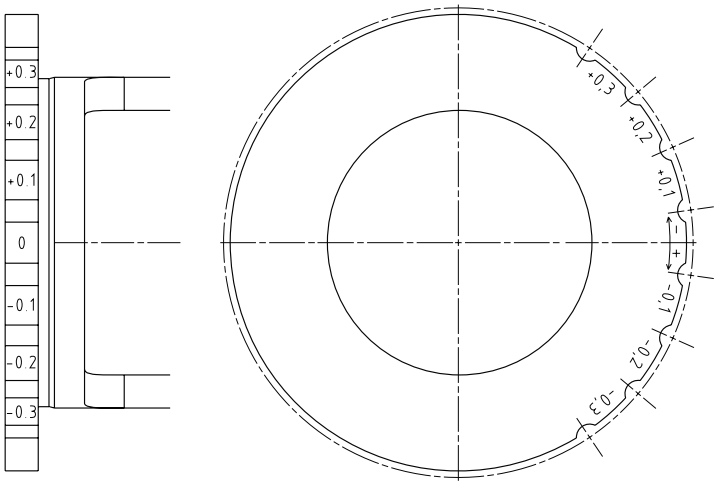
Two types of eccentric sleeve are available:
One for use with the indexable insert drill adapter and one for use with the Weldon adapter.
The difference lies solely in the design and position of the slots for the adapter's clamping screws.
There are four sizes per type, which are tailored to the shank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

Eccentric sleeve for indexable insert drill adapter



Eccentric sleeve for Weldon adapter

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



Side view *End view*

Instructions for use

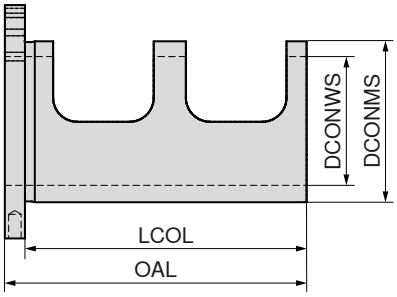
1. Position the sleeve in the respective adapter and insert the indexable insert drill.
2. Set the sleeve to the zero position. → The „0“ must align with the clamping screws on the adapter.
3. Clamp the adapter's clamping screws.
4. Drill.
5. Measure the bore diameter.
6. Loosen the clamping screws.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

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

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

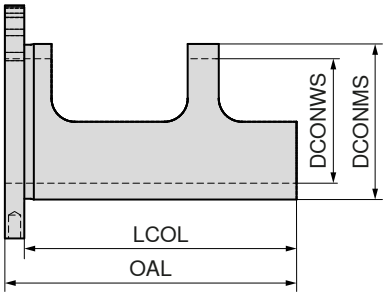
3

Eccentric sleeve – indexable insert drill adapter



Designation	DCONWS mm	DCONMS mm	OAL mm	LCOL mm	10 870 ...
EHB.D20.D25	20	25	61	56	**120**
EHB.D25.D32	25	32	65	60	**125**
EHB.D32.D40	32	40	75	70	**132**
EHB.D40.D50	40	50	85	80	**140**

Eccentric sleeve – standard Weldon adapter

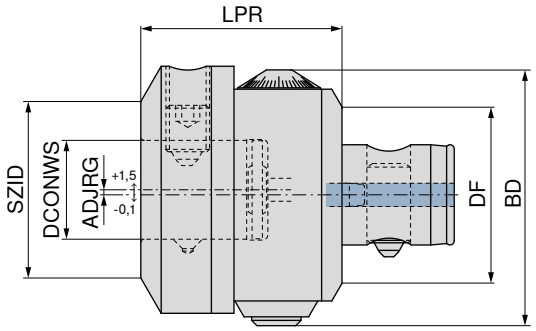


Designation	DCONWS mm	DCONMS mm	OAL mm	LCOL mm	10 871 ...
EHW.D20.D25	20	25	61	56	**120**
EHW.D25.D32	25	32	65	60	**125**
EHW.D32.D40	32	40	75	70	**132**
EHW.D40.D50	40	50	85	80	**140**

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

Adjuster with ABS connection

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



AD

84 210 ...

Adapter	KOMET no.	BD mm	LPR mm	DF mm	DCONWS mm	ADJRG mm	SZID	
ABS 50	M01 00001	70	57	50	28	1,5	**ABS 50**	**05097**
ABS 63	M01 00011	88	70	63	28	1,5	**ABS 50**	**06397**
ABS 63	M01 00021	88	70	63	34	1,5	**ABS 63**	**06396**

Material examples for cutting data tables

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

* Tensile strength

Cutting data standard values for SOGX indexable inserts

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Cutting data standard values for KUB Pentron – 4xD

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

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

Cutting data standard values for KUB Pentron – 5xD

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

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

Cutting data standard values for WOEX indexable inserts

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

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

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

Cutting data standard values for KUB Trigon – 2xD

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

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

Cutting data standard values for KUB Trigon – 3xD

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

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

Cutting data standard values for KUB Trigon – 4xD

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

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

Cutting data standard values for KUB Centron

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

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

The cutting data of the KUB Centron depends on the centring tip and not on the indexable inserts. **Please select the cutting data of the centring tip.** 10 863 ... is only suitable up to drilling depth 6xD.

Index	Ø 46–54 mm				Ø 55–64 mm				Ø 65–71 mm			Ø 72–81 mm		
		Centring tip				Centring tip				Centring tip			Centring tip	
		10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)		10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)		10 862 ... (TiN)	10 862 ... (TiAlN)		10 862 ... (TiN)	10 862 ... (TiAlN)
	f (mm/rev)	v_c (m/min)			f (mm/rev)	v_c (m/min)			f (mm/rev)	v_c (m/min)		f (mm/rev)	v_c (m/min)	
P.1.1	0,10	250	160		0,10	250	160		0,10	160		0,10	160	
P.1.2	0,14	250	160		0,16	250	160		0,16	160		0,16	160	
P.1.3	0,12	200	160		0,14	200	160		0,14	160		0,14	160	
P.1.4	0,11	180	160		0,12	180	160		0,12	160		0,12	160	
P.1.5	0,12	230	160		0,14	230	160		0,14	160		0,14	160	
P.2.1	0,12	200	160		0,14	200	160		0,14	160		0,14	160	
P.2.2	0,11	190	150		0,12	190	150		0,12	150		0,12	150	
P.2.3	0,14	180	140		0,16	180	140		0,16	140		0,16	140	
P.2.4	0,12	150	120		0,13	150	120		0,13	120		0,13	120	
P.3.1	0,10	160	120		0,12	160	120		0,12	120		0,12	120	
P.3.2	0,08	140	100		0,10	140	100		0,10	100		0,10	100	
P.3.3	0,07	130	90		0,09	130	90		0,09	90		0,09	90	
P.4.1	0,11	180	130		0,14	180	130		0,14	130		0,14	130	
P.4.2	0,08	140	100		0,10	140	100		0,10	100		0,10	100	
M.1.1	0,12	160		70	0,12	160		70	0,12		70	0,12		70
M.2.1	0,10	120		70	0,10	120		70	0,10		70	0,10		70
M.3.1	0,08	110		60	0,08	110		60	0,08		60	0,08		60
K.1.1	0,16	200		100	0,16	200		100	0,16		100	0,16		100
K.1.2	0,14	160		100	0,14	160		100	0,14		100	0,14		100
K.2.1	0,14	160		100	0,14	160		100	0,14		100	0,14		100
K.2.2	0,12	100		80	0,12	100		80	0,12		80	0,12		80
K.3.1	0,14	120		100	0,14	120		100	0,14		100	0,14		100
K.3.2	0,12	100		80	0,12	100		80	0,12		80	0,12		80
N.1.1	0,10	350	350		0,10	350	350		0,10	350		0,10	350	
N.1.2	0,10	350	350		0,10	350	350		0,10	350		0,10	350	
N.2.1	0,16	250	250		0,16	250	250		0,16	250		0,16	250	
N.2.2	0,16	250	250		0,16	250	250		0,16	250		0,16	250	
N.2.3	0,15	230	230		0,15	230	230		0,15	230		0,15	230	
N.3.1	0,18	200	200		0,18	200	200		0,18	200		0,18	200	
N.3.2	0,20	220	220		0,20	220	220		0,20	220		0,20	220	
N.3.3	0,14	250	250		0,14	250	250		0,14	250		0,14	250	
N.4.1	0,18	200	200		0,18	200	200		0,18	200		0,18	200	
S.1.1	0,05	50		25	0,05	50		25	0,05		25	0,05		25
S.1.2	0,04	40		20	0,04	40		20	0,04		20	0,04		20
S.2.1	0,05	50		25	0,05	50		25	0,05		25	0,05		25
S.2.2	0,04	40		20	0,04	40		20	0,04		20	0,04		20
S.2.3	0,04	30		20	0,04	30		20	0,04		20	0,04		20
S.3.1	0,07	80		50	0,07	80		50	0,07		50	0,07		50
S.3.2	0,06	80		40	0,06	80		40	0,06		40	0,06		40
S.3.3	0,04	50		30	0,04	50		30	0,04		30	0,04		30
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1	0,10	100	100		0,10	100	100		0,10	100		0,10	100	
O.1.2	0,10	100	100		0,10	100	100		0,10	100		0,10	100	
O.2.1														
O.2.2	0,10	50	30		0,10	50	30		0,10	30		0,10	30	
O.3.1	0,10	100	100		0,10	100	100		0,10	100		0,10	100	

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

Cutting data standard values for MaxiDrill 900 – 2xD

Index	10 830 ...		10 852 ...									
	SONT		C									
	CTCP420	CTPP430	Ø 12–15,5	Ø 16–17,5	Ø 18–20,5	Ø 21–23,5	Ø 24–27,5	Ø 28–32	Ø 32,5–36,5	Ø 37–41	Ø 41,5–46	Ø 46,5–63
	v_c (m/min)		f (mm/rev)									
P.1.1	300	215	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.2	260	190	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.3	230	165	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.4	220	160	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.5	200	150	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.1	270	200	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.2	215	160	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.3	200	140	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.4	160	110	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.1	200	140	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.2	160	100	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.3	120	70	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.1	200	140	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.2	180	120	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
M.1.1		140	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.2.1		100	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.3.1		130	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
K.1.1	250	140	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.1.2	230	130	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.1	230	140	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.2	210	140	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.1	190	100	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.2	170	100	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
N.1.1		300	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.1.2		315	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.1		270	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.2		140	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.3		180	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.1		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.2		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.3		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.4.1		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
S.1.1		65	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.1.2		50	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.1		45	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.2		40	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.3		40	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.1		65	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.2		50	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.3		40	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

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

Cutting data standard values for MaxiDrill 900 – 3xD

Index	10 853 ...									
	C									
	Ø 12–15,5	Ø 16–17,5	Ø 18–20,5	Ø 21–23,5	Ø 24–27,5	Ø 28–32	Ø 32,5–36,5	Ø 37–41	Ø 41,5–46	Ø 46,5–63
	f (mm/rev)									
P.1.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.5	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
M.1.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.2.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.3.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
K.1.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.1.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
N.1.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.4.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
S.1.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.1.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

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

Cutting data standard values for MaxiDrill 900 – 4xD

Index	10 854 ...									
	C									
	Ø 12–15,5	Ø 16–17,5	Ø 18–20,5	Ø 21–23,5	Ø 24–27,5	Ø 28–32	Ø 32,5–36,5	Ø 37–41	Ø 41,5–46	Ø 46,5–54
	f (mm/rev)									
P.1.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.5	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
M.1.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.2.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.3.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
K.1.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.1.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
N.1.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.4.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
S.1.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.1.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

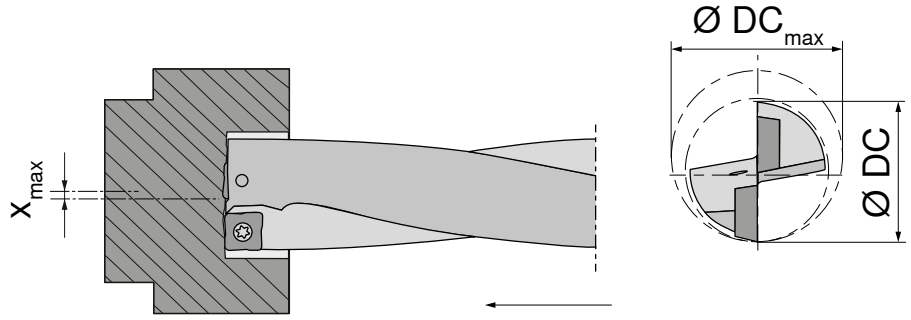
During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed.
A safety guard has to be provided as protection.

Cutting data standard values for MaxiDrill 900 – 5xD

Index	10 855 ...							
	C							
	Ø 12–15,5	Ø 16–17,5	Ø 18–20	Ø 21–23	Ø 24–27	Ø 28–32	Ø 33–36	Ø 37–41
	f (mm/rev)							
P.1.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.5	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.3.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.3.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.3.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.4.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.4.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
M.1.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15
M.2.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15
M.3.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15
K.1.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.1.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.2.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.2.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.3.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.3.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
N.1.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.2.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.2.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.2.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.3.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.3.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.3.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.4.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
S.1.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.1.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.2.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.2.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.2.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.3.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.3.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.3.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

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

Maximum adjustment range (X) during solid drilling / from the centre for stationary applications – KUB Pentron



At max. offset X_{max} the hole will be:
$D_{max} = D + 2X_{max}$
e.g. for D = 20 mm, X_{max} = 0.25 mm:
$D_{max} = D + 0.5 = 20.5$ mm

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
14,0	SOGX 04....	0,25	14,5
14,5		0,25	15,0
15,0		0,25	15,5
15,5		0,25	16,0
16,0		0,25	16,5
16,5	SOGX 05....	0,25	17,0
17,0		0,25	17,5
17,5		0,25	18,0
18,0		0,25	18,5
18,5	SOGX 06....	0,25	19,0
19,0		0,25	19,5
19,5		0,25	20,0
20,0		0,25	20,5
20,5	SOGX 07....	0,25	21,0
21,0		0,25	21,5
21,5		0,25	22,0
22,0		0,25	22,5
22,5		0,25	23,0
23,0		0,25	23,5
23,5	SOGX 08....	0,25	24,0
24,0		0,25	24,5
24,5		0,25	25,0
25,0		0,25	25,5
25,5		0,25	26,0
26,0		0,25	26,5
26,5	SOGX 09....	0,25	27,0
27,0		0,25	27,5
27,5		0,25	28,0
28,0		0,25	28,5
28,5		0,25	29,0
29,0		0,25	29,5
29,5		0,25	30,0
30,0		0,25	30,5
31,0	SOGX 10....	0,25	31,5
32,0		0,25	32,5
33,0		0,25	33,5
34,0	SOGX 11....	0,25	34,5
35,0		0,25	35,5
36,0		0,25	36,5
37,0		0,25	37,5
38,0	SOGX 12....	0,25	38,5
39,0		0,25	39,5
40,0		0,25	40,5
41,0		0,25	41,5
42,0		0,25	42,5
43,0	SOGX 13....	0,25	43,5
44,0		0,25	44,5
45,0		0,25	45,5
46,0		0,25	46,5
47,0	SOGX 08....	0,25	47,5
48,0		0,25	48,5
49,0		0,25	49,5
50,0		0,25	50,5
51,0		0,25	51,5
52,0		0,25	52,5

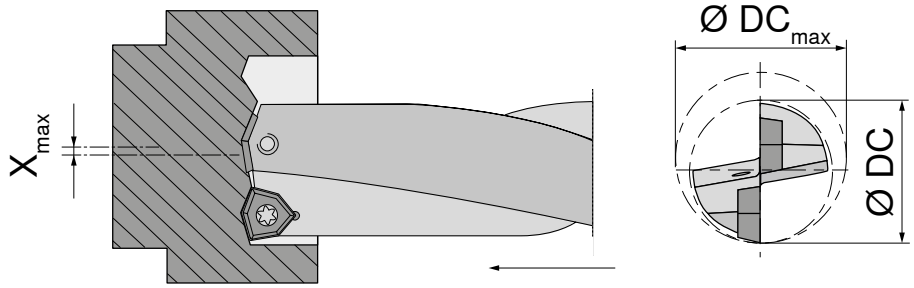
Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
53,0	SOGX 10....	0,25	53,5
54,0		0,25	54,5
55,0		0,25	55,5
56,0		0,25	56,5
57,0		0,25	57,5
58,0		0,25	58,5
59,0		0,25	59,5
60,0		0,25	60,5
61,0		0,25	61,5
62,0		0,25	62,5
63,0		0,25	63,5
64,0		0,25	64,5
65,0		0,25	65,5

KUB Pentron CS

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
64,0	SOGX 10....	0,25	64,5
65,0		0,25	65,5
66,0		0,25	66,5
67,0		0,25	67,5
68,0		0,25	68,5
69,0		0,25	69,5
70,0	SOGX 11....	0,25	70,5
71,0		0,25	71,5
72,0		0,25	72,5
73,0		0,25	73,5
74,0		0,25	74,5
75,0		0,25	75,5
76,0	SOGX 12....	0,25	76,5
77,0		0,25	77,5
78,0		0,25	78,5
79,0		0,25	79,5
80,0		0,25	80,5
81,0		0,25	81,5
82,0		0,25	82,5
83,0		0,25	83,5
84,0		0,25	84,5
85,0	SOGX 13....	0,25	85,5
86,0		0,25	86,5
87,0		0,25	87,5
88,0		0,25	88,5
89,0		0,25	89,5
90,0		0,25	90,5
91,0		0,25	91,5
92,0		0,25	92,5
93,0		0,25	93,5
94,0		0,25	94,5
95,0		0,25	95,5
96,0		0,25	96,5

The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

Maximum adjustment range (X) during solid drilling / from the centre for stationary applications – KUB Trigon



At max. offset X_{max} the hole will be:
$D_{max} = D + 2X_{max}$
e.g. for D = 20 mm, X_{max} = 0.5 mm:
$D_{max} = D + 1.0 = 21.0$ mm

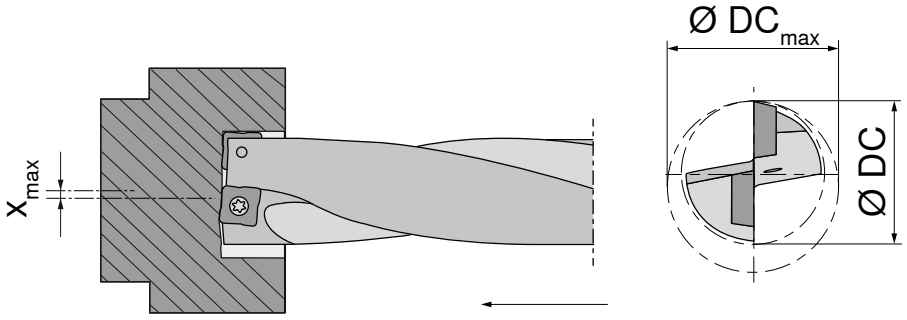
KUB Trigon

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
14,0	WOEX 03....	0,5	15,0
15,0		0,5	16,0
16,0		0,5	17,0
17,0		0,5	18,0
18,0		0,5	19,0
19,0		0,5	20,0
20,0	WOEX 04....	0,5	21,0
21,0		0,5	22,0
22,0		0,5	23,0
23,0		0,5	24,0
24,0		0,5	25,0
25,0	WOEX 05....	0,5	26,0
26,0		1,0	28,0
27,0		1,5	30,0
28,0		1,5	31,0
29,0		1,5	32,0
30,0		1,25	32,5
31,0		1,25	33,5
32,0		1,0	34,0
33,0		0,5	34,0
34,0		0,5	35,0
35,0		0,5	36,0
36,0		0,5	37,0
37,0	WOEX 06....	1,5	40,0
38,0		1,5	41,0
39,0		1,5	42,0
40,0		1,5	43,0
41,0		1,5	44,0
42,0		1,5	45,0
43,0		1,0	45,0
44,0		0,5	45,0

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
45,0	WOEX 08....	1,5	48,0
46,0		1,5	49,0
47,0		1,5	50,0
48,0		1,5	51,0
49,0		1,5	52,0
50,0		1,5	53,0
51,0		1,5	54,0
52,0		1,5	55,0
53,0		1,0	55,0
54,0		0,5	55,0
55,0	WOEX 10....	1,5	58,0
56,0		1,5	59,0
57,0		1,5	60,0
58,0		1,5	61,0
59,0		1,5	62,0
60,0		1,5	63,0
61,0		1,5	64,0
62,0		1,5	65,0
63,0		1,5	66,0
64,0		1,5	67,0
65,0		1,5	68,0
66,0		1,5	69,0
67,0		1,25	69,5
68,0		1,0	70,0
69,0	WOEX 12....	1,5	72,0
70,0		1,5	73,0
71,0		1,5	74,0
72,0		1,5	75,0
73,0		1,5	76,0
74,0		1,5	77,0
75,0		1,5	78,0
76,0		1,5	79,0
77,0		1,5	80,0
78,0		1,5	81,0
79,0		1,5	82,0
80,0		1,0	82,0
81,0		0,75	82,5
82,0		0,5	83,0

The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

Maximum off set (X) for drilling into full material / with stationary applications – MaxiDrill 900



At max. offset X_{max} the hole will be:
$D_{max} = D + 2X_{max}$
e.g. for D = 20 mm, X_{max} = 0.20 mm:
$D_{max} = D + 0.4 = 20.4$ mm

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
12,0	SONT 03....	0,50	13,0
12,5		0,40	13,3
13,0		0,35	13,7
13,5		0,30	14,1
14,0	SONT 04....	0,35	14,7
14,5		0,25	15,0
15,0		0,20	15,4
15,5		0,15	15,8
16,0	SONT 05....	0,40	16,8
16,5		0,35	17,2
17,0		0,30	17,6
17,5		0,25	18,0
18,0	SONT 06....	0,50	19,0
18,5		0,40	19,3
19,0		0,35	19,7
19,5		0,25	20,0
20,0		0,20	20,4
20,5		0,15	20,8
21,0	SONT 07....	0,35	21,7
21,5		0,30	22,1
22,0		0,25	22,5
22,5		0,15	22,8
23,0		0,15	23,3
23,5		0,10	23,7
24,0	SONT 08....	0,65	25,3
24,5		0,55	25,6
25,0		0,55	26,1
25,5		0,40	26,3
26,0		0,35	26,7
26,5		0,30	27,1
27,0		0,25	27,5
27,5		0,15	27,8
28,0	SONT 09....	0,90	29,8
28,5		0,80	30,1
29,0		0,75	30,5
29,5		0,70	30,9
30,0		0,60	31,2
30,5		0,55	31,6
31,0		0,45	31,9
31,5		0,40	32,3
32,0		0,30	32,6

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
32,5	SONT 10....	0,80	34,1
33,0		0,80	34,6
33,5		0,65	34,8
34,0		0,60	35,2
34,5		0,50	35,5
35,0		0,45	35,9
35,5		0,35	36,2
36,0		0,35	36,7
36,5		0,20	36,9
37,0	SONT 12....	1,00	39,0
38,0		0,85	39,7
39,0		0,70	40,4
40,0		0,50	41,0
41,0		0,35	41,7
42,0	SONT 13....	0,95	43,9
43,0		0,80	44,6
44,0		0,60	45,2
45,0		0,45	45,9
46,0		0,30	46,6
47,0	SONT 15....	1,80	50,6
48,0		1,65	51,3
49,0		1,50	52,0
50,0		1,35	52,7
51,0		1,15	53,3
52,0		0,95	53,9
53,0		0,80	54,6
54,0		0,60	55,2
55,0	SONT 17....	2,10	59,2
56,0		1,90	59,8
57,0		1,75	60,5
58,0		1,55	61,1
59,0		1,35	61,7
60,0		1,15	62,3
61,0		1,00	63,0
62,0		0,85	63,7
63,0		0,65	64,3

The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

Technical data for turning – MaxiDrill 900

Insert size	$a_{p\,max.}$ in mm	f in mm/rev.
SONT 03	0,40–1,50	0,08–0,22
SONT 04	0,40–1,80	0,09–0,27
SONT 05	0,60–2,40	0,10–0,30
SONT 06	0,60–2,80	0,11–0,34
SONT 07	0,60–3,40	0,13–0,38
SONT 08	0,70–4,20	0,15–0,41

Insert size	$a_{p\,max.}$ in mm	f in mm/rev.
SONT 09	0,70–4,50	0,16–0,42
SONT 10	0,70–4,80	0,17–0,44
SONT 12	0,90–5,50	0,18–0,45
SONT 13	1,00–6,00	0,20–0,45
SONT 15	1,20–6,40	0,21–0,46
SONT 17	1,20–6,70	0,21–0,47

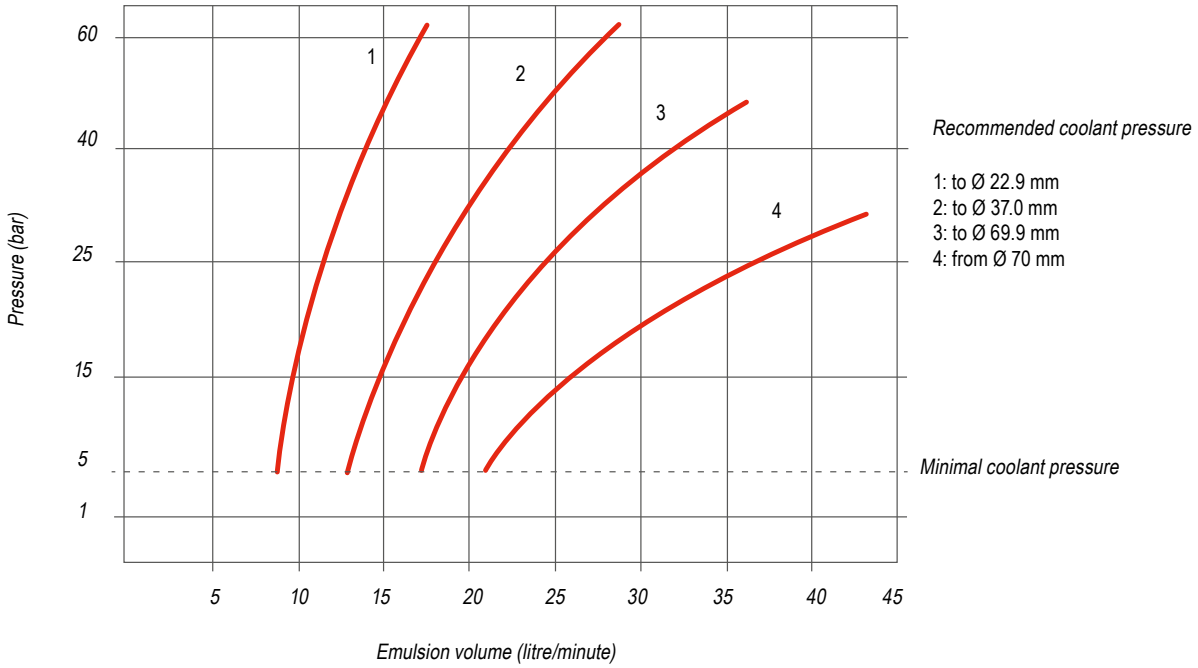
Coding example indexable insert drilling

System		Length		Bore diameter		Direction of rotation		Insert size		Machine connection and size
KUB-P	.	3D	.	215	.	R	.	07	–	ABS 50
KUB-P	.	3D	.	290	.	R	.	04	–	PSC 63
KUB-P.GH-CS	.	3D	.	76-78	.	R			–	ABS 80
MD-900	.	4D	.	240	.	R	.	08	–	C 32
KUB-T	.	2D	.	350	.	R	.	05	–	K 32
KUB-T	.	2D	.	350	.	L	.	05	–	ABS 50
KUB-C.GH	.	4D	.	320	.	R			–	ABS 50

KUB-P = KUB Pentron	215 = 21,5 mm	R = right	ABS50 = ABS adapter size 50
	290 = 29,0 mm	R = right	PSC63 = Polygon shank taper size 63
KUB-P.GH-CS = KUB Pentron CS	76-78 = 76-78 mm	R = right	ABS80 = ABS adapter size 80
MD-900 = MaxiDrill 900	240 = 24,0 mm	R = right	C32 = Cylindrical shank Ø 32.0 mm
KUB-T = KUB Trigon	350 = 35,0 mm	R = right	K32 = Cylindrical shank with combi clamping flat Ø 32.0 mm
		L = Left-hand	ABS50 = ABS adapter size 50
KUB-C.GH = KUB Centron	320 = KLG 32	R = right	ABS50 = ABS adapter size 50

The KOMET number key for KOMET Performance indexable inserts (W80 ... / W29 ...) can be found in **Chapter 5 – Spindle tools on page 75**.

Recommended coolant pressure and coolant flow

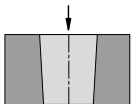


Indexable insert drilling – problems / possible causes / solutions

Rotating and stationary application

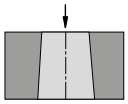
Short service life / types of wear of indexable inserts

- ▲ Cutting speed too high → select the correct cutting speed
- ▲ Insert grade selection has too little wear resistance → select a wear resistant grade
- ▲ Tool overhang too large → if possible, use a shorter tool
- ▲ Damaged insert seat → check tool, replace if necessary
- ▲ Clamping device stability too low → increase stability



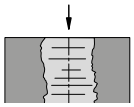
Hole tapers in

- ▲ Chip jam on the outer cutting edge → use a different chip breakage geometry, increase the feed if necessary
- ▲ Material very soft → increase the cutting speed, reduce the feed.
  Use a positive cutting edge geometry



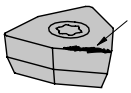
Hole tapers out

- ▲ Chip jam on the inner cutting edge → use a different chip breakage geometry, increase the feed if necessary



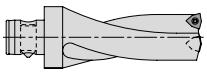
Poor surface quality

- ▲ Poor chip evacuation → optimise the cutting parameters: Increase the cutting speed, reduce the feed



Built-up edge

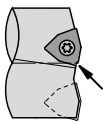
- ▲ Cutting speed too low → increase cutting speed
- ▲ Indexable insert too negative → use positive geometry
- ▲ Unsuitable coating → select the correct coating



Friction marks on the tool shank

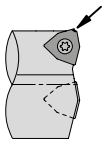
- ▲ Bore diameter too small → check the setting
- ▲ Chip evacuation problems → optimise the cutting parameters, check the geometry of the indexable insert
- ▲ Cutting radius too high → use the correct cutting radius

Stationary application



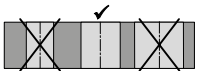
Edge breakage on the inner cutting edge

- ▲ Centre height of the tool too high/too low → adjust tool turret/adapter if necessary → Recalibrate the machine
- ▲ Indexable insert grades interchanged → use correct indexable insert
- ▲ Feed too high → reduce feed
- ▲ Indexable insert grade too brittle → use a tougher indexable insert grade
- ▲ Incorrect indexable insert geometry → if necessary use a geometry with a chamfered cutting edge



Edge breakage on the outer cutting edge

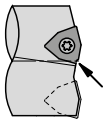
- ▲ Feed too high → reduce feed
- ▲ Interrupted cut → switch to a tougher grade of indexable insert
- ▲ Cutting radius too small → use an indexable insert with a larger cutting radius



Hole too small / too large

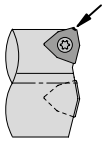
- ▲ Machine is not in the X-0 position → move axis to correct position
- ▲ Machine axis has been moved → recalibrate the machine

Rotating application



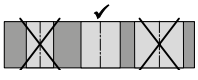
Edge breakage on the inner cutting edge

- ▲ Indexable insert grades interchanged → use correct indexable insert
- ▲ Feed too high → reduce feed
- ▲ Indexable insert grade too brittle → use a tougher indexable insert grade
- ▲ Incorrect indexable insert geometry → if necessary use a geometry with a chamfered cutting edge



Edge breakage on the outer cutting edge

- ▲ Feed too high → reduce feed
- ▲ Interrupted cut → switch to a tougher grade of indexable insert
- ▲ Cutting radius too small → use an indexable insert with a larger cutting radius

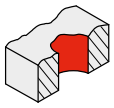


Hole too small / too large when using adjustable tools

- ▲ Incorrect cutting radius used → use the correct cutting radius
- ▲ Incorrect setting → use the correct tool setting
- ▲ Increase cutting fluid supply

KUB Centron – notes on drilling technology

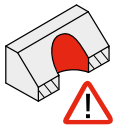
1.



Spot drilling on uneven surfaces (casting surfaces)

- ▲ Generally possible
- ▲ Reduce feed when spot drilling

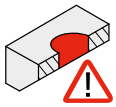
2.



Spot drilling on angled surfaces

- ▲ The spot drilling location must be spot faced in advance
- ▲ Avoid chips jamming on the drill shank

3.



Angled drill exit

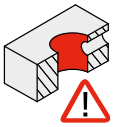
- ▲ Possible under certain conditions
- ▲ If necessary, reduce feed
- ▲ Drilling angle max. 3°

4.

Spot drilling on convex surfaces

- ▲ Central spot drilling possible with reduced feed
- ▲ If the spot drilling location is outside the centre of the radius, spot facing is required

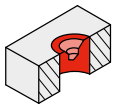
5.



Drilling through a transverse hole

- ▲ Halve the feed for interrupted cut
- ▲ Transverse hole max. 1/3 of the bore diameter
- ▲ Eccentric transverse hole not possible

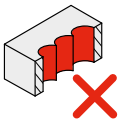
6.



Spot drilling in a pre-op or large centring hole

- ▲ Possible under certain conditions
- ▲ If necessary, reduce feed
- ▲ In the case of a large centre, face turning is required in advance
- ▲ If necessary, optimise the basic setting of the centring tip

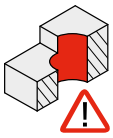
7.



Drilling a cavity

- ▲ Not possible

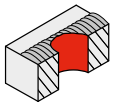
8.



Spot drilling on an edge

- ▲ Not possible with 4xD tools
- ▲ Preparation required due to undefined spot drilling location (spot facing, face milling)
- ▲ Then continue as described under Point 1

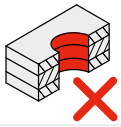
9.



Spot drilling on a forging/welding/casting seam

- ▲ Reduce feed when spot drilling
- ▲ If necessary, carry out facing in advance

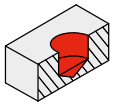
10.



Drilling through stacks

- ▲ Not possible

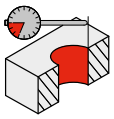
11.



Blind hole

- ▲ Possible
- ▲ Set guide rails 0.5 mm below actual Ø

12.



Adjustable

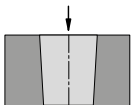
- ▲ Adjustable from a diameter of 65 mm

KUB Centron – problems / possible causes / solutions

Rotating and stationary application

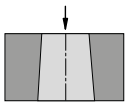
Short service life / types of wear of indexable inserts

- ▲ Cutting speed too high → select the correct cutting speed
- ▲ Grade has too little wear resistance → select a wear-resistant grade
- ▲ Tool overhang too large → if possible, use a shorter tool
- ▲ Damaged insert seat → check tool, replace if necessary
- ▲ Clamping device stability too low → increase stability



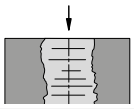
Hole tapers in

- ▲ Chip jam on the outer cutting edge → use a different chip breakage geometry, increase the feed if necessary
- ▲ Material very soft → increase the cutting speed, reduce the feed
- ▲ Use positive cutting edge geometry
- ▲ Axial adjustment of the centring tip not optimal → adjust according to the setting sheet in the operating instructions



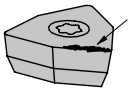
Hole tapers out

- ▲ Chip jam on the inner cutting edge → use a different chip breakage geometry, increase the feed if necessary



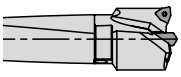
Poor surface quality

- ▲ Poor chip evacuation → optimise the cutting parameters: Increase the cutting speed, reduce the feed



Built-up edge

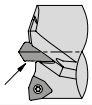
- ▲ Cutting speed too low → increase cutting speed
- ▲ Indexable insert too negative → use positive geometry
- ▲ Unsuitable coating → select the correct coating



Friction marks on the tool shank

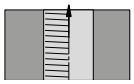
- ▲ Bore diameter too small → check the setting
- ▲ Chip evacuation problems → optimise the cutting parameters, check the geometry of the indexable insert
- ▲ Cutting radius too large → use the correct cutting radius
- ▲ Chips stuck on the supporting element, broken supporting elements, the supporting element does not have to be used for base elements of < 6xD

Stationary application



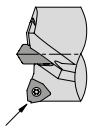
Significant wear on one side of the centring tip

- ▲ Tool not centred → tool turret/adapter may have moved → recalibrate the machine



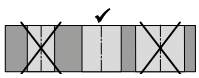
Single-sided retraction scoring

- ▲ Tool not centred → tool turret/adapter may have moved → recalibrate the machine



Edge breakage on the outer cutting edge

- ▲ Feed too high → reduce feed
- ▲ Interrupted cut → switch to a tougher grade of indexable insert
- ▲ Cutting radius too small → use an indexable insert with a larger cutting radius



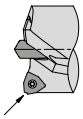
Hole too small / too large

- ▲ Machine is not in the X-0 position → move axis to correct position
- ▲ Machine axis has been moved → recalibrate the machine

Rotating application

Significant wear on one side of the centring tip

- ▲ Guidance insufficient → check length adjustment of the centring tip



Edge breakage on the outer cutting edge

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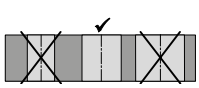


Hole too small / too large

- ▲ Incorrect cutting radius used → use the correct cutting radius
- ▲ Incorrect setting → use the correct tool setting

Chip breakers

		KOMET \ Performance		KOMET \ Standard
		WOEX	SOGX	SONT
-01	▲ Universal geometry with stable cutting edge, suitable for a wide range of materials ▲ Can be used for centre and periphery (BK6115 -01: Recommended for periphery only)			
-03	▲ Geometry for chip breakage problems with excellent chip control even at low feeds ▲ WOEX BK8425 -03: Can be used for periphery only ▲ SOGX BK8430 -03: Suitable for centre and periphery ▲ Main application in long-chipping materials as well as low alloy and stainless steels			
-11	▲ Highly positive, minimally rounded chip breaker ▲ For soft-cutting usage ▲ Main application in aluminium or heat-resistant materials			
-13	▲ Positive geometry, the dome-shaped chip breaker results in more controlled breaking of the chips ▲ Can be used for centre and periphery ▲ Also suitable for unstable machining conditions due to low cutting forces and power consumption ▲ Can be used with a wide range of materials			
-21	▲ Highly positive, soft-cutting geometry ▲ Can be used for centre and periphery ▲ BK7935: Can be used for periphery only ▲ Lower cutting forces and reduced power consumption ▲ Main application (depending on grade) in non-ferrous metals, steels and stainless steels, extended application range also for titanium alloys			
-32	▲ Minimised burr formation on entry and exit of hole ▲ Reliable separation of disc-shaped residual material when the drill exits the hole ▲ Suitable for a wide range of materials			
-34	▲ High-feed geometry ▲ Extremely sturdy indexable insert ▲ Requires higher drive power and stable setup ▲ Designed specially for steel and cast iron materials			
-M30	▲ Universal geometry ▲ Stable indexable insert, also suitable for high feeds ▲ CTPP430: Can be used for centre and periphery ▲ CTCP420: Only suitable for periphery			

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

Grades Overview

CTPP430

DRAGONSKIN

- Carbide, TiAlN-coated
- ISO | **P30** | **M25** | S25 | K30 | N25
- The universal high-performance grade for steel, austenitic steel and heat-resistant alloys.

CTCP420

DRAGONSKIN

- Carbide, TiCN-Al_2O_3-coated
- ISO | **P20** | **K20**
- The wear-resistant solution for steel and cast iron materials at high cutting speeds.

BK7710

- Carbide, TiB_2-coated
- ISO | **N10** | S10 | O10
- The wear-resistant grade with optimum cutting characteristics to prevent built-up edge formation for machining aluminium and titanium alloys.

BK7615

- Carbide, TiCN-Al_2O_3-coated
- ISO | **K15**
- Highly productive grade with extreme edge stability for wet and dry machining of all cast iron materials

BK62

- Carbide, TiN-TiCN-Al_2O_3-coated
- ISO | **K15** | H15
- Special carbide grade for machining cast iron materials at high cutting speeds. Not suitable for machining aluminium materials.

BK79

- Carbide, TiAlN-coated
- ISO | **P40** | **M35** | **K25** | N30
- Universally applicable grade with high wear-resistance
- low to medium cutting speed for roughing and finishing as well as interrupted cut

BK8425

- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25** | **K25** | N25 | **S25** | H25
- Universally applicable grade with increased wear resistance thanks to the innovative PVD coating in a multilayer design.

BK8430

- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25** | **K25** | N25 | **S25** | H25
- Fine-grain grade with high wear resistance
- Extreme edge stability and maximum wear resistance in the middle and top speed range

BK6115

- Carbide, TiCN-TiN-Al_2O_3-coated
- ISO | **P20** | **M20** | **K20** | H20
- High-quality, surface-treated coating for machining cast iron materials under normal to stable conditions and high cutting speeds.

BK7935

- Carbide, AlTiN-coated
- ISO | **P35** | **M30** | **K30** | N30 | **S30** | O30
- The tough carbide grade for machining stainless steel and acid-resistant steels as well as special alloys.

BK77

- Carbide, TiN-coated
- ISO | **S10** | H10 | O10
- The wear-resistant carbide grade for machining aluminum alloys, superalloys and plastics at medium cutting speeds.

Application

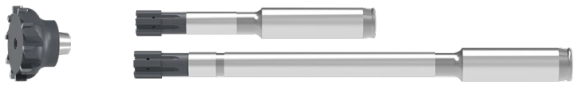
Grade designation	Standard designation	ISO application range	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O
BK6115	HC-P20	01 05 10 15 20 25 30 35 40 45 50	●						
	HC-M20			●					
	HC-K20				●				
	HC-H20							○	
BK8425	HC-P25		●						
	HC-M25			●					
	HC-K25				●				
	HC-N25					○			
	HC-S25						●		
	HC-H25							○	
BK8430	HC-P30		●						
	HC-M25			●					
	HC-K25				●				
	HC-N25					○			
	HC-S25						●		
	HC-H25							○	
BK7935	HC-P35		●						
	HC-M30			●					
	HC-S30						●		
	HC-K30				●				
	HC-N30					○			
	HC-O30								○
BK7710	HC-N10					●			
	HC-S10						○		
	HC-O10								○
CTCP420 DRAGONSKIN	HC-P20		●						
	HC-K20				●				
CTPP430 DRAGONSKIN	HC-P30		●						
	HC-M25			●					
	HC-S25						○		
	HC-N25					○			
	HC-K30				○				
BK7615	HC-K15				●				
BK62	HC-K15				●				
	HC-H15							○	
BK77	HC-S10						●		
	HC-H10							○	
	HC-O10								○
BK79	HC-P40		●						
	HC-M35			●					
	HC-K25				●				
	HC-N30					○			

● **Main Application**
○ Extended application

wear-resistant v_c+ ◯ ◌ v_c– tough

New products for machining technicians

NEW Expansion of REAMAX TS / Monomax



- Expansion of the REAMAX TS and Monomax range with a Monomax version in two lengths (3xD and 5xD) and a REAMAX TS reaming head variant
- With coated carbide blanks – ideal for interrupted cuts: DBG-P ASG 3000
- Specially designed for through hole machining of cast iron and steel materials

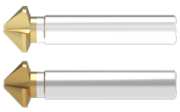
Expansion REAMAX TS → Page 10
Expansion Monomax short → Page 22
Expansion Monomax long → Page 25

NEW Machine reamers sim. DIN 8093-A / -B

- Extremely irregular pitch
- Universal solid carbide reamer without thro' coolant

→ Page 48

NEW 90° Countersink with irregular pitch, DIN 335-C



- All sizes with 3 cutting edges and extremely irregular pitch, resulting in quiet running, excellent roundness and chatter-free countersinking giving the highest surface quality
- TiN coating and special HPC-TiN coating
- For a very long service life in almost all materials
- Greatly reduced axial and radial forces
- For DIN ISO 7721 and DIN 7991 countersunk head screws

Solid carbide version → Page 63
HSS version → Page 65

NEW Indexable insert countersink for counterbores

- Universal application and maximum service life thanks to use of tried-and-tested WOEX indexable inserts (grade: BK8425 / K10; chip breaker -01)
- For creating countersinks according to DIN 974
- With thro' coolant supply

→ Page 57+58

Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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KOMET \ Performance

Premium quality tools for high performance.

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

KOMET \ Standard

Quality tools for standard applications.

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

Symbol explanation

Coolant supply version

central internal coolant

lateral internal coolant

Shank

Plain cylindrical shank

Morse taper

Cylindrical shank with lateral driving face „Weldon“

Applications

Through hole

Blind hole

Through hole with transverse hole/ interrupted cut

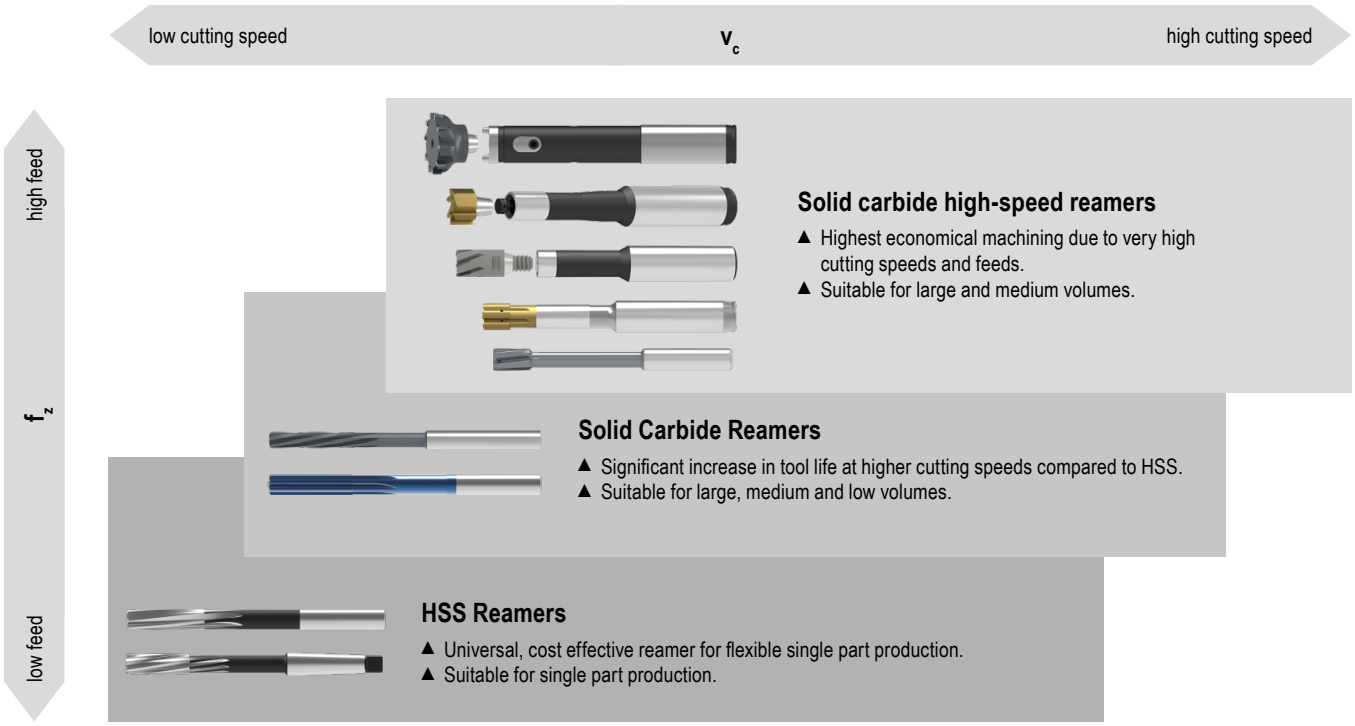
Blind hole with transverse hole/interrupted cut

ZEFP = Number of flutes

● = Main Application

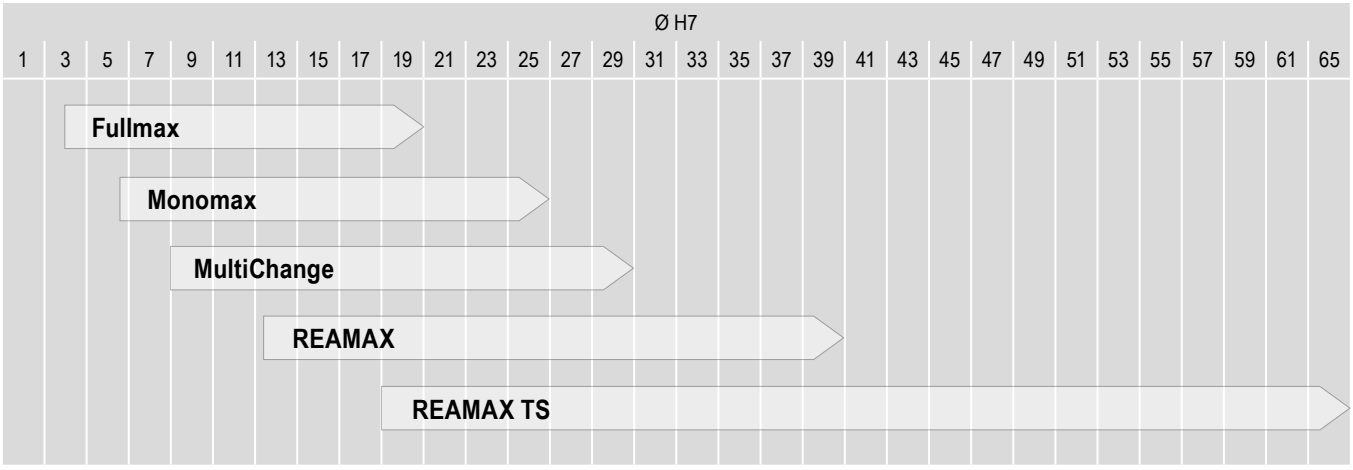
○ = Extended application

Selection guide – reamers



4

Overview of solid carbide high-speed reamers



	mono	modular
fixed	Fullmax	MultiChange, REAMAX
adjustable	Monomax	REAMAX TS

Toolfinder – Reamers

Solid carbide – high speed reamers	REAMAX TS			▲ highly flexible and economical replaceable head system ▲ all common materials ▲ can be adjusted in µm range
				▲ holder available in 3xD and 5xD ▲ holder type DAH Zero available in 3xD and 5xD
	REAMAX			▲ Exchangeable head system, optimised for use with minimum quantity lubrication (MQL) ▲ Maximum changeover precision guaranteed thanks to face and taper contact
				▲ holder available in 3xD and 5xD
	MultiChange			▲ Flexible quick change system for reaming, countersinking and milling ▲ A high level of changeover precision guaranteed thanks to face and taper contact
				▲ stable holder in solid carbide and steel, from short to long
	Monomax			▲ adjustable monoblock reamer in 3xD and 5xD ▲ regrinding and re-tipping on the base body ▲ all common materials
	Fullmax			▲ High-speed reamer in shorter and longer version ▲ Reamers for machining steel, stainless and acid-resistant steels, cast materials, aluminium and hardened materials up to 63 HRC ▲ Extremely irregular pitch ▲ Standard shank ~ DIN 6535 HA
Solid carbide – Reamers	NC	NC 100		▲ universal solid carbide reamer without thro' coolant ▲ extremely irregular pitch ▲ DIN 6535 HA shank
	NC	NC 100H		▲ Solid carbide reamer without thro' coolant suitable for use in hardened materials ▲ Standard shank ~ DIN 6535 HA
	N			▲ universal solid carbide reamer without thro' coolant ▲ extremely irregular pitch
HSS – Reamers	NC	NC 100		▲ HSS-E NC machine reamer ▲ DIN 1835 A shank
	N	N 100		▲ HSS-E machine reamer
	AR	AR 100		▲ HSS-E automatic machine reamer DIN 8089
	N			▲ HSS-e machine reamer DIN 208 ▲ with Morse taper
	H			▲ HSS hand reamer with cylindrical shank DIN 206

	Hole diameter (mm) Ø DC	Standard Tolerance	Through hole	Blind hole	Int. coolant supply	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metals	S Heat-resistant	H Tempered steel	O Non-metal materials	KOMET \ Performance	KOMET \ Standard
	18,00–65,00	H7 1/100			✓	●	●	●	●			○	9–11	
					✓								12+13	
	12,50–40,00	H7 1/100			✓	●	●	●	●		●	○	14+15	
					✓								16	
	8,00–30,20	H7 1/100			✓	●	●	●	●				17–19	
					✓								→ Catalogue – Clamping technology, Chapter 16 Accessories	
short version	5,60–25,89	H7 1/100			✓	●	●	●	●			○	20–23	
long version	5,60–25,89	H7 1/100			✓	●	●	●	●			○	24–26	
short version	4,00–16,00 2,96–20,05	H7 1/100			✓	●	●	●	○	○	○		27–32	
long version	4,00–16,00 2,96–20,05	H7 1/100			✓	●	●	●	●	○	●	○	33–42	
	2,00–30,00 0,59–12,05	H7 1/100				●	○	●	●	○	○	●	43–45	
	0,98–12,05	H7				○	○	○			●		46+47	
	2,00–12,00	H7				●		○	●					48
	1,50–20,00 0,95–12,00	H7 1/100				●		●	●			●	49+50	
	1,00–20,00 0,95–12,00	H7 1/100				●	○	●	●	○		●		51–53
	4,00–20,00 3,76–12,00	H7 1/100				●	○	●	●	○		●		54+55
	16,00–50,00	H7				●	○	●	●	○		●		56
	3,00–30,00	H7				●	○	●	●	○		●		56

4

Countersinks Overview

	Tool type	Coating	Hole diameter (mm) Ø DC	Countersinking angle SIG	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	KOMET \ Performance	KOMET \ Standard
Indexable Insert Counterbore Tool													
	WPS		10–48	180°	●	●	●	●	●	○	●	57+58	
Insert countersink 60°/90°													
	WPS		16,5–25,5 19,0–37,0	60° 90°	●	●	●	●	●	○	●	59–61	
HSS – Counterbores													
			6,0–20,0	180°	●	●	●	●	○		●		62
Solid Carbide Countersinks													
	N	HPC-TiN	6,3–31,0	90°	●	○	●	●	○	○	○	63	
	N		12,5–25,0	60°	●	○	●	●	○	○			64
	N		10,4–31,0	90°	●	○	●	●	○	○			64
HSS Countersinks													
	N	TiN	4,3–31,0	90°	●	○	●	●	○	○	○	65	
	N		4,3–31,0	90°	●	○	●	●	○		●		66
	N	TiN	5,0–31,0	90°	●	○	●	●	○	○	●		66
	N	TiAlN	5,0–31,0	90°	●	○	●	●	○	○	●		66
	VA	TiAlN	6,3–31,0	90°	○	●	○	○	○	○	●		66
	AL		6,3–31,0	90°	○	○	○	●	○		●		66
			6,3–25,0	60°	●	○	●	●	○		●		67
	N		30,0–80,0	90°	●	○	●	●	○		●		67
			6,3–25,0	120°	●	○	●	●	○		●		68
Deburring Countersink													
			6,3–28,0	90°	●	○	●	●	○		●		68
		TiN	6,3–28,0	90°	●	○	●	●	○	○	●		68

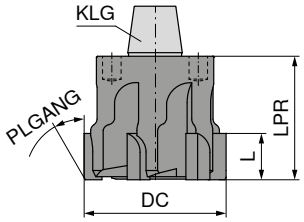
REAMAX TS – Selection guide

Ø 18 – 65 mm										
Article no.			40 597 …	40 544 …	40 577 …	40 521 …	40 526 …	40 539 …	40 585 …	40 571 …	40 580 …
KOMET no.			75J.93	75J.93	75J.65	75J.65	75J.17	75H.93	75H.65	75H.65	75H.17
Cutting edge geometry			ASG4000	ASG3000	ASG3000	ASG0106	ASG0706	ASG3000	ASG3000	ASG0106	ASG0706
Lead angle			25°	45°	45°	45°	45°/8°	45°	45°	45°	45°/8°
Grade / coating			DST	DST	DBG-P	DBG-P	DBC	DST	DBG-P	DBG-P	DBC
Preferred type available			✓	✓	✓	✓	✓	✓	✓	✓	
Application			Through hole					Blind hole			
Material sub-group		Index									
P	Non alloyed steel	P.1.1	●	●	●			●	●		
		P.1.2	●	●	●			●	●		
		P.1.3	●	●	●			●	●		
		P.1.4	●	●	●			●	●		
		P.1.5	●	●	●			●	●		
	Low alloyed steel	P.2.1	●	●	●			●	●		
		P.2.2	●	●	●			●	●		
		P.2.3	●	●	●			●	●		
		P.2.4	●	●	●			●	●		
	High-alloy steel and high-alloy tool steel	P.3.1				●				●	
		P.3.2				●				●	
		P.3.3				●				●	
	Stainless steel	P.4.1				●				●	
		P.4.2				●				●	
M	Stainless steel	M.1.1				●				●	
		M.2.1				●				●	
		M.3.1				●				●	
K	Grey cast iron	K.1.1			●				●		
		K.1.2			●				●		
	Spherulitic graphite cast iron	K.2.1	●	●	●			●	●		
		K.2.2	●	●	●			●	●		
	Malleable iron	K.3.1		●	●			●	●		
		K.3.2	●	●	●			●	●		
N	Aluminum alloys	N.1.1					●				●
		N.1.2					●				●
	Cast Aluminium Alloys	N.2.1					●				●
		N.2.2					●				●
		N.2.3					●				●
	Copper and copper alloys (Bronze, Brass)	N.3.1		○				○			
		N.3.2		○				○			
		N.3.3									
	Magnesium alloys	N.4.1					●				●
O	Non-metal materials	O.1.1									
		O.1.2									
		O.2.1									
		O.2.2									
		O.3.1					○				○

● = Main application
○ = Additional range of application

REAMAX TS – Replaceable reaming heads

- ▲ Up to tolerance class IT 6 with absolute process security, from the first hole
- ▲ Maximum changeover precision guaranteed
- ▲ High precision grind for maximum quality
- ▲ Can be adjusted for the smallest hole tolerances
- ▲ Interface enables head change in the machine
- ▲ Retraction from the hole at 3-4x feed rate
- ▲ KLG = Coupling size



					NEW				
					DST	DBG-P	DBC	DBG-P	DST
					75J.93 PLGANG 25° ASG4000 CERMET Through hole	75J.65 PLGANG 45° ASG0106 HM Through hole	75J.17 PLGANG 45/8° ASG0706 HM Through hole	75J.65 PLGANG 45° ASG3000 HM Through hole	75J.93 PLGANG 45° ASG3000 CERMET Through hole
					40 597 ...	40 521 ...	40 526 ...	40 577 ...	40 544 ...
DC H7 mm	L mm	LPR mm	ZEFP	KLG					
18,00	6	20	6	1	18000	18000	18000	18000	18000
18,01 - 19,99	6	20	6	1	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
20,00	6	20	6	2	20000	20000	20000	20000	20000
20,01 - 21,99	6	20	6	2	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
22,00	6	20	6	3	22000	22000	22000	22000	22000
22,01 - 23,99	6	20	6	3	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
24,00	6	20	6	3	24000	24000	24000	24000	24000 1)
24,01 - 24,99	6	20	6	3	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
25,00	6	20	6	3	25000	25000	25000	25000	25000
25,01 - 25,99	6	20	6	3	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
26,00	6	20	6	3	26000	26000	26000 1)	26000	26000
26,01 - 26,99	6	20	6	3	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
27,00 - 27,99	6	25	6	4	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
28,00	6	25	6	4	28000	28000	28000	28000	28000
28,01 - 29,99	6	25	6	4	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
30,00	6	25	6	4	30000	30000	30000	30000	30000
30,01 - 31,79	6	25	6	4	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
31,80 - 31,99	6	25	8	4	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
32,00	6	25	8	4	32000	32000	32000	32000	32000
32,01 - 34,99	6	25	8	4	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
35,00	6	25	8	5	35000	35000	35000	35000	35000
35,01 - 39,99	6	25	8	5	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
40,00	6	25	8	5	40000	40000	40000	40000	40000
40,01 - 41,99	6	25	8	5	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
42,00	6	30	8	6	42000	42000	42000 1)	42000	42000
42,01 - 49,99	6	30	8	6	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
50,00	6	30	8	6	50000	50000	50000	50000	50000
50,01 - 51,99	6	30	8	6	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
52,00 - 53,99	8	35	10	7	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
54,00	8	35	10	7	54000 1)	54000 1)	54000 1)	54000 1)	54000 1)
54,01 - 65,00	8	35	10	7	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
P					●	●		●	●
M						●			
K					●			●	●
N							●		○
S									
H									
O							○		

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time on request / Minimum order 2 pieces

→ v_c Page 70–72

For xxxx please indicate requested Ø in H7 in the order (e.g Ø 24.12 H7 → article no. 40 597 2412)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7)!
All heads are also available as fixed head variants (not adjustable) on request.

→ **Page 96+97**
Here you will find a detailed operating instruction.

→ **Page 100**
Here you will find more information on chamfer geometries (ASG).

REAMAX TS – Replaceable reaming heads

- ▲ Up to tolerance class IT 6 with absolute process security, from the first hole
- ▲ Maximum changeover precision guaranteed
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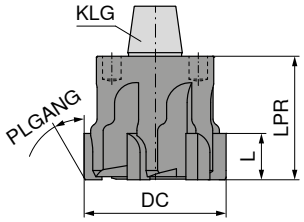
- ▲ Interface enables head change in the machine
- ▲ Retraction from the hole at 3-4x feed rate
- ▲ KLG = Coupling size



	DST	DBG-P	DBC	DBG-P
	75H.93 PLGANG 45° ASG3000 CERMET Blind hole	75H.65 PLGANG 45° ASG0106 HM Blind hole	75H.17 PLGANG 45/8° ASG0706 HM Blind hole	75H.65 PLGANG 45° ASG3000 HM Blind hole
	40 539 ...	**40 571 ...**	**40 580 ...**	**40 585 ...**

DC H7 mm	L mm	LPR mm	ZEFP	KLG							
18,00	6	20	6	1	18000		18000		18000 1)		18000
18,01 - 19,99	6	20	6	1	xxxx 1)		xxxx 1)		xxxx 1)		xxxx 1)
20,00	6	20	6	2	20000		20000		20000 1)		20000
20,01 - 21,99	6	20	6	2	xxxx 1)		xxxx 1)		xxxx 1)		xxxx 1)
22,00	6	20	6	3	22000		22000		22000 1)		22000
22,01 - 23,99	6	20	6	3	xxxx 1)		xxxx 1)		xxxx 1)		xxxx 1)
24,00	6	20	6	3	24000		24000		24000 1)		24000
24,01 - 24,99	6	20	6	3	xxxx 1)		xxxx 1)		xxxx 1)		xxxx 1)
25,00	6	20	6	3	25000		25000		25000 1)		25000
25,01 - 25,99	6	20	6	3	xxxx 1)		xxxx 1)		xxxx 1)		xxxx 1)
26,00	6	20	6	3	26000		26000		26000 1)		26000
26,01 - 26,99	6	20	6	3	xxxx 1)		xxxx 1)		xxxx 1)		xxxx 1)
27,00 - 27,99	6	25	6	4	xxxx 1)		xxxx 1)		xxxx 1)		xxxx 1)
28,00	6	25	6	4	28000		28000		28000 1)		28000
28,01 - 29,99	6	25	6	4	xxxx 1)		xxxx 1)		xxxx 1)		xxxx 1)
30,00	6	25	6	4	30000		30000		30000 1)		30000
30,01 - 31,79	6	25	6	4	xxxx 1)		xxxx 1)		xxxx 1)		xxxx 1)
31,80 - 31,99	6	25	8	4	xxxx 1)		xxxx 1)		xxxx 1)		xxxx 1)
32,00	6	25	8	4	32000		32000		32000 1)		32000
32,01 - 34,99	6	25	8	4	xxxx 1)		xxxx 1)		xxxx 1)		xxxx 1)
35,00	6	25	8	5	35000		35000		35000 1)		35000
35,01 - 39,99	6	25	8	5	xxxx 1)		xxxx 1)		xxxx 1)		xxxx 1)
40,00	6	25	8	5	40000		40000		40000 1)		40000
40,01 - 41,99	6	25	8	5	xxxx 1)		xxxx 1)		xxxx 1)		xxxx 1)
42,00	6	30	8	6	42000		42000		42000 1)		42000
42,01 - 49,99	6	30	8	6	xxxx 1)		xxxx 1)		xxxx 1)		xxxx 1)
50,00	6	30	8	6	50000		50000		50000 1)		50000
50,01 - 51,99	6	30	8	6	xxxx 1)		xxxx 1)		xxxx 1)		xxxx 1)
52,00 - 53,99	8	35	10	7	xxxx 1)		xxxx 1)		xxxx 1)		xxxx 1)
54,00	8	35	10	7	54000 1)		54000 1)		54000 1)		54000 1)
54,01 - 65,00	8	35	10	7	xxxx 1)		xxxx 1)		xxxx 1)		xxxx 1)
P					●		●				●
M							●				
K					●						●
N					○				●		
S											
H											
O									○		

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time on request / Minimum order 2 pieces

→ v_c Page 70–72

For xxxx please indicate requested Ø in H7 in the order (e.g Ø 24.12 H7 → article no. 40 539 2412)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7)!
All heads are also available as fixed head variants (not adjustable) on request.

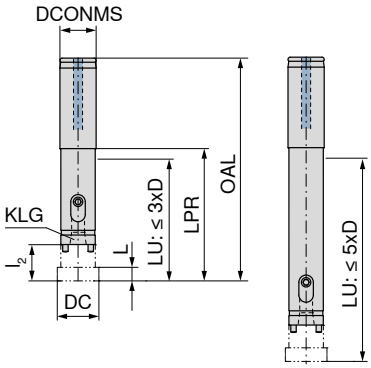
→ **Page 96+97**
Here you will find a detailed operating instruction.

→ **Page 100**
Here you will find more information on chamfer geometries (ASG).

REAMAX TS – Holder

▲ KLG = Coupling Size

Scope of supply:
Complete holder incl. pull stud but without exchangeable head



DC mm	KOMET no.	KLG	OAL mm	l_2 mm	LPR mm	L mm	DCONMS mm	torque moment Nm	40 501 ...	40 503 ...
18,00 - 19,99	75A.40.13010	1	130	20	80	6	20	1,5	**02099**	
18,00 - 19,99	75A.40.15010	1	190	20	140	6	20	1,5		**02099**
20,00 - 21,99	75A.40.13020	2	130	20	80	6	20	2,5	**02299**	
20,00 - 21,99	75A.40.15020	2	190	20	140	6	20	2,5		**02299**
22,00 - 26,99	75A.40.13030	3	130	20	80	6	20	4	**02799**	
22,00 - 26,99	75A.40.15030	3	210	20	160	6	20	4		**02799**
27,00 - 34,99	75A.40.13040	4	176	25	120	6	25	5	**03599**	
27,00 - 34,99	75A.40.15040	4	236	25	180	6	25	5		**03599**
35,00 - 41,99	75A.40.13050	5	176	25	120	6	25	6	**04299**	
35,00 - 41,99	75A.40.15050	5	256	25	200	6	25	6		**04299**
42,00 - 51,99	75A.40.13060	6	180	30	120	6	32	10	**05299**	
42,00 - 51,99	75A.40.15060	6	280	30	220	6	32	10		**05299**
52,00 - 65,00	75A.40.13070	7	180	30	120	8	32	13	**06599**	
52,00 - 65,00	75A.40.15070	7	280	30	220	8	32	13		**06599**

Do not heat shrink tools !

Clamping key – T

Key D

Reamax TS pull stud

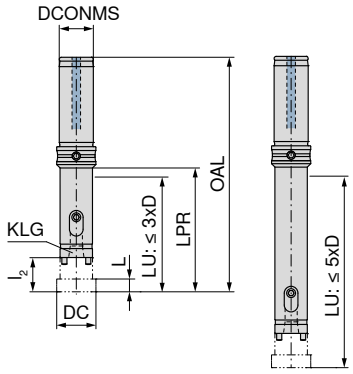
Spare parts DC		80 397 ...		80 950 ...		40 900 ...
18,00 - 19,99			T08 - IP	**039**		**00100**
20,00 - 21,99	SW2,5	**025**				**00200**
22,00 - 26,99	SW3	**030**				**00300**
27,00 - 34,99	SW3	**030**				**00400**
35,00 - 41,99	SW3	**030**				**00500**
42,00 - 51,99	SW4	**040**				**00500**
52,00 - 65,00	SW5	**050**				**00700**

→ **Page 96+97**
Here you will find a detailed operating instruction.

REAMAX TS – Holder

- ▲ KLG = Coupling size
- ▲ Adjustment inside the machine
- ▲ Alignable DAH Zero holder for correction of concentricity error
- ▲ DAH Zero holder is pre-loaded and set to a runout of < 0.005 mm

Scope of supply:
Complete holder incl. pull stud but without exchangeable head



DC mm	KOMET no.	KLG	OAL mm	l_2 mm	LPR mm	L mm	DCONMS mm	torque moment Nm	40 504 ...	40 506 ...
18,00 - 19,99	75A.41.13010	1	145	20	80	6	20	1,5	**02099**	
18,00 - 19,99	75A.41.15010	1	205	20	140	6	20	1,5		**02099**
20,00 - 21,99	75A.41.13020	2	145	20	80	6	20	2,5	**02299**	
20,00 - 21,99	75A.41.15020	2	205	20	140	6	20	2,5		**02299**
22,00 - 26,99	75A.41.13030	3	145	20	80	6	20	4	**02799**	
22,00 - 26,99	75A.41.15030	3	225	20	160	6	20	4		**02799**
27,00 - 34,99	75A.41.13040	4	176	25	120	6	25	5	**03599**	
27,00 - 34,99	75A.41.15040	4	236	25	180	6	25	5		**03599**
35,00 - 41,99	75A.41.13050	5	176	25	120	6	25	6	**04299**	
35,00 - 41,99	75A.41.15050	5	256	25	200	6	25	6		**04299**

Do not heat shrink tools !

Clamping key – T

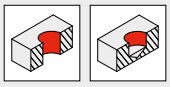
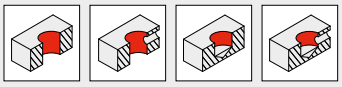
Key D

Reamax TS pull stud

Spare parts DC		80 397 ...		Key D	80 950 ...	Reamax TS pull stud	40 900 ...
18,00 - 19,99				T08 - IP	**039**		**00100**
20,00 - 21,99	SW2,5	**025**					**00200**
22,00 - 26,99	SW3	**030**					**00300**
27,00 - 34,99	SW3	**030**					**00400**
35,00 - 41,99	SW3	**030**					**00500**

→ **Page 96+97**
Here you will find a detailed operating instruction.

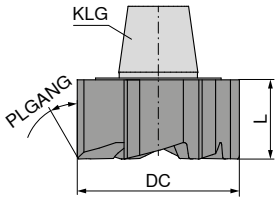
REAMAX – Selection guide

			Ø 12,5 – 40 mm					
Article no.			40 536 …	40 525 …	40 560 …	40 551 …	40 570 …	40 505 …
KOMET no.			640.93	640.93	640.65	640.65	640.27	640.71
Cutting edge geometry			ASG4000	ASG3000	ASG3000	ASG0106	ASG0706	ASG3000
Lead angle			25°	45°	45°	45°	45°/8°	45°
Grade / coating			DST	DST	DBG-P	DBG-P	DBC	TiN
Preferred type available			✓	✓	✓	✓		✓
Application			Through hole	Through hole + blind hole				
Material sub-group		Index						
P	Non alloyed steel	P.1.1	●	●	●			○
		P.1.2	●	●	●			○
		P.1.3	●	●	●			○
		P.1.4	●	●	●			○
		P.1.5	●	●	●			○
	Low alloyed steel	P.2.1	●	●	●			○
		P.2.2	●	●	●			○
		P.2.3	●	●	●			○
		P.2.4			●	●		○
	High-alloy steel and high-alloy tool steel	P.3.1				●		
		P.3.2				●		
		P.3.3				●		
	Stainless steel	P.4.1				●		
		P.4.2				●		
M	Stainless steel	M.1.1				●		
		M.2.1				●		
		M.3.1				●		
K	Grey cast iron	K.1.1			●			○
		K.1.2			●			○
	Spherulitic graphite cast iron	K.2.1	○	●	●			
		K.2.2	○	●	●			
	Malleable iron	K.3.1		●	●			
		K.3.2	○	●	●			
N	Aluminum alloys	N.1.1					●	
		N.1.2					●	
	Cast aluminium alloys	N.2.1					●	
		N.2.2					●	
		N.2.3						
	Copper and copper alloys (Bronze, Brass)	N.3.1		○				●
		N.3.2		○				●
		N.3.3						●
	Magnesium alloys	N.4.1						
H	Hardened steel	H.1.1				●		
		H.1.2				●		
		H.1.3				●		
		H.1.4						
	Chilled iron	H.2.1				●		
	Hardened cast iron	H.3.1				●		
O	Non-metal materials	O.1.1						
		O.1.2						
		O.2.1						
		O.2.2						
		O.3.1					○	

● = Main application
○ = Additional range of application

REAMAX – Replaceable reaming heads

- ▲ Up to tolerance class IT 7 with absolute process security, from the first hole
- ▲ Maximum changeover precision guaranteed
- ▲ Maximum radial run-out accuracy thanks to precision-ground face and taper contact
- ▲ No Ø adjustment necessary
- ▲ Optimised for use with minimum quantity lubrication (MQL)
- ▲ Retraction from the hole at 3-4x feed rate
- ▲ KLG = Coupling size



	DST	DBG-P	DBC	DST	DBG-P	TiN
	640.93 PLGANG 25° ASG4000 CERMET	640.65 PLGANG 45° ASG0106 HM	640.27 PLGANG 45/8° ASG0706 HM	640.93 PLGANG 45° ASG3000 CERMET	640.65 PLGANG 45° ASG3000 HM	640.71 PLGANG 45° ASG3000 HM
	Through hole	Through hole + blind hole	Through hole + blind hole	Through hole + blind hole	Through hole + blind hole	Through hole + blind hole
	40 536 ...	40 551 ...	40 570 ...	40 525 ...	40 560 ...	40 505 ...

DC H7 mm	L mm	ZEFP	KLG											
12,50 - 14,99	9	6	1	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
15,00	9	6	1	15000[1]		15000		15000[1]		15000[1]		15000		150
15,01 - 15,99	9	6	1	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
16,00	9	6	2	160		16000		16000[1]		160		16000		160
16,01 - 17,99	9	6	2	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
18,00	9	6	2	180		18000		18000[1]		180		18000		180
18,01 - 19,99	9	6	2	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
20,00	9	6	2	200		20000		20000[1]		200		20000		200
20,01 - 21,99	9	6	2	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
22,00	9	8	3	220		22000		22000[1]		220		22000		220
22,01 - 23,99	9	8	3	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
24,00	9	8	3	24000[1]		24000		24000[1]		24000[1]		24000		240
24,01 - 24,99	9	8	3	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
25,00	9	8	3	250		25000		25000[1]		250		25000		250
25,01 - 25,99	9	8	3	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
26,00 - 27,99	9	8	4	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
28,00	9	8	4	280		28000		28000[1]		280		28000		280
28,01 - 29,99	9	8	4	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
30,00	9	8	4	300		30000		30000[1]		300		30000		300
30,01 - 32,00	9	8	4	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
32,01 - 39,99	9	8	5	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
40,00	9	8	5	400		40000		40000[1]		400		40000		400

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time on request / Minimum order 2 pieces

→ v_c Page 73–75

For xxxx please indicate requested Ø in H7 in the order (e.g. Ø 15.12 H7 → article no. 40 525 1512)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7)!

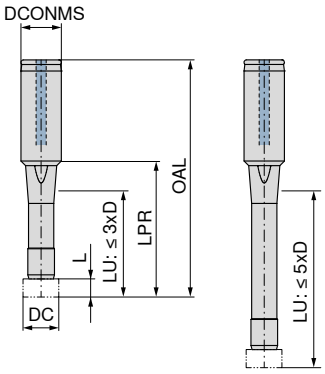
A detailed operating manual is available for download in the online shop next to the product.

→ **Page 100**
Here you will find more information on chamfer geometries (ASG).

REAMAX – Holder

▲ KLG = Coupling Size

Scope of supply:
Complete holder, but without exchangeable head

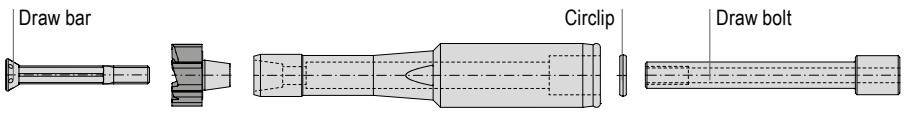


DC mm	KOMET no.	KLG	OAL mm	LPR mm	L mm	DCONMS mm	torque moment Nm	40 590 ...	40 591 ...
12,50 - 15,99	640.01.001	1	107	59	9	16	4 - 5	**016** [1]	**016** [1]
12,50 - 15,99	640.81.001	1	137	89	9	16	4 - 5		
16,00 - 21,99	640.01.002	2	119	69	9	20	6 - 7	**022**	**022**
16,00 - 21,99	640.81.002	2	169	119	9	20	6 - 7		
22,00 - 25,99	640.01.003	3	140	84	9	25	10 - 12	**026**	**026**
22,00 - 25,99	640.81.003	3	196	140	9	25	10 - 12		
26,00 - 32,00	640.01.005	4	160	104	9	25	18 - 20	**032**	**032**
26,00 - 32,00	640.81.005	4	226	170	9	25	18 - 20		
32,01 - 40,00	640.01.006	5	199	139	9	32	26 - 28	**040**	**040**
32,01 - 40,00	640.81.006	5	270	210	9	32	26 - 28		

1) This holder can also be used for reaming heads for through holes from Ø 12 mm, which are available on request

Do not heat shrink tools !

Spare parts DC	Draw bolt 5xD	Draw bolt 3xD	Draw bar	Circlip
	40 950 ...	40 950 ...	40 950 ...	40 950 ...
12,50 - 15,99		**101**	**001**	**301**
12,50 - 15,99	**107**		**001**	**301**
16,00 - 21,99		**102**	**002**	**302**
16,00 - 21,99	**108**		**002**	**302**
22,00 - 25,99		**103**	**003**	**303**
22,00 - 25,99	**109**		**003**	**303**
26,00 - 32,00		**104**	**004**	**303**
26,00 - 32,00	**110**		**004**	**303**
32,01 - 40,00		**106**	**005**	**304**
32,01 - 40,00	**112**		**005**	**304**



A detailed operating manual is available for download in the online shop next to the product.

MultiChange – Programme Overview

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

Exchangeable heads

→ Chapter 2, Solid carbide drilling

Page No. 2|107

Solid Carbide NC Spot Drills

Ø 8, 10, 12, 16, 20 mm
NOF 2

SIG 90° | SIG 120° | SIG 142°

→ Chapter 4, Reaming and countersinking

Page No. 4|18 + 4|19

Replaceable reaming heads

Ø 8,00 – 30,20 mm

Through hole

Ø 12,20 – 30,20 mm

Blind hole

→ Chapter 14, Solid carbide milling cutters

Page No. 14|198 – 14|202

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

Type PCR-UNI | Type PCR-ALU | Type N

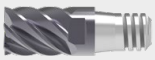
Solid carbide torus bull nose milling cutters
Ø 8, 10, 12, 16, 20 mm / ZEFP 3+4

Type W | Type N

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

Type NF

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



Type N

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

Type N

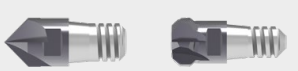
Solid carbide high-feed cutters
Ø 8, 10, 12, 16, 20 mm / ZEFP 6

Type N

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

Type N

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



Type N | Type N

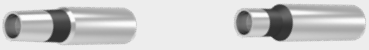
NOF / ZEFP = Number of cutting edges

Tool holder

→ Catalogue – Clamping technology, Chapter 16 Accessories

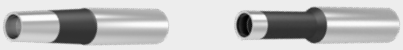
Page No. 16|259 – 16|261

OAL 60 – 90 mm

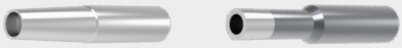


Tapered 87° / Steel | Cylindrical* / Steel

OAL 85 – 120 mm



Tapered 87° / Steel | Cylindrical* / Steel



Tapered 87° / Solid carbide | Cylindrical* / Solid carbide

OAL 110 – 150 mm

Tapered 87° / Solid carbide

Cylindrical* / Solid carbide

OAL 150 – 200 mm

Tapered 87° / Solid carbide

Cylindrical* / Steel

Cylindrical* / Solid carbide

OAL 200 – 250 mm

Cylindrical* / Steel

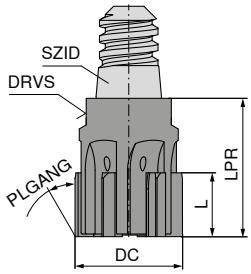
Cylindrical* / Solid carbide

* only conditionally suitable for milling

4

MultiChange – Reaming Head, for Thro' Holes

- ▲ Up to tolerance class IT 7 with absolute process security, from the first hole
- ▲ High-speed reaming heads
- ▲ Irregular pitch for highest radial run-out accuracy
- ▲ A high level of changeover precision guaranteed
- ▲ SZID = Coupling size



	CWC10	TiAlN	K10
	Left Hand Helix PLGANG 30° CERMET Through hole	Left Hand Helix PLGANG 30° HM Through hole	straight flute PLGANG 45° Solid carbide Through hole
	40 210 ...	**40 220 ...**	**40 240 ...**

DC H7 mm	SZID	L mm	LPR mm	ZEFP	DRVS mm	TQX Nm				
8,00	06	8	18	4	6	5,0	080		080	080 [1]
8,01 - 9,70	06	8	18	4	6	5,0	xxxx [1]		xxxx [2]	xxxx [1]
9,71 - 9,99	06	8	18	6	8	5,0	xxxx [1]		xxxx [2]	xxxx [1]
10,00	06	8	18	6	8	5,0	100		100	100 [1]
10,01 - 10,70	06	8	18	6	8	5,0	xxxx [1]		xxxx [2]	xxxx [1]
10,71 - 11,99	08	8	20	6	8	12,5	xxxx [1]		xxxx [2]	xxxx [1]
12,00	08	8	20	6	8	12,5	120		120	120 [1]
12,01 - 12,70	08	8	20	6	8	12,5	xxxx [1]		xxxx [2]	xxxx [1]
12,71 - 13,99	10	8	22	6	10	15,0	xxxx [1]		xxxx [2]	xxxx [1]
14,00	10	8	22	6	10	15,0	140		140	140 [1]
14,01 - 15,99	10	8	22	6	10	15,0	xxxx [1]		xxxx [2]	xxxx [1]
16,00	10	8	22	6	10	15,0	160		160	160 [1]
16,01 - 16,20	10	8	22	6	10	15,0	xxxx [1]		xxxx [2]	xxxx [1]
16,21 - 17,20	10	8	22	6	13	15,0	xxxx [1]		xxxx [2]	xxxx [1]
17,21 - 17,99	12	12	26	6	13	20,0	xxxx [1]		xxxx [2]	xxxx [1]
18,00	12	12	26	6	13	20,0	180		180	180 [1]
18,01 - 19,20	12	12	26	6	13	20,0	xxxx [1]		xxxx [2]	xxxx [1]
19,21 - 19,99	12	12	26	6	16	20,0	xxxx [1]		xxxx [2]	xxxx [1]
20,00	12	12	26	6	16	20,0	200		200	200 [1]
20,01 - 20,20	12	12	26	6	16	20,0	xxxx [1]		xxxx [2]	xxxx [1]
20,21 - 21,20	12	12	26	6	16	20,0	xxxx [1]		xxxx [2]	xxxx [1]
21,21 - 21,99	16	12	26	6	16	25,0	xxxx [1]		xxxx [2]	xxxx [1]
22,00	16	12	26	6	16	25,0	220		220	220 [1]
22,01 - 23,99	16	12	26	6	16	25,0	xxxx [1]		xxxx [2]	xxxx [1]
24,00	16	12	26	6	16	25,0	240		240	240 [1]
24,01 - 24,20	16	12	26	6	16	25,0	xxxx [1]		xxxx [2]	xxxx [1]
24,21 - 24,99	16	12	26	6	19	25,0	xxxx [1]		xxxx [2]	xxxx [1]
25,00	16	12	26	6	19	25,0	250		250	250 [1]
25,01 - 25,99	16	12	26	6	19	25,0	xxxx [1]		xxxx [2]	xxxx [1]
26,00	16	12	26	6	19	25,0	260		260	260 [1]
26,01 - 26,20	16	12	26	6	19	25,0	xxxx [1]		xxxx [2]	xxxx [1]
26,21 - 27,99	16	12	26	6	21	25,0	xxxx [1]		xxxx [2]	xxxx [1]
28,00	16	12	26	6	21	25,0	280		280	280 [1]
28,01 - 28,20	16	12	26	6	21	25,0	xxxx [1]		xxxx [2]	xxxx [1]
28,21 - 29,20	16	12	26	6	24	25,0	xxxx [1]		xxxx [2]	xxxx [1]
29,21 - 29,99	16	12	26	8	24	25,0	xxxx [1]		xxxx [2]	xxxx [1]
30,00	16	12	26	8	24	25,0	300		300	300 [1]
30,01 - 30,20	16	12	26	8	24	25,0	xxxx [1]		xxxx [2]	xxxx [1]

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days / Minimum order 2 pieces
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 23 working days / Minimum order 2 pieces

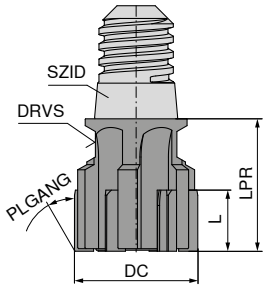
→ v_c Page 76

For xxxx please indicate requested diameter in H7 in the order (e.g. 10.89 H7 → article no. 40 210 1089)!
All other diameters and tolerance classes are also possible on request (e.g. 8.5 $^{+0.025}$ or 11 N7).

Holders and accessories can be found in → **Catalogue – Clamping technology, Chapter 16**.

MultiChange – Reaming Head, for blind holes

- ▲ Up to tolerance class IT 7 with absolute process security, from the first hole
- ▲ High-speed reaming heads
- ▲ Irregular pitch for highest radial run-out accuracy
- ▲ A high level of changeover precision guaranteed
- ▲ SZID = Coupling size



	CWC10	TiAlN	K10
	straight flute PLGANG 60° CERMET Blind hole	straight flute PLGANG 60° HM Blind hole	straight flute PLGANG 60° Solid carbide Blind hole
	40 211 ...	**40 221 ...**	**40 241 ...**

DC H7 mm	SZID	L mm	LPR mm	ZEFP	DRVS mm	TQX Nm				
12,20 - 12,70	06	8	20	6	6	5,0	**xxxx** [1]		**xxxx** [2]	**xxxx** [1]
12,71 - 13,99	06	8	22	6	6	5,0	**xxxx** [1]		**xxxx** [2]	**xxxx** [1]
14,00	06	8	22	6	6	5,0	**140**		**140**	**140** [1]
14,01 - 14,20	06	8	22	6	6	5,0	**xxxx** [1]		**xxxx** [2]	**xxxx** [1]
14,21 - 15,99	08	8	22	6	8	12,5	**xxxx** [1]		**xxxx** [2]	**xxxx** [1]
16,00	08	8	22	6	8	12,5	**160**		**160**	**160** [1]
16,01 - 16,20	08	8	22	6	8	12,5	**xxxx** [1]		**xxxx** [2]	**xxxx** [1]
16,21 - 17,20	10	8	22	6	10	15,0	**xxxx** [1]		**xxxx** [2]	**xxxx** [1]
17,21 - 17,99	10	12	26	6	10	15,0	**xxxx** [1]		**xxxx** [2]	**xxxx** [1]
18,00	10	12	26	6	10	15,0	**180**		**180**	**180** [1]
18,01 - 19,99	10	12	26	6	10	15,0	**xxxx** [1]		**xxxx** [2]	**xxxx** [1]
20,00	10	12	26	6	10	15,0	**200**		**200**	**200** [1]
20,01 - 20,20	10	12	26	6	10	15,0	**xxxx** [1]		**xxxx** [2]	**xxxx** [1]
20,21 - 21,99	12	12	26	6	13	20,0	**xxxx** [1]		**xxxx** [2]	**xxxx** [1]
22,00	12	12	26	6	13	20,0	**220**		**220**	**220** [1]
22,01 - 23,99	12	12	26	6	13	20,0	**xxxx** [1]		**xxxx** [2]	**xxxx** [1]
24,00	12	12	26	6	13	20,0	**240**		**240**	**240** [1]
24,01 - 24,20	12	12	26	6	13	20,0	**xxxx** [1]		**xxxx** [2]	**xxxx** [1]
24,21 - 24,99	16	12	26	6	16	25,0	**xxxx** [1]		**xxxx** [2]	**xxxx** [1]
25,00	16	12	26	6	16	25,0	**250**		**250**	**250** [1]
25,01 - 25,99	16	12	26	6	16	25,0	**xxxx** [1]		**xxxx** [2]	**xxxx** [1]
26,00	16	12	26	6	16	25,0	**260**		**260**	**260** [1]
26,01 - 27,99	16	12	26	6	16	25,0	**xxxx** [1]		**xxxx** [2]	**xxxx** [1]
28,00	16	12	26	6	16	25,0	**280**		**280**	**280** [1]
28,01 - 28,20	16	12	26	6	16	25,0	**xxxx** [1]		**xxxx** [2]	**xxxx** [1]
28,21 - 29,20	16	12	26	6	16	25,0	**xxxx** [1]		**xxxx** [2]	**xxxx** [1]
29,21 - 29,99	16	12	26	8	16	25,0	**xxxx** [1]		**xxxx** [2]	**xxxx** [1]
30,00	16	12	26	8	16	25,0	**300**		**300**	**300** [1]
30,01 - 30,20	16	12	26	8	16	25,0	**xxxx** [1]		**xxxx** [2]	**xxxx** [1]
P							●		●	
M									●	
K							●			
N										●
S										
H										
O										

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days / Minimum order 2 pieces
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 23 working days / Minimum order 2 pieces

→ v_c Page 76

For xxxx please indicate requested diameter in H7 in the order (e.g. 12.89 H7 → article no. 40 211 1289)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 15 N7).

Holders and accessories can be found in → **Catalogue – Clamping technology, Chapter 16**.

Monomax – Selection guide

			Ø 5,60 – 25,89 mm								
Article no. (3xD)			40 635 …	40 625 …	40 656 …	40 652 …	40 648 …	40 605 …	40 657 …	40 644 …	40 640 …
Article no. (5xD)			40 636 …	40 626 …	40 666 …	40 653 …	40 649 …	40 606 …	40 665 …	40 645 …	40 641 …
KOMET no. (3xD)			56J.93	56J.93	56J.65	56J.65	56J.17	56J.71	56H.65	56H.65	56H.17
KOMET no. (5xD)			56R.93	56R.93	56R.65	56R.65	56R.17	56R.71	56Q.65	56Q.65	56Q.17
Cutting edge geometry			ASG4000	ASG3000	ASG3000	ASG0106	ASG0706	ASG3000	ASG3000	ASG0106	ASG0706
Lead angle			25°	45°	45°	45°	45°/8°	45°	45°	45°	45°/8°
Grade / coating			DST	DST	DBG-P	DBG-P	DBC	TIN	DBG-P	DBG-P	DBC
Preferred type available			✓	✓	✓	✓		✓			
Application			Through hole						Blind hole		
Material sub-group		Index									
P	Non alloyed steel	P.1.1	●	●	●			○	●		
		P.1.2	●	●	●			○	●		
		P.1.3	●	●	●			○	●		
		P.1.4	●	●	●			○	●		
		P.1.5	●	●	●			○	●		
	Low alloyed steel	P.2.1	●	●	●			○	●		
		P.2.2	●	●	●			○	●		
		P.2.3	●	●	●			○	●		
		P.2.4			●	●		○	●		
	High-alloy steel and high-alloy tool steel	P.3.1				●				●	
		P.3.2				●				●	
		P.3.3				●				●	
	Stainless steel	P.4.1				●				●	
		P.4.2				●				●	
M	Stainless steel	M.1.1				●				●	
		M.2.1				●				●	
		M.3.1				●				●	
K	Grey cast iron	K.1.1			●			○	●		
		K.1.2			●			○	●		
	Spherulitic graphite cast iron	K.2.1	○	●	●				●		
		K.2.2	○	●	●				●		
	Malleable iron	K.3.1	○	●	●				●		
		K.3.2	○	●	●				●		
N	Aluminum alloys	N.1.1					●				●
		N.1.2					●				●
	Cast aluminium alloys	N.2.1					●				●
		N.2.2					●				●
		N.2.3					●				●
	Copper and copper alloys (Bronze, Brass)	N.3.1		○				●			
		N.3.2		○				●			
		N.3.3						●			
	Magnesium alloys	N.4.1									
O	Non-metal materials	O.1.1									
		O.1.2									
		O.2.1									
		O.2.2									
		O.3.1					○				○

● = Main application
○ = Additional range of application

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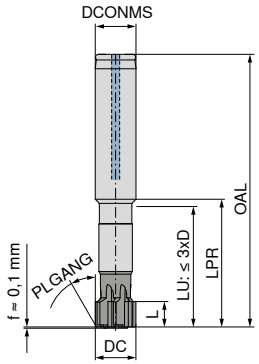
- ▲ wear compensation within the tolerance zone
- ▲ retraction from the hole at 3–4 times the cutting feed rate
- ▲ up to tolerance class IT 5 with absolute process security, from the first hole



	DST	DST	TiN
	56J.93	56J.93	56J.71
	≤ 3xD	≤ 3xD	≤ 3xD
	PLGANG 45°	PLGANG 25°	PLGANG 45°
	ASG3000	ASG4000	ASG3000
	CERMET	CERMET	HM
	Through hole	Through hole	Through hole
	40 625 ...	**40 635 ...**	**40 605 ...**

DC H7 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	40 625 ...	40 635 ...	40 605 ...
5,60 - 5,99	9,5	35	40	85	12	4	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
6,00	9,5	35	40	85	12	4	**060**	**060**	**060**
6,01 - 7,99	9,5	35	40	85	12	4	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
8,00	9,5	35	40	85	12	4	**080**	**080**	**080**
8,01 - 8,89	9,5	35	40	85	12	4	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
8,90 - 9,89	9,5	45	50	95	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
9,90 - 9,99	9,5	45	50	95	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
10,00	9,5	45	50	95	12	6	**100**	**100**	**100**
10,01 - 11,99	9,5	45	50	95	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
12,00	9,5	45	50	95	12	6	**120**	**120**	**120**
12,01 - 13,99	9,5	45	50	95	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
14,00	9,5	45	50	95	12	6	**140**	**140**	**140**
14,01 - 14,99	9,5	45	50	95	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
15,00	9,5	45	50	95	12	6	**150**	**150**	**150**
15,01 - 15,89	9,5	45	50	95	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
15,90 - 15,99	9,5	45	50	100	16	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
16,00	9,5	45	50	100	16	6	**160**	**160**	**160**
16,01 - 17,99	9,5	45	50	100	16	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
18,00	9,5	45	50	100	16	6	**180**	**180**	**180**
18,01 - 18,89	9,5	45	50	100	16	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
18,90 - 19,99	9,5	55	60	120	20	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
20,00	9,5	55	60	120	20	6	**200**	**200**	**200**
20,01 - 25,89	9,5	55	60	120	20	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
P							●	●	○
M									
K							●	○	○
N							○		●
S									
H									
O									

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→ v_c Page 77–80

Do not heat shrink tools !

For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 635 1589)!
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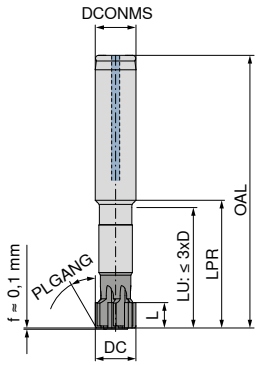

NEW

	DBG-P	DBC	DBG-P
	56J.65	56J.17	56J.65
	≤ 3xD	≤ 3xD	≤ 3xD
	PLGANG 45°	PLGANG 45/8°	PLGANG 45°
	ASG0106	ASG0706	ASG3000
	HM	HM	HM
	Through hole	Through hole	Through hole
	40 652 ...	**40 648 ...**	**40 656 ...**

DC $_{H7}$ mm	L mm	LU mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP			
5,60 - 5,99	9,5	35	40	85	12	4	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
6,00	9,5	35	40	85	12	4	**06000**	**06000**[1]	**06000**
6,01 - 7,99	9,5	35	40	85	12	4	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
8,00	9,5	35	40	85	12	4	**08000**	**08000**[1]	**08000**
8,01 - 8,89	9,5	35	40	85	12	4	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
8,90 - 9,89	9,5	45	50	95	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
9,90 - 9,99	9,5	45	50	95	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
10,00	9,5	45	50	95	12	6	**10000**	**10000**[1]	**10000**
10,01 - 11,99	9,5	45	50	95	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
12,00	9,5	45	50	95	12	6	**12000**	**12000**[1]	**12000**
12,01 - 13,99	9,5	45	50	95	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
14,00	9,5	45	50	95	12	6	**14000**	**14000**[1]	**14000**
14,01 - 14,99	9,5	45	50	95	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
15,00	9,5	45	50	95	12	6	**15000**	**15000**[1]	**15000**
15,01 - 15,89	9,5	45	50	95	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
15,90 - 15,99	9,5	45	50	100	16	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
16,00	9,5	45	50	100	16	6	**16000**	**16000**[1]	**16000**
16,01 - 17,99	9,5	45	50	100	16	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
18,00	9,5	45	50	100	16	6	**18000**	**18000**[1]	**18000**
18,01 - 18,89	9,5	45	50	100	16	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
18,90 - 19,99	9,5	55	60	120	20	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
20,00	9,5	55	60	120	20	6	**20000**	**20000**[1]	**20000**
20,01 - 25,89	9,5	55	60	120	20	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
P							●		●
M							●		
K									●
N								●	
S									
H									
O								○	

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→ v_c Page 77–80

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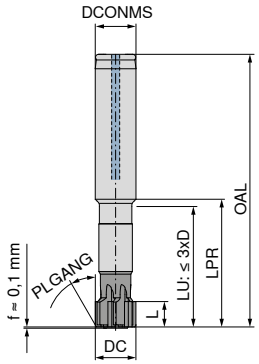

	DBG-P	DBC	DBG-P
	56H.65	56H.17	56H.65
	≤ 3xD	≤ 3xD	≤ 3xD
	PLGANG 45°	PLGANG 45/8°	PLGANG 45°
	ASG0106	ASG0706	ASG3000
	HM	HM	HM
	Blind hole	Blind hole	Blind hole
	40 644 ...	**40 640 ...**	**40 657 ...**

DC $_{H7}$ mm	L mm	LU mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP			
5,60 - 5,99	9,5	35	40	85	12	4	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
6,00	9,5	35	40	85	12	4	**06000** [1]	**06000** [1]	**06000** [1]
6,01 - 7,99	9,5	35	40	85	12	4	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
8,00	9,5	35	40	85	12	4	**08000** [1]	**08000** [1]	**08000** [1]
8,01 - 8,89	9,5	35	40	85	12	4	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
8,90 - 9,89	9,5	45	50	95	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
9,90 - 9,99	9,5	45	50	95	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
10,00	9,5	45	50	95	12	6	**10000** [1]	**10000** [1]	**10000** [1]
10,01 - 11,99	9,5	45	50	95	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
12,00	9,5	45	50	95	12	6	**12000** [1]	**12000** [1]	**12000** [1]
12,01 - 13,99	9,5	45	50	95	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
14,00	9,5	45	50	95	12	6	**14000** [1]	**14000** [1]	**14000** [1]
14,01 - 14,99	9,5	45	50	95	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
15,00	9,5	45	50	95	12	6	**15000** [1]	**15000** [1]	**15000** [1]
15,01 - 15,89	9,5	45	50	95	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
15,90 - 15,99	9,5	45	50	100	16	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
16,00	9,5	45	50	100	16	6	**16000** [1]	**16000** [1]	**16000** [1]
16,01 - 17,99	9,5	45	50	100	16	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
18,00	9,5	45	50	100	16	6	**18000** [1]	**18000** [1]	**18000** [1]
18,01 - 18,89	9,5	45	50	100	16	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
18,90 - 19,99	9,5	55	60	120	20	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
20,00	9,5	55	60	120	20	6	**20000** [1]	**20000** [1]	**20000** [1]
20,01 - 25,89	9,5	55	60	120	20	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
P							●		●
M							●		
K									●
N								●	
S									
H									
O								○	

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→ v_c Page 77–80

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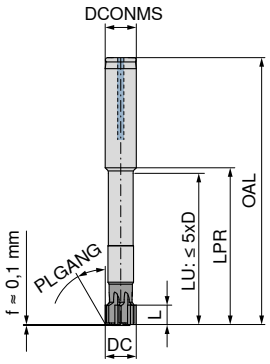

	DST	DST	TiN
	56R.93	56R.93	56R.71
	≤ 5xD	≤ 5xD	≤ 5xD
	PLGANG 45°	PLGANG 25°	PLGANG 45°
	ASG3000	ASG4000	ASG3000
	CERMET	CERMET	HM
	Through hole	Through hole	Through hole
	40 626 ...	**40 636 ...**	**40 606 ...**

DC $_{H7}$ mm	L mm	LU mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP				
5,60 - 5,99	9,5	80	85	130	12	4	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
6,00	9,5	80	85	130	12	4	**060**		**060**		**060**
6,01 - 7,99	9,5	80	85	130	12	4	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
8,00	9,5	80	85	130	12	4	**080**		**080**		**080**
8,01 - 8,89	9,5	80	85	130	12	4	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
8,90 - 9,89	9,5	80	85	130	12	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
9,90 - 9,99	9,5	110	115	160	12	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
10,00	9,5	110	115	160	12	6	**100**		**100**		**100**
10,01 - 11,99	9,5	110	115	160	12	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
12,00	9,5	110	115	160	12	6	**120**		**120**		**120**
12,01 - 13,99	9,5	110	115	160	12	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
14,00	9,5	110	115	160	12	6	**140**		**140**		**140**
14,01 - 14,99	9,5	110	115	160	12	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
15,00	9,5	110	115	160	12	6	**150**		**150**		**150**
15,01 - 15,89	9,5	110	115	160	12	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
15,90 - 15,99	9,5	125	130	180	16	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
16,00	9,5	125	130	180	16	6	**160**		**160**		**160**
16,01 - 17,99	9,5	125	130	180	16	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
18,00	9,5	125	130	180	16	6	**180**		**180**		**180**
18,01 - 18,89	9,5	125	130	180	16	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
18,90 - 19,99	9,5	135	140	200	20	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
20,00	9,5	135	140	200	20	6	**200**		**200**		**200**
20,01 - 25,89	9,5	135	140	200	20	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
P							●		●		○
M											
K							●		○		○
N							○				●
S											
H											
O											

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→ v_c Page 77–80

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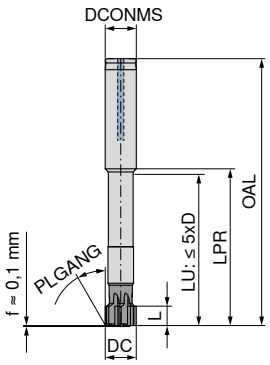


NEW

	DBG-P	DBC	DBG-P
	56R.65	56R.17	56R.65
	≤ 5xD	≤ 5xD	≤ 5xD
	PLGANG 45°	PLGANG 45/8°	PLGANG 45°
	ASG0106	ASG0706	ASG3000
	HM	HM	HM
	Through hole	Through hole	Through hole
	40 653 ...	**40 649 ...**	**40 666 ...**

DC H7 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP			
5,60 - 5,99	9,5	80	85	130	12	4	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
6,00	9,5	80	85	130	12	4	**06000**	**06000**[1]	**06000**
6,01 - 7,99	9,5	80	85	130	12	4	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
8,00	9,5	80	85	130	12	4	**08000**	**08000**[1]	**08000**
8,01 - 8,89	9,5	80	85	130	12	4	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
8,90 - 9,89	9,5	80	85	130	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
9,90 - 9,99	9,5	110	115	160	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
10,00	9,5	110	115	160	12	6	**10000**	**10000**[1]	**10000**
10,01 - 11,99	9,5	110	115	160	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
12,00	9,5	110	115	160	12	6	**12000**	**12000**[1]	**12000**
12,01 - 13,99	9,5	110	115	160	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
14,00	9,5	110	115	160	12	6	**14000**	**14000**[1]	**14000**
14,01 - 14,99	9,5	110	115	160	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
15,00	9,5	110	115	160	12	6	**15000**	**15000**[1]	**15000**
15,01 - 15,89	9,5	110	115	160	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
15,90 - 15,99	9,5	125	130	180	16	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
16,00	9,5	125	130	180	16	6	**16000**	**16000**[1]	**16000**
16,01 - 17,99	9,5	125	130	180	16	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
18,00	9,5	125	130	180	16	6	**18000**	**18000**[1]	**18000**
18,01 - 18,89	9,5	125	130	180	16	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
18,90 - 19,99	9,5	135	140	200	20	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
20,00	9,5	135	140	200	20	6	**20000**	**20000**[1]	**20000**
20,01 - 25,89	9,5	135	140	200	20	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
P							●		●
M							●		
K									●
N								●	
S									
H									
O								○	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time on request / Minimum order 2 pieces

→ v_c Page 77–80

Do not heat shrink tools !

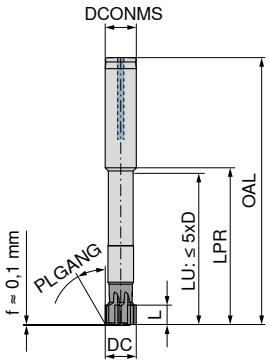
For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 653 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7).

Detailed adjustment instructions are available to download in the online shop for the item.

→ **Page 100**
Here you will find more information on chamfer geometries (ASG).

Monomax – High-speed reamers, long

- ▲ adjustable for the smallest bore tolerances
- ▲ wear compensation within the tolerance zone
- ▲ retraction from the hole at 3–4 times the cutting feed rate
- ▲ up to tolerance class IT 5 with absolute process security, from the first hole



	DBG-P	DBC	DBG-P
	56Q.65	56Q.17	56Q.65
	≤ 5xD	≤ 5xD	≤ 5xD
	PLGANG 45°	PLGANG 45/8°	PLGANG 45°
	ASG0106	ASG0706	ASG3000
	HM	HM	HM
	Blind hole	Blind hole	Blind hole
	40 645 ...	**40 641 ...**	**40 665 ...**

DC H7 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP			
5,60 - 5,99	9,5	80	85	130	12	4	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
6,00	9,5	80	85	130	12	4	**06000**[1]	**06000**[1]	**06000**[1]
6,01 - 7,99	9,5	80	85	130	12	4	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
8,00	9,5	80	85	130	12	4	**08000**[1]	**08000**[1]	**08000**[1]
8,01 - 8,89	9,5	80	85	130	12	4	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
8,90 - 9,89	9,5	80	85	130	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
9,90 - 9,99	9,5	110	115	160	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
10,00	9,5	110	115	160	12	6	**10000**[1]	**10000**[1]	**10000**[1]
10,01 - 11,99	9,5	110	115	160	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
12,00	9,5	110	115	160	12	6	**12000**[1]	**12000**[1]	**12000**[1]
12,01 - 13,99	9,5	110	115	160	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
14,00	9,5	110	115	160	12	6	**14000**[1]	**14000**[1]	**14000**[1]
14,01 - 14,99	9,5	110	115	160	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
15,00	9,5	110	115	160	12	6	**15000**[1]	**15000**[1]	**15000**[1]
15,01 - 15,89	9,5	110	115	160	12	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
15,90 - 15,99	9,5	125	130	180	16	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
16,00	9,5	125	130	180	16	6	**16000**[1]	**16000**[1]	**16000**[1]
16,01 - 17,99	9,5	125	130	180	16	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
18,00	9,5	125	130	180	16	6	**18000**[1]	**18000**[1]	**18000**[1]
18,01 - 18,89	9,5	125	130	180	16	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
18,90 - 19,99	9,5	135	140	200	20	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
20,00	9,5	135	140	200	20	6	**20000**[1]	**20000**[1]	**20000**[1]
20,01 - 25,89	9,5	135	140	200	20	6	**xxxx** [1]	**xxxx** [1]	**xxxx** [1]
P							●		●
M							●		
K									●
N								●	
S									
H									
O								○	

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→ v_c Page 77–80

Do not heat shrink tools !

For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 645 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7).

Detailed adjustment instructions are available to download in the online shop for the item.

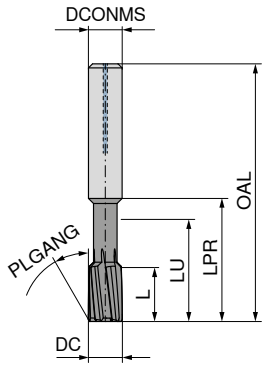
→ **Page 100**
Here you will find more information on chamfer geometries (ASG).

Fullmax – High-performance machine reamers, short

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometry and coating for universal use

UNI

DBG-U



51P.57

Left Hand Helix
PLGANG 30°
ASG2210
Solid carbide
Through hole

40 483 ...

DC $_{H7}$ mm	L mm	LU mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
4	12	24	28	50	4	4	**04000**
5	12	31	36	64	6	4	**05000**
6	12	31	36	64	6	4	**06000**
7	16	31	36	70	8	6	**07000**
8	16	31	36	70	8	6	**08000**
9	16	35	40	80	10	6	**09000**
10	16	35	40	80	10	6	**10000**
11	20	40	45	90	12	6	**11000**
12	20	40	45	90	12	6	**12000**
16	20	40	45	93	16	8	**16000**

P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c Page 83

→ **Page 100**
Here you will find more information on chamfer geometries (ASG).

Fullmax – High-performance machine reamers, short

- ▲ extremely irregular pitch
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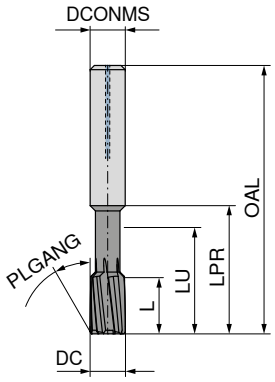
- ▲ specialised geometry and coating for universal use
- ▲ tolerance: Ø 2,96 – 6,03 mm = +0,004 mm
- ▲ tolerance: Ø 6,04 – 20,05 mm = +0,005 mm

UNI

DBG-U



51P.57

Left Hand Helix
PLGANG 30°
ASG2210
Solid carbide
Through hole

40 489 ...

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
2,96 - 3,96	12	24	28	50	4	4	**xxxxx**[1]
3,97	12	24	28	50	4	4	**03970**
3,98	12	24	28	50	4	4	**03980**
3,99	12	24	28	50	4	4	**03990**
4,00	12	24	28	50	4	4	**04000**
4,01	12	24	28	50	4	4	**04010**
4,02	12	24	28	50	4	4	**04020**
4,03	12	24	28	50	4	4	**04030**
4,04 - 4,05	12	24	28	50	4	4	**xxxxx**[1]
4,06 - 4,96	12	31	36	64	6	4	**xxxxx**[1]
4,97	12	31	36	64	6	4	**04970**
4,98	12	31	36	64	6	4	**04980**
4,99	12	31	36	64	6	4	**04990**
5,00	12	31	36	64	6	4	**05000**
5,01	12	31	36	64	6	4	**05010**
5,02	12	31	36	64	6	4	**05020**
5,03	12	31	36	64	6	4	**05030**
5,04 - 5,96	12	31	36	64	6	4	**xxxxx**[1]
5,97	12	31	36	64	6	4	**05970**
5,98	12	31	36	64	6	4	**05980**
5,99	12	31	36	64	6	4	**05990**
6,00	12	31	36	64	6	4	**06000**
6,01	12	31	36	64	6	4	**06010**
6,02	12	31	36	64	6	4	**06020**
6,03	12	31	36	64	6	4	**06030**
6,04 - 6,05	12	31	36	64	6	4	**xxxxx**[1]
6,06 - 7,96	16	31	36	70	8	6	**xxxxx**[1]
7,97	16	31	36	70	8	6	**07970**
7,98	16	31	36	70	8	6	**07980**
7,99	16	31	36	70	8	6	**07990**
8,00	16	31	36	70	8	6	**08000**
8,01	16	31	36	70	8	6	**08010**
8,02	16	31	36	70	8	6	**08020**
8,03	16	31	36	70	8	6	**08030**

P	●
M	●
K	●
N	○
S	○
H	○
O	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time on request

→ v_c Page 83

→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 489 08820)!

→ **Page 100**
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Continued on next page

Fullmax – High-performance machine reamers, short

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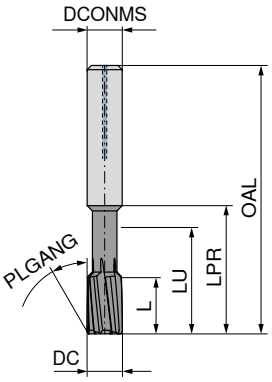
- ▲ tolerance: Ø 2,96 – 6,03 mm = +0,004 mm
- ▲ tolerance: Ø 6,04 – 20,05 mm = +0,005 mm

UNI

DBG-U



51P.57

Left Hand Helix
PLGANG 30°
ASG2210
Solid carbide
Through hole

40 489 ...

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
8,04 - 8,05	16	31	36	70	8	6	**xxxxx**[1]
8,06 - 9,96	16	35	40	80	10	6	**xxxxx**[1]
9,97	16	35	40	80	10	6	**09970**
9,98	16	35	40	80	10	6	**09980**
9,99	16	35	40	80	10	6	**09990**
10,00	16	35	40	80	10	6	**10000**
10,01	16	35	40	80	10	6	**10010**
10,02	16	35	40	80	10	6	**10020**
10,03	16	35	40	80	10	6	**10030**
10,04 - 10,05	16	35	40	80	10	6	**xxxxx**[1]
10,06 - 11,96	20	40	45	90	12	6	**xxxxx**[1]
11,97	20	40	45	90	12	6	**11970**
11,98	20	40	45	90	12	6	**11980**
11,99	20	40	45	90	12	6	**11990**
12,00	20	40	45	90	12	6	**12000**
12,01	20	40	45	90	12	6	**12010**
12,02	20	40	45	90	12	6	**12020**
12,03	20	40	45	90	12	6	**12030**
12,04 - 12,05	20	40	45	90	12	6	**xxxxx**[1]
12,06 - 14,05	20	40	45	90	14	6	**xxxxx**[1]
14,06 - 15,96	20	40	45	93	16	6	**xxxxx**[1]
15,97 - 16,05	20	40	45	93	16	8	**xxxxx**[1]
16,06 - 18,05	20	47	52	100	18	8	**xxxxx**[1]
18,06 - 20,05	20	45	50	102	20	8	**xxxxx**[1]

P	●
M	●
K	●
N	○
S	○
H	○
O	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time on request

→ v_c Page 83

→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 489 08820)!

→ **Page 100**
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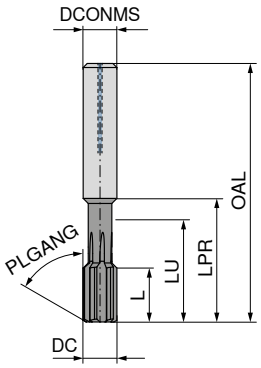
Fullmax – High-performance machine reamers, short

▲ extremely irregular pitch
▲ designed for high-speed machining
▲ specialised geometry and coating for universal use

UNI

DBG-U



51M.57

straight flute
PLGANG 60°
ASG2110
Solid carbide
Blind hole

40 481 ...

DC $_{H7}$ mm	L mm	LU mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
4	12	24	28	50	4	4	**04000**
5	12	31	36	64	6	4	**05000**
6	12	31	36	64	6	4	**06000**
7	16	31	36	70	8	6	**07000**
8	16	31	36	70	8	6	**08000**
9	16	35	40	80	10	6	**09000**
10	16	35	40	80	10	6	**10000**
11	20	40	45	90	12	6	**11000**
12	20	40	45	90	12	6	**12000**
16	20	40	45	93	16	8	**16000**

P	●
M	●
K	●
N	○
S	○
H	○
O	

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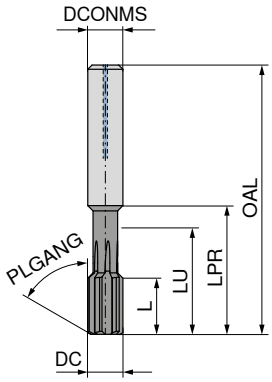
- ▲ tolerance: Ø 2,96 – 6,03 mm = +0,004 mm
- ▲ tolerance: Ø 6,04 – 20,05 mm = +0,005 mm

UNI

DBG-U



51M.57

straight flute
PLGANG 60°
ASG2110
Solid carbide
Blind hole

40 488 ...

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
2,96 - 3,96	12	24	28	50	4	4	xxxxx[1]
3,97	12	24	28	50	4	4	03970
3,98	12	24	28	50	4	4	03980
3,99	12	24	28	50	4	4	03990
4,00	12	24	28	50	4	4	04000
4,01	12	24	28	50	4	4	04010
4,02	12	24	28	50	4	4	04020
4,03	12	24	28	50	4	4	04030
4,04 - 4,05	12	24	28	50	4	4	xxxxx[1]
4,06 - 4,96	12	31	36	64	6	4	xxxxx[1]
4,97	12	31	36	64	6	4	04970
4,98	12	31	36	64	6	4	04980
4,99	12	31	36	64	6	4	04990
5,00	12	31	36	64	6	4	05000
5,01	12	31	36	64	6	4	05010
5,02	12	31	36	64	6	4	05020
5,03	12	31	36	64	6	4	05030
5,04 - 5,96	12	31	36	64	6	4	xxxxx[1]
5,97	12	31	36	64	6	4	05970
5,98	12	31	36	64	6	4	05980
5,99	12	31	36	64	6	4	05990
6,00	12	31	36	64	6	4	06000
6,01	12	31	36	64	6	4	06010
6,02	12	31	36	64	6	4	06020
6,03	12	31	36	64	6	4	06030
6,04 - 6,05	12	31	36	64	6	4	xxxxx[1]
6,06 - 7,96	16	31	36	70	8	6	xxxxx[1]
7,97	16	31	36	70	8	6	07970
7,98	16	31	36	70	8	6	07980
7,99	16	31	36	70	8	6	07990
8,00	16	31	36	70	8	6	08000
8,01	16	31	36	70	8	6	08010
8,02	16	31	36	70	8	6	08020
8,03	16	31	36	70	8	6	08030

P	●
M	●
K	●
N	○
S	○
H	○
O	

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→ v_c Page 83

→ **Page 101**
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For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 488 08820)!

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Here you will find more information on chamfer geometries (ASG).

Continued on next page

Fullmax – High-performance machine reamers, short

- ▲ extremely irregular pitch
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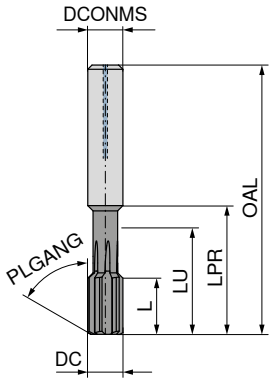
- ▲ specialised geometry and coating for universal use
- ▲ tolerance: Ø 2,96 – 6,03 mm = +0,004 mm
- ▲ tolerance: Ø 6,04 – 20,05 mm = +0,005 mm

UNI

DBG-U



51M.57

straight flute
PLGANG 60°
ASG2110
Solid carbide
Blind hole

40 488 ...

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
8,04 - 8,05	16	31	36	70	8	6	**xxxxx**[1]
8,06 - 9,96	16	35	40	80	10	6	**xxxxx**[1]
9,97	16	35	40	80	10	6	**09970**
9,98	16	35	40	80	10	6	**09980**
9,99	16	35	40	80	10	6	**09990**
10,00	16	35	40	80	10	6	**10000**
10,01	16	35	40	80	10	6	**10010**
10,02	16	35	40	80	10	6	**10020**
10,03	16	35	40	80	10	6	**10030**
10,04 - 10,05	16	35	40	80	10	6	**xxxxx**[1]
10,06 - 11,96	20	40	45	90	12	6	**xxxxx**[1]
11,97	20	40	45	90	12	6	**11970**
11,98	20	40	45	90	12	6	**11980**
11,99	20	40	45	90	12	6	**11990**
12,00	20	40	45	90	12	6	**12000**
12,01	20	40	45	90	12	6	**12010**
12,02	20	40	45	90	12	6	**12020**
12,03	20	40	45	90	12	6	**12030**
12,04 - 12,05	20	40	45	90	12	6	**xxxxx**[1]
12,06 - 14,05	20	40	45	90	14	6	**xxxxx**[1]
14,06 - 15,96	20	40	45	93	16	6	**xxxxx**[1]
15,97 - 16,05	20	40	45	93	16	8	**xxxxx**[1]
16,06 - 18,05	20	47	52	100	18	8	**xxxxx**[1]
18,06 - 20,05	20	45	50	102	20	8	**xxxxx**[1]

P	●
M	●
K	●
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O	

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→ v_c Page 83

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Fullmax – High-performance machine reamers, long

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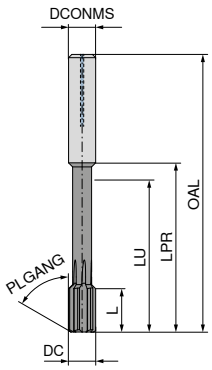

UNI	VA	ALU
DBG-U	DBQ	DBC-N
52P.57	52S.44	52N.17
Left Hand Helix	Left Hand Helix	straight flute
PLGANG 30°	PLGANG 30°	PLGANG 30°
ASG2210	ASG2231	ASG2270
Solid carbide	Solid carbide	Solid carbide
Through hole	Through hole	Through hole
40 484 ...	**40 401 ...**	**40 471 ...**

DC $_{H7}$ mm	L mm	LU mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP			
4	12	28	32	60	4	4	**04000**	**04000**	**04000**[1)]
5	12	35	40	76	6	4	**05000**	**05000**	**05000**[1)]
6	12	35	40	76	6	4	**06000**	**06000**	**06000**[1)]
7	16	60	65	101	8	6	**07000**	**07000**	**07000**[1)]
8	16	60	65	101	8	6	**08000**	**08000**	**08000**[1)]
9	16	63	68	108	10	6	**09000**	**09000**	**09000**[1)]
10	16	63	68	108	10	6	**10000**	**10000**	**10000**[1)]
11	20	80	85	130	12	6	**11000**	**11000**	**11000**[1)]
12	20	80	85	130	12	6	**12000**	**12000**	**12000**[1)]
16	20	97	102	150	16	6	**16000**	**16000**	**16000**[1)]

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H	○		
O			○

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→ v_c Page 81+82

→ **Page 100**
Here you will find more information on chamfer geometries (ASG).

Fullmax – High-performance machine reamers, long

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- ▲ specialised geometries and coatings
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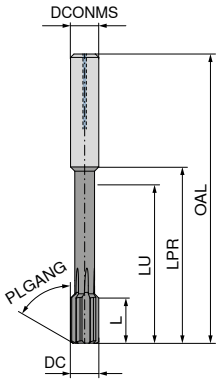
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm



UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A
52P.57	52S.44	52J.65	52N.17	52G.55
Left Hand Helix	Left Hand Helix	straight flute	straight flute	straight flute
PLGANG 30°	PLGANG 30°	PLGANG 30°	PLGANG 30°	PLGANG 30°
ASG2210	ASG2231	ASG2350	ASG2270	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Through hole	Through hole	Through hole	Through hole	Through hole
40 486 ...	**40 403 ...**	**40 477 ...**	**40 473 ...**	**40 475 ...**

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP					
2,96 - 3,96	12	28	32	60	4	4	xxxxx[2]	xxxxx[1]		xxxxx[1]	xxxxx[1]
2,96 - 3,96	12	28	32	60	4	6			xxxxx[1]		
3,97	12	28	32	60	4	4	03970	03970[1]		03970[1]	03970[1]
3,97	12	28	32	60	4	6			03970[1]		
3,98	12	28	32	60	4	4	03980	03980[1]		03980[1]	03980[1]
3,98	12	28	32	60	4	6			03980[1]		
3,99	12	28	32	60	4	4	03990	03990[1]		03990[1]	03990[1]
3,99	12	28	32	60	4	6			03990[1]		
4,00	12	28	32	60	4	4	04000	04000[1]		04000[1]	04000[1]
4,00	12	28	32	60	4	6			04000[1]		
4,01	12	28	32	60	4	4	04010	04010[1]		04010[1]	04010[1]
4,01	12	28	32	60	4	6			04010[1]		
4,02	12	28	32	60	4	4	04020	04020[1]		04020[1]	04020[1]
4,02	12	28	32	60	4	6			04020[1]		
4,03	12	28	32	60	4	4	04030	04030[1]		04030[1]	04040[1]
4,03	12	28	32	60	4	6			04030[1]		
4,04 - 4,05	12	28	32	60	4	4	xxxxx[2]	xxxxx[1]		xxxxx[1]	xxxxx[1]
4,04 - 4,05	12	28	32	60	4	6			xxxxx[1]		
4,06 - 4,96	12	35	40	76	6	4	xxxxx[2]	xxxxx[1]		xxxxx[1]	xxxxx[1]
4,06 - 4,96	12	35	40	76	6	6			xxxxx[1]		
4,97	12	35	40	76	6	4	04970	04970[1]		04970[1]	04970[1]
4,97	12	35	40	76	6	6			04970[1]		
4,98	12	35	40	76	6	4	04980	04980[1]		04980[1]	04980[1]
4,98	12	35	40	76	6	6			04980[1]		
4,99	12	35	40	76	6	4	04990	04990[1]		04990[1]	04990[1]
4,99	12	35	40	76	6	6			04990[1]		
5,00	12	35	40	76	6	4	05000	05000[1]		05000[1]	05000[1]
5,00	12	35	40	76	6	6			05000[1]		
5,01	12	35	40	76	6	4	05010	05010[1]		05010[1]	05010[1]
5,01	12	35	40	76	6	6			05010[1]		
5,02	12	35	40	76	6	4	05020	05020[1]		05020[1]	05020[1]

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Continued on next page

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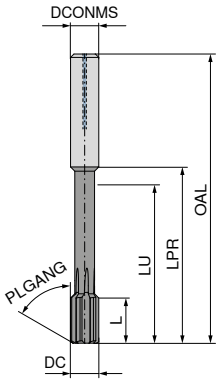

UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A
52P.57	52S.44	52J.65	52N.17	52G.55
Left Hand Helix	Left Hand Helix	straight flute	straight flute	straight flute
PLGANG 30°	PLGANG 30°	PLGANG 30°	PLGANG 30°	PLGANG 30°
ASG2210	ASG2231	ASG2350	ASG2270	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Through hole	Through hole	Through hole	Through hole	Through hole

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	40 486 ...	40 403 ...	40 477 ...	40 473 ...	40 475 ...
5,02	12	35	40	76	6	6			05020[1]		
5,03	12	35	40	76	6	4	05030	05030[1]		05030[1]	05030[1]
5,03	12	35	40	76	6	6			05030[1]		
5,04 - 5,96	12	35	40	76	6	4	xxxxx[2]	xxxxx[1]		xxxxx[1]	xxxxx[1]
5,04 - 5,96	12	35	40	76	6	6			xxxxx[1]		
5,97	12	35	40	76	6	4	05970	05970[1]		05970[1]	05970[1]
5,97	12	35	40	76	6	6			05970[1]		
5,98	12	35	40	76	6	4	05980	05980[1]		05980[1]	05980[1]
5,98	12	35	40	76	6	6			05980[1]		
5,99	12	35	40	76	6	4	05990	05990[1]		05990[1]	05990[1]
5,99	12	35	40	76	6	6			05990[1]		
6,00	12	35	40	76	6	4	06000	06000[1]		06000[1]	06000[1]
6,00	12	35	40	76	6	6			06000[1]		
6,01	12	35	40	76	6	4	06010	06010[1]		06010[1]	06010[1]
6,01	12	35	40	76	6	6			06010[1]		
6,02	12	35	40	76	6	4	06020	06020[1]		06020[1]	06020[1]
6,02	12	35	40	76	6	6			06020[1]		
6,03	12	35	40	76	6	4	06030	06030[1]		06030[1]	06030[1]
6,03	12	35	40	76	6	6			06030[1]		
6,04 - 6,05	12	35	40	76	6	4	xxxxx[2]	xxxxx[1]		xxxxx[1]	xxxxx[1]
6,04 - 6,05	12	35	40	76	6	6			xxxxx[1]		
6,06 - 7,96	16	60	65	101	8	6	xxxxx[2]	xxxxx[1]		xxxxx[1]	xxxxx[1]
6,06 - 7,96	16	60	65	101	8	8			xxxxx[1]		
7,97	16	60	65	101	8	6	07970	07970[1]		07970[1]	07970[1]
7,97	16	60	65	101	8	8			07970[1]		
7,98	16	60	65	101	8	6	07980	07980[1]		07980[1]	07980[1]
7,98	16	60	65	101	8	8			07980[1]		
7,99	16	60	65	101	8	6	07990	07990[1]		07990[1]	07990[1]
7,99	16	60	65	101	8	8			07990[1]		
8,00	16	60	65	101	8	6	08000	08000[1]		08000[1]	08000[1]
8,00	16	60	65	101	8	8			08000[1]		

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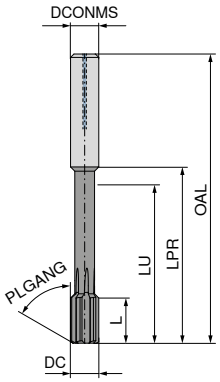

UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A
52P.57	52S.44	52J.65	52N.17	52G.55
Left Hand Helix	Left Hand Helix	straight flute	straight flute	straight flute
PLGANG 30°	PLGANG 30°	PLGANG 30°	PLGANG 30°	PLGANG 30°
ASG2210	ASG2231	ASG2350	ASG2270	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Through hole	Through hole	Through hole	Through hole	Through hole

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	40 486 ...	40 403 ...	40 477 ...	40 473 ...	40 475 ...
8,01	16	60	65	101	8	6	08010	08010[1]		08010[1]	08010[1]
8,01	16	60	65	101	8	8			08010[1]		
8,02	16	60	65	101	8	6	08020	08020[1]		08020[1]	08020[1]
8,02	16	60	65	101	8	8			08020[1]		
8,03	16	60	65	101	8	6	08030	08030[1]		08030[1]	08030[1]
8,03	16	60	65	101	8	8			08030[1]		
8,04 - 8,05	16	60	65	101	8	6	xxxxx[2]	xxxxx[1]		xxxxx[1]	xxxxx[1]
8,04 - 8,05	16	60	65	101	8	8			xxxxx[1]		
8,06 - 9,96	16	63	68	108	10	6	xxxxx[2]	xxxxx[1]		xxxxx[1]	xxxxx[1]
8,06 - 9,96	16	63	68	108	10	8			xxxxx[1]		
9,97	16	63	68	108	10	6	09970	09970[1]		09970[1]	09970[1]
9,97	16	63	68	108	10	8			09970[1]		
9,98	16	63	68	108	10	6	09980	09980[1]		09980[1]	09980[1]
9,98	16	63	68	108	10	8			09980[1]		
9,99	16	63	68	108	10	6	09990	09990[1]		09990[1]	09990[1]
9,99	16	63	68	108	10	8			09990[1]		
10,00	16	63	68	108	10	6	10000	10000[1]		10000[1]	10000[1]
10,00	16	63	68	108	10	8			10000[1]		
10,01	16	63	68	108	10	6	10010	10010[1]		10010[1]	10010[1]
10,01	16	63	68	108	10	8			10010[1]		
10,02	16	63	68	108	10	6	10020	10020[1]		10020[1]	10020[1]
10,02	16	63	68	108	10	8			10020[1]		
10,03	16	63	68	108	10	6	10030	10030[1]		10030[1]	10030[1]
10,03	16	63	68	108	10	8			10030[1]		
10,04 - 10,05	16	63	68	108	10	6	xxxxx[2]	xxxxx[1]		xxxxx[1]	xxxxx[1]
10,04 - 10,05	16	63	68	108	10	8			xxxxx[1]		
10,06 - 11,96	20	80	85	130	12	6	xxxxx[2]	xxxxx[1]		xxxxx[1]	xxxxx[1]
10,06 - 11,96	20	80	85	130	12	8			xxxxx[1]		
11,97	20	80	85	130	12	6	11970	11970[1]		11970[1]	11970[1]
11,97	20	80	85	130	12	8			11970[1]		
11,98	20	80	85	130	12	6	11980	11980[1]		11980[1]	11980[1]

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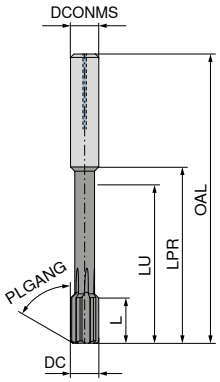

UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A

52P.57	52S.44	52J.65	52N.17	52G.55
Left Hand Helix	Left Hand Helix	straight flute	straight flute	straight flute
PLGANG 30°	PLGANG 30°	PLGANG 30°	PLGANG 30°	PLGANG 30°
ASG2210	ASG2231	ASG2350	ASG2270	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Through hole	Through hole	Through hole	Through hole	Through hole
40 486 ...	**40 403 ...**	**40 477 ...**	**40 473 ...**	**40 475 ...**

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP									
11,98	20	80	85	130	12	8					11980[1]				
11,99	20	80	85	130	12	6	11990		11990[1]				11990[1]		11990[1]
11,99	20	80	85	130	12	8					11990[1]				
12,00	20	80	85	130	12	6	12000		12000[1]				12000[1]		12000[1]
12,00	20	80	85	130	12	8					12000[1]				
12,01	20	80	85	130	12	6	12010		12010[1]				12010[1]		12010[1]
12,01	20	80	85	130	12	8					12010[1]				
12,02	20	80	85	130	12	6	12020		12020[1]				12020[1]		12020[1]
12,02	20	80	85	130	12	8					12020[1]				
12,03	20	80	85	130	12	6	12030		12030[1]				12030[1]		12030[1]
12,03	20	80	85	130	12	8					12030[1]				
12,04 - 12,05	20	80	85	130	12	6	xxxxx[2]		xxxxx[1]				xxxxx[1]		xxxxx[1]
12,04 - 12,05	20	80	85	130	12	8					xxxxx[1]				
12,06 - 14,05	20	80	85	130	14	6	xxxxx[2]		xxxxx[1]				xxxxx[1]		xxxxx[1]
12,06 - 14,05	20	80	85	130	14	8					xxxxx[1]				
14,06 - 16,05	20	97	102	150	16	6	xxxxx[2]		xxxxx[1]				xxxxx[1]		xxxxx[1]
14,06 - 16,05	20	97	102	150	16	8					xxxxx[1]				
16,06 - 18,05	20	97	102	150	18	6	xxxxx[2]		xxxxx[1]				xxxxx[1]		xxxxx[1]
16,06 - 18,05	20	97	102	150	18	8					xxxxx[1]				
18,06 - 20,05	20	105	110	160	20	6	xxxxx[2]		xxxxx[1]				xxxxx[1]		xxxxx[1]
18,06 - 20,05	20	105	110	160	20	8					xxxxx[1]				

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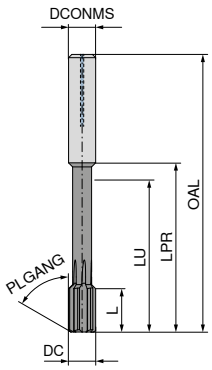

UNI	VA	ALU
DBG-U	DBQ	DBC-N
52M.57	52T.45	52Q.17
straight flute	straight flute	straight flute
PLGANG 60°	PLGANG 45°	PLGANG 60°
ASG2110	ASG2131	ASG2170
Solid carbide	Solid carbide	Solid carbide
Blind hole	Blind hole	Blind hole
40 485 ...	**40 402 ...**	**40 472 ...**

DC $_{H7}$ mm	L mm	LU mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP			
4	12	28	32	60	4	4	**04000**	**04000**	**04000**[1)]
5	12	35	40	76	6	4	**05000**	**05000**	**05000**[1)]
6	12	35	40	76	6	4	**06000**	**06000**	**06000**[1)]
7	16	60	65	101	8	6	**07000**	**07000**	**07000**[1)]
8	16	60	65	101	8	6	**08000**	**08000**	**08000**[1)]
9	16	63	68	108	10	6	**09000**	**09000**	**09000**[1)]
10	16	63	68	108	10	6	**10000**	**10000**	**10000**[1)]
11	20	80	85	130	12	6	**11000**	**11000**	**11000**[1)]
12	20	80	85	130	12	6	**12000**	**12000**	**12000**[1)]
16	20	97	102	150	16	6	**16000**	**16000**	**16000**[1)]

P	●	●	
M	●	●	
K	●		
N	○		●
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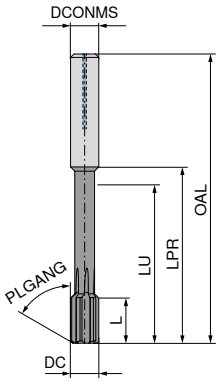

UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A

	52M.57	52T.45	52K.65	52Q.17	52H.55
	straight flute	straight flute	straight flute	straight flute	straight flute
	PLGANG 60°	PLGANG 45°	PLGANG 30°	PLGANG 60°	PLGANG 30°
	ASG2110	ASG2131	ASG2350	ASG2170	ASG2360
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	Blind hole	Blind hole	Blind hole	Blind hole	Blind hole
	40 487 ...	**40 404 ...**	**40 478 ...**	**40 474 ...**	**40 476 ...**

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP					
2,96 - 3,96	12	28	32	60	4	4	**xxxxx**[2]	**xxxxx**[1]		**xxxxx**[1]	**xxxxx**[1]
2,96 - 3,96	12	28	32	60	4	6			**xxxxx**[1]		
3,97	12	28	32	60	4	4	**03970**	**03970**[1]		**03970**[1]	**03970**[1]
3,97	12	28	32	60	4	6			**03970**[1]		
3,98	12	28	32	60	4	4	**03980**	**03980**[1]		**03980**[1]	**03980**[1]
3,98	12	28	32	60	4	6			**03980**[1]		
3,99	12	28	32	60	4	4	**03990**	**03990**[1]		**03990**[1]	**03990**[1]
3,99	12	28	32	60	4	6			**03990**[1]		
4,00	12	28	32	60	4	4	**04000**	**04000**[1]		**04000**[1]	**04000**[1]
4,00	12	28	32	60	4	6			**04000**[1]		
4,01	12	28	32	60	4	4	**04010**	**04010**[1]		**04010**[1]	**04010**[1]
4,01	12	28	32	60	4	6			**04010**[1]		
4,02	12	28	32	60	4	4	**04020**	**04020**[1]		**04020**[1]	**04020**[1]
4,02	12	28	32	60	4	6			**04020**[1]		
4,03	12	28	32	60	4	4	**04030**	**04030**[1]		**04030**[1]	**04030**[1]
4,03	12	28	32	60	4	6			**04030**[1]		
4,04 - 4,05	12	28	32	60	4	4	**xxxxx**[2]	**xxxxx**[1]		**xxxxx**[1]	**xxxxx**[1]
4,04 - 4,05	12	28	32	60	4	6			**xxxxx**[1]		
4,06 - 4,96	12	35	40	76	6	4	**xxxxx**[2]	**xxxxx**[1]		**xxxxx**[1]	**xxxxx**[1]
4,06 - 4,96	12	35	40	76	6	6			**xxxxx**[1]		
4,97	12	35	40	76	6	4	**04970**	**04970**[1]		**04970**[1]	**04970**[1]
4,97	12	35	40	76	6	6			**04970**[1]		
4,98	12	35	40	76	6	4	**04980**	**04980**[1]		**04980**[1]	**04980**[1]
4,98	12	35	40	76	6	6			**04980**[1]		
4,99	12	35	40	76	6	4	**04990**	**04990**[1]		**04990**[1]	**04990**[1]
4,99	12	35	40	76	6	6			**04990**[1]		
5,00	12	35	40	76	6	4	**05000**	**05000**[1]		**05000**[1]	**05000**[1]
5,00	12	35	40	76	6	6			**05000**[1]		
5,01	12	35	40	76	6	4	**05010**	**05010**[1]		**05010**[1]	**05010**[1]
5,01	12	35	40	76	6	6			**05010**[1]		
5,02	12	35	40	76	6	4	**05020**	**05020**[1]		**05020**[1]	**05020**[1]

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→ v_c Page 81+82

→ **Page 101**
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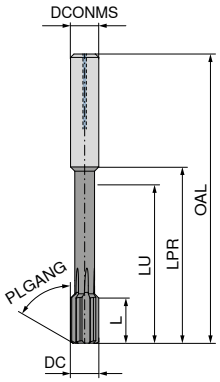
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 487 08820)!

→ **Page 100**
Here you will find more information on chamfer geometries (ASG).

Continued on next page

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm



UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A

52M.57	52T.45	52K.65	52Q.17	52H.55
straight flute	straight flute	straight flute	straight flute	straight flute
PLGANG 60°	PLGANG 45°	PLGANG 30°	PLGANG 60°	PLGANG 30°
ASG2110	ASG2131	ASG2350	ASG2170	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Blind hole	Blind hole	Blind hole	Blind hole	Blind hole
40 487 ...	**40 404 ...**	**40 478 ...**	**40 474 ...**	**40 476 ...**

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP									
5,02	12	35	40	76	6	6					05020[1]				
5,03	12	35	40	76	6	4	05030		05030[1]				05030[1]		05030[1]
5,03	12	35	40	76	6	6					05030[1]				
5,04 - 5,96	12	35	40	76	6	4	xxxxx[2]		xxxxx[1]				xxxxx[1]		xxxxx[1]
5,04 - 5,96	12	35	40	76	6	6					xxxxx[1]				
5,97	12	35	40	76	6	4	05970		05970[1]				05970[1]		05970[1]
5,97	12	35	40	76	6	6					05970[1]				
5,98	12	35	40	76	6	4	05980		05980[1]				05980[1]		05980[1]
5,98	12	35	40	76	6	6					05980[1]				
5,99	12	35	40	76	6	4	05990		05990[1]				05990[1]		05990[1]
5,99	12	35	40	76	6	6					05990[1]				
6,00	12	35	40	76	6	4	06000		06000[1]				06000[1]		06000[1]
6,00	12	35	40	76	6	6					06000[1]				
6,01	12	35	40	76	6	4	06010		06010[1]				06010[1]		06010[1]
6,01	12	35	40	76	6	6					06010[1]				
6,02	12	35	40	76	6	4	06020		06020[1]				06020[1]		06020[1]
6,02	12	35	40	76	6	6					06020[1]				
6,03	12	35	40	76	6	4	06030		06030[1]				06030[1]		06030[1]
6,03	12	35	40	76	6	6					06030[1]				
6,04 - 6,05	12	35	40	76	6	4	xxxxx[2]		xxxxx[1]				xxxxx[1]		xxxxx[1]
6,04 - 6,05	12	35	40	76	6	6					xxxxx[1]				
6,06 - 7,96	16	60	65	101	8	6	xxxxx[2]		xxxxx[1]				xxxxx[1]		xxxxx[1]
6,06 - 7,96	16	60	65	101	8	8					xxxxx[1]				
7,97	16	60	65	101	8	6	07970		07970[1]				07970[1]		07970[1]
7,97	16	60	65	101	8	8					07970[1]				
7,98	16	60	65	101	8	6	07980		07980[1]				07980[1]		07980[1]
7,98	16	60	65	101	8	8					07980[1]				
7,99	16	60	65	101	8	6	07990		07990[1]				07990[1]		07990[1]
7,99	16	60	65	101	8	8					07990[1]				
8,00	16	60	65	101	8	6	08000		08000[1]				08000[1]		08000[1]
8,00	16	60	65	101	8	8					08000[1]				

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→ v_c Page 81+82

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Continued on next page

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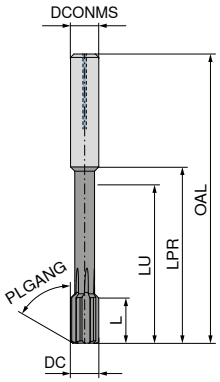

UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A

52M.57	52T.45	52K.65	52Q.17	52H.55
straight flute	straight flute	straight flute	straight flute	straight flute
PLGANG 60°	PLGANG 45°	PLGANG 30°	PLGANG 60°	PLGANG 30°
ASG2110	ASG2131	ASG2350	ASG2170	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Blind hole	Blind hole	Blind hole	Blind hole	Blind hole

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	40 487 ...	40 404 ...	40 478 ...	40 474 ...	40 476 ...
8,01	16	60	65	101	8	6	08010	08010[1]		08010[1]	08010[1]
8,01	16	60	65	101	8	8			08010[1]		
8,02	16	60	65	101	8	6	08020	08020[1]		08020[1]	08020[1]
8,02	16	60	65	101	8	8			08020[1]		
8,03	16	60	65	101	8	6	08030	08030[1]		08030[1]	08030[1]
8,03	16	60	65	101	8	8			08030[1]		
8,04 - 8,05	16	60	65	101	8	6	xxxxx[2]	xxxxx[1]		xxxxx[1]	xxxxx[1]
8,04 - 8,05	16	60	65	101	8	8			xxxxx[1]		
8,06 - 9,96	16	63	68	108	10	6	xxxxx[2]	xxxxx[1]		xxxxx[1]	xxxxx[1]
8,06 - 9,96	16	63	68	108	10	8			xxxxx[1]		
9,97	16	63	68	108	10	6	09970	09970[1]		09970[1]	09970[1]
9,97	16	63	68	108	10	8			09970[1]		
9,98	16	63	68	108	10	6	09980	09980[1]		09980[1]	09980[1]
9,98	16	63	68	108	10	8			09980[1]		
9,99	16	63	68	108	10	6	09990	09990[1]		09990[1]	09990[1]
9,99	16	63	68	108	10	8			09990[1]		
10,00	16	63	68	108	10	6	10000	10000[1]		10000[1]	10000[1]
10,00	16	63	68	108	10	8			10000[1]		
10,01	16	63	68	108	10	6	10010	10010[1]		10010[1]	10010[1]
10,01	16	63	68	108	10	8			10010[1]		
10,02	16	63	68	108	10	6	10020	10020[1]		10020[1]	10020[1]
10,02	16	63	68	108	10	8			10020[1]		
10,03	16	63	68	108	10	6	10030	10030[1]		10030[1]	10030[1]
10,03	16	63	68	108	10	8			10030[1]		
10,04 - 10,05	16	63	68	108	10	6	xxxxx[2]	xxxxx[1]		xxxxx[1]	xxxxx[1]
10,04 - 10,05	16	63	68	108	10	8			xxxxx[1]		
10,06 - 11,96	20	80	85	130	12	6	xxxxx[2]	xxxxx[1]		xxxxx[1]	xxxxx[1]
10,06 - 11,96	20	80	85	130	12	8			xxxxx[1]		
11,97	20	80	85	130	12	6	11970	11970[1]		11970[1]	11970[1]
11,97	20	80	85	130	12	8			11970[1]		
11,98	20	80	85	130	12	6	11980	11980[1]		11980[1]	11980[1]

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→ v_c Page 81+82

→ **Page 101**
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For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 487 08820)!

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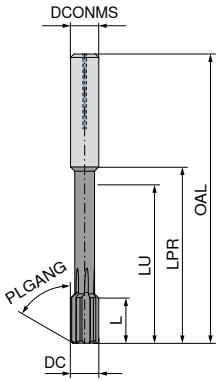
Continued on next page

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm



UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A

52M.57	52T.45	52K.65	52Q.17	52H.55
straight flute	straight flute	straight flute	straight flute	straight flute
PLGANG 60°	PLGANG 45°	PLGANG 30°	PLGANG 60°	PLGANG 30°
ASG2110	ASG2131	ASG2350	ASG2170	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Blind hole	Blind hole	Blind hole	Blind hole	Blind hole

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	40 487 ...	40 404 ...	40 478 ...	40 474 ...	40 476 ...
11,98	20	80	85	130	12	8			11980[1]		
11,99	20	80	85	130	12	6	11990	11990[1]		11990[1]	11990[1]
11,99	20	80	85	130	12	8			11990[1]		
12,00	20	80	85	130	12	6	12000	12000[1]		12000[1]	12000[1]
12,00	20	80	85	130	12	8			12000[1]		
12,01	20	80	85	130	12	6	12010	12010[1]		12010[1]	12010[1]
12,01	20	80	85	130	12	8			12010[1]		
12,02	20	80	85	130	12	6	12020	12020[1]		12020[1]	12020[1]
12,02	20	80	85	130	12	8			12020[1]		
12,03	20	80	85	130	12	6	12030	12030[1]		12030[1]	12030[1]
12,03	20	80	85	130	12	8			12030[1]		
12,04 - 12,05	20	80	85	130	12	6	xxxxx[2]	xxxxx[1]		xxxxx[1]	xxxxx[1]
12,04 - 12,05	20	80	85	130	12	8			xxxxx[1]		
12,06 - 14,05	20	80	85	130	14	6	xxxxx[2]	xxxxx[1]		xxxxx[1]	xxxxx[1]
12,06 - 14,05	20	80	85	130	14	8			xxxxx[1]		
14,06 - 16,05	20	97	102	150	16	6	xxxxx[2]	xxxxx[1]		xxxxx[1]	xxxxx[1]
14,06 - 16,05	20	97	102	150	16	8			xxxxx[1]		
16,06 - 18,05	20	97	102	150	18	6	xxxxx[2]	xxxxx[1]		xxxxx[1]	xxxxx[1]
16,06 - 18,05	20	97	102	150	18	8			xxxxx[1]		
18,06 - 20,05	20	105	110	160	20	6	xxxxx[2]	xxxxx[1]		xxxxx[1]	xxxxx[1]
18,06 - 20,05	20	105	110	160	20	8			xxxxx[1]		

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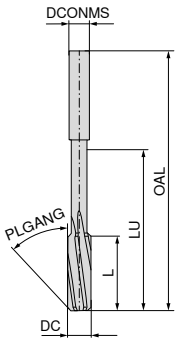
NC machine reamers, DIN 8093-2B

- ▲ extremely irregular pitch
- ▲ Ø 2–3.5 mm with centres both ends
- ▲ Ø 4–13 mm with protected centres
- ▲ from Ø 22 mm, similar to DIN 8093-2B
- ▲ PLGANG ≤ Ø 3,75 = 30° / > Ø 3,75 = 45°

NC



Left Hand Helix
Solid carbide
Through hole

40 420 ...

DC H7 mm	L mm	LU mm	OAL mm	DCONMS h6 mm	ZEFP	
2,0	12	18,5	50	3	4	**020**
2,5	16	29,0	60	3	4	**025**
3,0	17	33,0	65	4	6	**030**
3,2	18	33,0	65	4	6	**032**
3,5	18	43,0	75	4	6	**035**
4,0	19	43,0	75	4	6	**040**
4,5	21	39,0	80	6	6	**045**
5,0	23	52,0	93	6	6	**050**
5,5	26	53,0	93	6	6	**055**
6,0	26	53,0	93	6	6	**060**
6,5	28	61,0	101	6	6	**065**
7,0	31	68,0	109	8	6	**070**
7,5	31	68,0	109	8	6	**075**
8,0	33	77,0	117	8	6	**080**
8,5	33	77,0	117	8	6	**085**
9,0	36	80,0	125	10	6	**090**
9,5	36	80,0	125	10	6	**095**
10,0	38	88,0	133	10	6	**100**
10,5	38	88,0	133	10	6	**105**
11,0	41	97,0	142	10	6	**110**
12,0	44	100,0	151	12	6	**120**
13,0	44	100,0	151	12	6	**130**
14,0	47	106,0	160	16	6	**140** 1)
15,0	50	108,0	162	16	6	**150** 1)
16,0	52	116,0	170	16	6	**160** 1)
17,0	52	121,0	175	18	6	**170** 1)
18,0	52	128,0	182	18	6	**180** 1)
19,0	52	133,0	189	20	6	**190** 1)
20,0	52	139,0	195	20	6	**200** 1)
22,0	25	105,0	160	20	6	**220** 1)
24,0	25	125,0	180	20	8	**240** 1)
25,0	25	125,0	180	20	8	**250** 1)
26,0	25	125,0	180	20	8	**260** 1)
28,0	25	119,0	180	25	8	**280** 1)
30,0	25	139,0	200	25	8	**300** 1)

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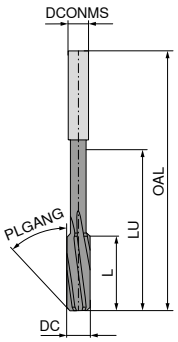
1) with carbide cutting edges

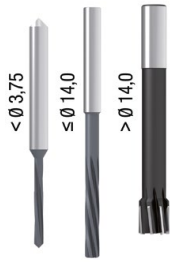
NC machine reamers, DIN 8093-2B

- ▲ extremely irregular pitch
- ▲ Ø 2–3.5 mm with centres both ends
- ▲ Ø 4–13 mm with protected centres
- ▲ PLGANG ≤ Ø 3,75 = 30° / > Ø 3,75 = 45°

NC

TiAlN





Left Hand Helix
Solid carbide
Through hole

40 421 ...

DC H7 mm	L mm	LU mm	OAL mm	DCONMS h6 mm	ZEFP	
2,0	12	18,5	50	3	4	**020**
2,5	16	29,0	60	3	4	**025**
3,0	17	33,0	65	4	6	**030**
3,2	18	33,0	65	4	6	**032**
3,5	18	43,0	75	4	6	**035**
4,0	19	43,0	75	4	6	**040**
4,5	21	39,0	80	6	6	**045**
5,0	23	52,0	93	6	6	**050**
5,5	26	53,0	93	6	6	**055**
6,0	26	53,0	93	6	6	**060**
6,5	28	61,0	101	6	6	**065**
7,0	31	68,0	109	8	6	**070**
7,5	31	68,0	109	8	6	**075**
8,0	33	77,0	117	8	6	**080**
8,5	33	77,0	117	8	6	**085**
9,0	36	80,0	125	10	6	**090**
9,5	36	80,0	125	10	6	**095**
10,0	38	88,0	133	10	6	**100**
10,5	38	88,0	133	10	6	**105**
11,0	41	97,0	142	10	6	**110**
12,0	44	100,0	151	12	6	**120**
13,0	44	100,0	151	12	6	**130**
14,0	47	106,0	160	16	6	**140** 1)
15,0	50	108,0	162	16	6	**150** 1)
16,0	52	116,0	170	16	6	**160** 1)
17,0	52	121,0	175	18	6	**170** 1)
18,0	52	128,0	182	18	6	**180** 1)
19,0	52	133,0	189	20	6	**190** 1)
20,0	52	139,0	195	20	6	**200** 1)

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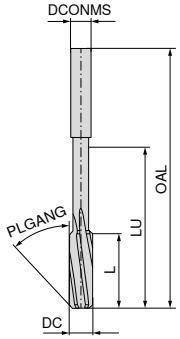
→ v_c Page 84

1) with carbide cutting edges

NC machine reamers, DIN 8093-2B

- ▲ 0.01 mm steps
- ▲ extremely irregular pitch
- ▲ PLGANG ≤ Ø 3.75 = 30° / > Ø 3.75 = 45°
- ▲ Ø 0.6–0.94 mm similar to DIN 8093-B
- ▲ Ø 0.95–3.75 mm with centres both ends
- ▲ Ø 3.76–12.05 mm with protected centres

NC 100



Left Hand Helix
Solid carbide
Through hole

40 430 ...

DC +0,004 mm	L mm	LU mm	OAL mm	DCONMS h6 mm	ZEFP	
0,59 - 0,64	5	7,5	45	3	4	xxxxx[1]
0,65 - 0,74	5	7,5	45	3	4	xxxxx[1]
0,75 - 0,84	6	8,0	45	3	4	xxxxx[1]
0,85 - 0,95	6	8,0	45	3	4	xxxxx[1]
0,96	6	17,5	50	3	3	00960[1]
0,97	6	17,5	50	3	3	00970[1]
0,98	6	17,5	50	3	3	00980[2]
0,99	6	17,5	50	3	3	00990[2]
1,00	6	17,5	50	3	3	01000[2]
1,01	6	17,5	50	3	3	01010[2]
1,02	6	17,5	50	3	3	01020[2]
1,03	6	17,5	50	3	3	01030[2]
1,04 - 1,06	6	17,5	50	3	3	xxxxx[2]
1,07 - 1,18	9	17,5	50	3	3	xxxxx[2]
1,19 - 1,32	9	17,5	50	3	3	xxxxx[2]
1,33 - 1,50	9	18,0	50	3	3	xxxxx[2]
1,51 - 1,70	10	18,0	50	3	3	xxxxx[2]
1,71 - 1,90	11	18,5	50	3	4	xxxxx[2]
1,91 - 1,97	12	18,5	50	3	4	xxxxx[2]
1,98	12	18,5	50	3	4	01980
1,99	12	18,5	50	3	4	01990
2,00	12	18,5	50	3	4	02000
2,01	12	18,5	50	3	4	02010
2,02	12	18,5	50	3	4	02020
2,03	12	18,5	50	3	4	02030
2,04 - 2,12	12	18,5	50	3	4	xxxxx[2]
2,13 - 2,36	12	18,5	50	3	4	xxxxx[2]
2,37 - 2,47	16	29,0	60	3	4	xxxxx[2]
2,48	16	29,0	60	3	4	02480
2,49	16	29,0	60	3	4	02490
2,50	16	29,0	60	3	4	02500
2,51	16	29,0	60	3	4	02510
2,52	16	29,0	60	3	4	02520
2,53	16	29,0	60	3	4	02530
2,54 - 2,65	16	29,0	60	3	4	xxxxx[2]
2,66 - 2,80	17	33,0	65	4	6	xxxxx[2]
2,81 - 2,96	17	33,0	65	4	6	xxxxx[2]
2,97	17	33,0	65	4	6	02970
2,98	17	33,0	65	4	6	02980
2,99	17	33,0	65	4	6	02990
3,00	17	33,0	65	4	6	03000
3,01	17	33,0	65	4	6	03010
3,02	17	33,0	65	4	6	03020
3,03	17	33,0	65	4	6	03030
3,04 - 3,35	18	33,0	65	4	6	xxxxx[2]
3,36 - 3,75	18	43,0	75	4	6	xxxxx[2]
3,76 - 3,96	19	43,0	75	4	6	xxxxx[2]
3,97	19	43,0	75	4	6	03970
3,98	19	43,0	75	4	6	03980
3,99	19	43,0	75	4	6	03990
4,00	19	43,0	75	4	6	04000
4,01	19	43,0	75	4	6	04010
4,02	19	43,0	75	4	6	04020
4,03	19	43,0	75	4	6	04030
4,04 - 4,25	19	43,0	75	4	6	xxxxx[2]
4,26 - 4,75	21	39,0	80	6	6	xxxxx[2]

40 430 ...

DC +0,004 mm	L mm	LU mm	OAL mm	DCONMS h6 mm	ZEFP	
4,76 - 4,96	23	52,0	93	6	6	xxxxx[2]
4,97	23	52,0	93	6	6	04970
4,98	23	52,0	93	6	6	04980
4,99	23	52,0	93	6	6	04990
5,00	23	52,0	93	6	6	05000
5,01	23	52,0	93	6	6	05010
5,02	23	52,0	93	6	6	05020
5,03	23	52,0	93	6	6	05030
5,04 - 5,30	23	52,0	93	6	6	xxxxx[2]
5,31 - 5,96	26	53,0	93	6	6	xxxxx[2]
5,97	26	53,0	93	6	6	05970
5,98	26	53,0	93	6	6	05980
5,99	26	53,0	93	6	6	05990
6,00	26	53,0	93	6	6	06000
6,01	26	53,0	93	6	6	06010
6,02	26	53,0	93	6	6	06020
6,03	26	53,0	93	6	6	06030
6,04 - 6,70	28	61,0	101	6	6	xxxxx[2]
6,71 - 7,50	31	68,0	109	8	6	xxxxx[2]
7,51 - 7,96	33	77,0	117	8	6	xxxxx[2]
7,97	33	77,0	117	8	6	07970
7,98	33	77,0	117	8	6	07980
7,99	33	77,0	117	8	6	07990
8,00	33	77,0	117	8	6	08000
8,01	33	77,0	117	8	6	08010
8,02	33	77,0	117	8	6	08020
8,03	33	77,0	117	8	6	08030
8,04	33	77,0	117	8	6	08040
8,05 - 8,50	33	77,0	117	8	6	xxxxx[2]
8,51 - 9,04	36	80,0	125	10	6	xxxxx[2]
9,05 - 9,50	36	80,0	125	10	6	xxxxx[2]
9,51 - 9,96	38	88,0	133	10	6	xxxxx[2]
9,97	38	88,0	133	10	6	09970
9,98	38	88,0	133	10	6	09980
9,99	38	88,0	133	10	6	09990
10,00	38	88,0	133	10	6	10000
10,01	38	88,0	133	10	6	10010
10,02	38	88,0	133	10	6	10020
10,03	38	88,0	133	10	6	10030
10,04	38	88,0	133	10	6	10040
10,05	38	88,0	133	10	6	10050
10,06 - 10,60	38	88,0	133	10	6	xxxxx[2]
10,61 - 11,80	41	97,0	142	10	6	xxxxx[2]
11,81 - 11,96	44	100,0	151	12	6	xxxxx[2]
11,97	44	100,0	151	12	6	11970
11,98	44	100,0	151	12	6	11980
11,99	44	100,0	151	12	6	11990
12,00	44	100,0	151	12	6	12000
12,01	44	100,0	151	12	6	12010
12,02	44	100,0	151	12	6	12020
12,03	44	100,0	151	12	6	12030
12,04	44	100,0	151	12	6	12040
12,05	44	100,0	151	12	6	12050

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→ v_c Page 84

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days / Minimum order 3 pieces

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 10 working days

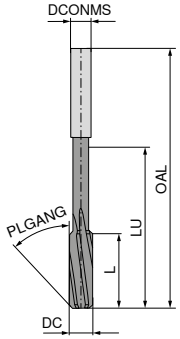
→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.05 mm → Article no. 40 430 08050)!

NC machine reamers, DIN 8093-2B

- ▲ 0.01 mm steps
- ▲ extremely irregular pitch
- ▲ PLGANG ≤ Ø 3.75 = 30° / > Ø 3.75 = 45°
- ▲ Ø 0.6–0.94 mm similar to DIN 8093-B
- ▲ Ø 0.95–3.75 mm with centres both ends
- ▲ Ø 3.76–12.05 mm with protected centres

NC 100

TiAlN



Left Hand Helix
Solid carbide
Through hole

40 431 ...

DC +0,004 mm	L mm	LU mm	OAL mm	DCONMS h6 mm	ZEFP	
1,00	6	17,5	50	3	3	01000[1]
1,01	6	17,5	50	3	3	01010[1]
1,02	6	17,5	50	3	3	01020[1]
1,03	6	17,5	50	3	3	01030[1]
1,04 - 1,06	6	17,5	50	3	3	xxxxx[1]
1,07 - 1,18	9	17,5	50	3	3	xxxxx[1]
1,19 - 1,32	9	17,5	50	3	3	xxxxx[1]
1,33 - 1,50	9	18,0	50	3	3	xxxxx[1]
1,51 - 1,70	10	18,0	50	3	3	xxxxx[1]
1,71 - 1,90	11	18,5	50	3	4	xxxxx[1]
1,91 - 1,97	12	18,5	50	3	4	xxxxx[1]
1,98	12	18,5	50	3	4	01980
1,99	12	18,5	50	3	4	01990
2,00	12	18,5	50	3	4	02000
2,01	12	18,5	50	3	4	02010
2,02	12	18,5	50	3	4	02020
2,03	12	18,5	50	3	4	02030
2,04 - 2,12	12	18,5	50	3	4	xxxxx[1]
2,13 - 2,36	12	18,5	50	3	4	xxxxx[1]
2,37 - 2,47	16	29,0	60	3	4	xxxxx[1]
2,48	16	29,0	60	3	4	02480
2,49	16	29,0	60	3	4	02490
2,50	16	29,0	60	3	4	02500
2,51	16	29,0	60	3	4	02510
2,52	16	29,0	60	3	4	02520
2,53	16	29,0	60	3	4	02530
2,54 - 2,65	16	29,0	60	3	4	xxxxx[1]
2,66 - 2,80	17	33,0	65	4	6	xxxxx[1]
2,81 - 2,96	17	33,0	65	4	6	xxxxx[1]
2,97	17	33,0	65	4	6	02970
2,98	17	33,0	65	4	6	02980
2,99	17	33,0	65	4	6	02990
3,00	17	33,0	65	4	6	03000
3,01	17	33,0	65	4	6	03010
3,02	17	33,0	65	4	6	03020
3,03	17	33,0	65	4	6	03030
3,04 - 3,35	18	33,0	65	4	6	xxxxx[1]
3,36 - 3,75	18	43,0	75	4	6	xxxxx[1]
3,76 - 3,96	19	43,0	75	4	6	xxxxx[1]
3,97	19	43,0	75	4	6	03970
3,98	19	43,0	75	4	6	03980
3,99	19	43,0	75	4	6	03990
4,00	19	43,0	75	4	6	04000
4,01	19	43,0	75	4	6	04010
4,02	19	43,0	75	4	6	04020
4,03	19	43,0	75	4	6	04030
4,04 - 4,25	19	43,0	75	4	6	xxxxx[1]
4,26 - 4,75	21	39,0	80	6	6	xxxxx[1]
4,76 - 4,96	23	52,0	93	6	6	xxxxx[1]
4,97	23	52,0	93	6	6	04970
4,98	23	52,0	93	6	6	04980

40 431 ...

DC +0,004 mm	L mm	LU mm	OAL mm	DCONMS h6 mm	ZEFP	
4,99	23	52,0	93	6	6	04990
5,00	23	52,0	93	6	6	05000
5,01	23	52,0	93	6	6	05010
5,02	23	52,0	93	6	6	05020
5,03	23	52,0	93	6	6	05030
5,04 - 5,30	23	52,0	93	6	6	xxxxx[1]
5,31 - 5,96	26	53,0	93	6	6	xxxxx[1]
5,97	26	53,0	93	6	6	05970
5,98	26	53,0	93	6	6	05980
5,99	26	53,0	93	6	6	05990
6,00	26	53,0	93	6	6	06000
6,01	26	53,0	93	6	6	06010
6,02	26	53,0	93	6	6	06020
6,03	26	53,0	93	6	6	06030
6,04 - 6,70	28	61,0	101	6	6	xxxxx[1]
6,71 - 7,50	31	68,0	109	8	6	xxxxx[1]
7,51 - 7,96	33	77,0	117	8	6	xxxxx[1]
7,97	33	77,0	117	8	6	07970
7,98	33	77,0	117	8	6	07980
7,99	33	77,0	117	8	6	07990
8,00	33	77,0	117	8	6	08000
8,01	33	77,0	117	8	6	08010
8,02	33	77,0	117	8	6	08020
8,03	33	77,0	117	8	6	08030
8,04	33	77,0	117	8	6	08040
8,05 - 8,50	33	77,0	117	8	6	xxxxx[1]
8,51 - 9,04	36	80,0	125	10	6	xxxxx[1]
9,05 - 9,50	36	80,0	125	10	6	xxxxx[1]
9,51 - 9,96	38	88,0	133	10	6	xxxxx[1]
9,97	38	88,0	133	10	6	09970
9,98	38	88,0	133	10	6	09980
9,99	38	88,0	133	10	6	09990
10,00	38	88,0	133	10	6	10000
10,01	38	88,0	133	10	6	10010
10,02	38	88,0	133	10	6	10020
10,03	38	88,0	133	10	6	10030
10,04	38	88,0	133	10	6	10040
10,05	38	88,0	133	10	6	10050
10,06 - 10,60	38	88,0	133	10	6	xxxxx[1]
10,61 - 11,80	41	97,0	142	10	6	xxxxx[1]
11,81 - 11,96	44	100,0	151	12	6	xxxxx[1]
11,97	44	100,0	151	12	6	11970
11,98	44	100,0	151	12	6	11980
11,99	44	100,0	151	12	6	11990
12,00	44	100,0	151	12	6	12000
12,01	44	100,0	151	12	6	12010
12,02	44	100,0	151	12	6	12020
12,03	44	100,0	151	12	6	12030
12,04	44	100,0	151	12	6	12040
12,05	44	100,0	151	12	6	12050

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→ v_c Page 84

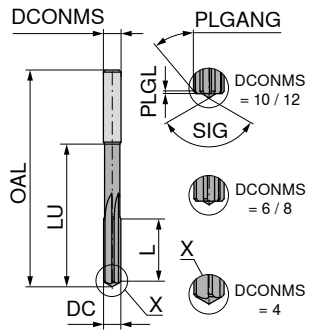
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 15 working days

→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.05 mm → Article no. 40 431 08050)!

4

NC machine reamers, sim. DIN 8093-A

NC100 H



TiAlSiN

straight flute
PLGANG 45°
SIG 120°
Solid carbide
Through hole + blind hole

40 435 ...

DC H7 mm	L mm	LU mm	OAL mm	DCONMS h5 mm	PLGL mm	
0,98	6	16	50	4	0,12	00980
0,99	6	16	50	4	0,12	00990
1,00	6	16	50	4	0,12	01000
1,01	6	16	50	4	0,12	01010
1,02	6	16	50	4	0,12	01020
1,03	6	16	50	4	0,12	01030
1,48	9	16	50	4	0,12	01480
1,49	9	16	50	4	0,12	01490
1,50	9	16	50	4	0,12	01500
1,51	9	16	50	4	0,12	01510
1,52	9	16	50	4	0,12	01520
1,60	10	16	50	4	0,12	01600
1,70	10	16	50	4	0,12	01700
1,80	11	16	50	4	0,12	01800
1,90	11	16	50	4	0,12	01900
1,97	12	16	50	4	0,30	01970
1,98	12	16	50	4	0,30	01980
1,99	12	16	50	4	0,30	01990
2,00	12	16	50	4	0,30	02000
2,01	12	16	50	4	0,30	02010
2,02	12	16	50	4	0,30	02020
2,03	12	16	50	4	0,30	02030
2,05	12	16	50	4	0,30	02050
2,10	12	16	50	4	0,30	02100
2,20	13	16	50	4	0,30	02200
2,30	13	16	50	4	0,30	02300
2,40	16	26	60	4	0,30	02400
2,50	16	26	60	4	0,30	02500
2,60	16	26	60	4	0,30	02600
2,70	17	30	64	4	0,30	02700
2,80	17	30	64	4	0,30	02800
2,90	17	30	64	4	0,30	02900
2,97	17	30	64	4	0,30	02970
2,98	17	30	64	4	0,30	02980
2,99	17	30	64	4	0,30	02990
3,00	17	30	64	4	0,30	03000
3,01	17	30	64	4	0,30	03010
3,02	17	30	64	4	0,30	03020
3,03	17	30	64	4	0,30	03030
3,05	18	34	68	4	0,30	03050
3,10	18	34	68	4	0,30	03100
3,20	18	34	68	4	0,30	03200
3,30	18	34	68	4	0,30	03300
3,40	20	40	74	4	0,30	03400
3,50	20	40	74	4	0,30	03500
3,60	20	40	74	4	0,30	03600
3,70	20	40	74	4	0,30	03700
3,80	21	43	77	4	0,40	03800
3,90	21	43	77	4	0,40	03900
3,97	21	43	77	4	0,40	03970
3,98	21	43	77	4	0,40	03980

40 435 ...

DC H7 mm	L mm	LU mm	OAL mm	DCONMS h5 mm	PLGL mm	
3,99	21	43	77	4	0,40	03990
4,00	21	43	77	4	0,40	04000
4,01	21	43	77	4	0,40	04010
4,02	21	43	77	4	0,40	04020
4,03	21	43	77	4	0,40	04030
4,05	21	40	82	6	0,40	04050
4,10	21	40	82	6	0,40	04100
4,20	21	40	82	6	0,40	04200
4,30	23	40	82	6	0,40	04300
4,40	23	40	82	6	0,40	04400
4,50	23	40	82	6	0,40	04500
4,60	23	40	82	6	0,40	04600
4,70	23	40	82	6	0,40	04700
4,80	26	51	93	6	0,50	04800
4,90	26	51	93	6	0,50	04900
4,97	26	51	93	6	0,50	04970
4,98	26	51	93	6	0,50	04980
4,99	26	51	93	6	0,50	04990
5,00	26	51	93	6	0,50	05000
5,01	26	51	93	6	0,50	05010
5,02	26	51	93	6	0,50	05020
5,03	26	51	93	6	0,50	05030
5,05	26	51	93	6	0,50	05050
5,10	26	51	93	6	0,50	05100
5,20	26	51	93	6	0,50	05200
5,30	26	51	93	6	0,50	05300
5,40	26	51	93	6	0,50	05400
5,50	26	51	93	6	0,50	05500
5,60	26	51	93	6	0,50	05600
5,70	26	51	93	6	0,50	05700
5,80	26	51	93	6	0,50	05800
5,90	26	51	93	6	0,50	05900
5,97	26	51	93	6	0,50	05970
5,98	26	51	93	6	0,50	05980
5,99	26	51	93	6	0,50	05990
6,00	26	51	93	6	0,50	06000

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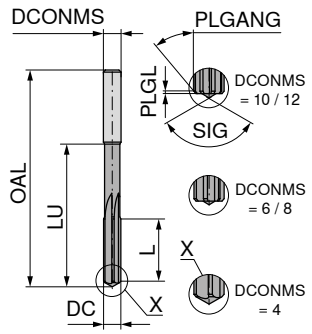
→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
Intermediate dimensions available on request.

Continued on next page

NC machine reamers, sim. DIN 8093-A

NC100 H



TiAlSiN

straight flute
PLGANG 45°
SIG 120°
Solid carbide
Through hole + blind hole

40 435 ...

DC H7 mm	L mm	LU mm	OAL mm	DCONMS h5 mm	PLGL mm	
6,01	26	51	93	6	0,5	**06010**
6,02	26	51	93	6	0,5	**06020**
6,03	26	51	93	6	0,5	**06030**
6,05	26	59	101	8	0,5	**06050**
6,10	26	59	101	8	0,5	**06100**
6,20	26	59	101	8	0,5	**06200**
6,30	26	59	101	8	0,5	**06300**
6,40	26	59	101	8	0,5	**06400**
6,50	26	59	101	8	0,5	**06500**
6,60	26	59	101	8	0,5	**06600**
6,70	26	59	101	8	0,5	**06700**
6,80	31	67	109	8	0,6	**06800**
6,85	31	67	109	8	0,6	**06850**
6,90	31	67	109	8	0,6	**06900**
7,00	31	67	109	8	0,6	**07000**
7,10	31	67	109	8	0,6	**07100**
7,20	31	67	109	8	0,6	**07200**
7,30	31	67	109	8	0,6	**07300**
7,40	31	67	109	8	0,6	**07400**
7,50	31	67	109	8	0,6	**07500**
7,60	31	67	109	8	0,6	**07600**
7,70	33	75	117	8	0,6	**07700**
7,80	33	75	117	8	0,6	**07800**
7,90	33	75	117	8	0,6	**07900**
7,97	33	75	117	8	0,6	**07970**
7,98	33	75	117	8	0,6	**07980**
7,99	33	75	117	8	0,6	**07990**
8,00	33	75	117	8	0,6	**08000**
8,01	33	75	117	8	0,7	**08010**
8,02	33	75	117	8	0,7	**08020**
8,03	33	75	117	8	0,7	**08030**
8,05	33	71	117	10	0,7	**08050**
8,10	33	71	117	10	0,7	**08100**
8,20	33	71	117	10	0,7	**08200**
8,30	33	71	117	10	0,7	**08300**
8,40	33	71	117	10	0,7	**08400**
8,50	33	71	117	10	0,7	**08500**
8,60	33	71	117	10	0,7	**08600**
8,70	36	79	125	10	0,7	**08700**
8,80	36	79	125	10	0,7	**08800**
8,90	36	79	125	10	0,7	**08900**
9,00	36	79	125	10	0,7	**09000**
9,10	36	79	125	10	0,7	**09100**
9,20	36	79	125	10	0,7	**09200**
9,30	36	79	125	10	0,7	**09300**
9,40	36	79	125	10	0,7	**09400**
9,50	36	79	125	10	0,7	**09500**
9,60	36	79	125	10	0,7	**09600**
9,70	38	87	133	10	0,7	**09700**
9,80	38	87	133	10	0,7	**09800**
9,90	38	87	133	10	0,7	**09900**

40 435 ...

DC H7 mm	L mm	LU mm	OAL mm	DCONMS h5 mm	PLGL mm	
9,97	41	87	133	10	0,7	**09970**
9,98	41	87	133	10	0,7	**09980**
9,99	41	87	133	10	0,7	**09990**
10,00	41	87	133	10	0,7	**10000**
10,01	41	87	133	10	0,7	**10010**
10,02	41	87	133	10	0,8	**10020**
10,03	41	87	133	10	0,8	**10030**
10,04	41	87	133	10	0,8	**10040**
10,05	41	87	133	10	0,8	**10050**
11,17	44	99	150	12	0,8	**11170**
11,97	44	99	150	12	0,8	**11970**
11,98	44	99	150	12	0,8	**11980**
11,99	44	99	150	12	0,8	**11990**
12,00	44	99	150	12	0,8	**12000**
12,01	44	99	150	12	0,8	**12010**
12,02	44	99	150	12	0,8	**12020**
12,03	44	99	150	12	0,8	**12030**
12,04	44	99	150	12	0,8	**12040**
12,05	44	99	150	12	0,8	**12050**

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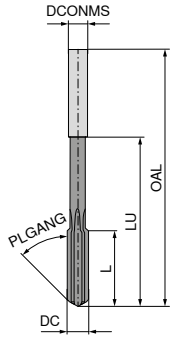
→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
Intermediate dimensions available on request.

4

Machine reamers, similar to DIN 8093-A / -B

▲ extremely irregular pitch

N



NEW

Left Hand Helix
PLGANG 45°
Solid carbide
Through hole

NEW

straight flute
PLGANG 45°
Solid carbide
Blind hole

DC H7 mm	L mm	LU mm	OAL mm	DCONMS h7 mm	ZEFP	40 415 ...	40 405 ...
2,0	11	31	49	2,0	4	02000	02000
2,1	11	31	49	2,0	4	02100	02100
2,2	12	35	53	2,2	4	02200	02200
2,3	12	35	53	2,2	4	02300	02300
2,4	14	34	57	2,5	4	02400	02400
2,5	14	34	57	2,5	4	02500	02500
2,6	14	34	57	2,5	4	02600	02600
2,7	15	36	61	3,0	4	02700	02700
2,8	15	36	61	3,0	4	02800	02800
2,9	15	36	61	3,0	4	02900	02900
3,0	15	36	61	3,0	4	03000	03000
3,1	15	36	61	3,0	4	03100	03100
3,2	18	40	70	3,5	4	03200	03200
3,3	18	40	70	3,5	4	03300	03300
3,4	18	40	70	3,5	4	03400	03400
3,5	18	40	70	3,5	4	03500	03500
3,6	18	40	70	3,5	4	03600	03600
3,7	18	40	70	3,5	4	03700	03700
3,8	19	43	75	4,0	4	03800	03800
3,9	19	43	75	4,0	4	03900	03900
4,0	19	43	75	4,0	4	04000	04000
4,1	19	43	75	4,0	4	04100	04100
4,2	19	43	75	4,0	4	04200	04200
4,3	21	42	75	4,5	4	04300	04300
4,4	21	42	75	4,5	4	04400	04400
4,5	21	42	75	4,5	4	04500	04500
4,6	21	42	75	4,5	4	04600	04600
4,7	21	42	75	4,5	4	04700	04700
4,8	23	52	86	5,0	6	04800	04800
4,9	23	52	86	5,0	6	04900	04900
5,0	23	52	86	5,0	6	05000	05000
5,1	23	52	86	5,0	6	05100	05100
5,2	23	52	86	5,0	6	05200	05200
5,3	23	52	86	5,0	6	05300	05300
5,4	26	57	93	5,6	6	05400	05400
5,5	26	57	93	5,6	6	05500	05500
5,6	26	57	93	5,6	6	05600	05600
5,7	26	57	93	5,6	6	05700	05700
5,8	26	57	93	5,6	6	05800	05800
5,9	26	57	93	5,6	6	05900	05900
6,0	26	57	93	5,6	6	06000	06000
6,1	26	57	93	5,6	6	06100	06100
6,2	26	57	93	5,6	6	06200	06200
6,3	28	63	101	6,3	6	06300	06300
6,4	28	63	101	6,3	6	06400	06400
6,5	28	63	101	6,3	6	06500	06500
6,6	28	63	101	6,3	6	06600	06600
6,7	28	63	101	6,3	6	06700	06700
6,8	31	69	109	7,1	6	06800	06800
6,9	31	69	109	7,1	6	06900	06900
7,0	31	69	109	7,1	6	07000	07000
7,1	31	69	109	7,1	6	07100	07100
7,2	31	69	109	7,1	6	07200	07200
7,3	31	69	109	7,1	6	07300	07300
7,4	31	69	109	7,1	6	07400	07400
7,5	31	69	109	7,1	6	07500	07500
7,6	33	75	117	8,0	6	07600	07600
7,7	33	75	117	8,0	6	07700	07700
7,8	33	75	117	8,0	6	07800	07800
7,9	33	75	117	8,0	6	07900	07900
8,0	33	75	117	8,0	6	08000	08000
8,1	33	75	117	8,0	6	08100	08100
8,2	33	75	117	8,0	6	08200	08200
8,3	33	75	117	8,0	6	08300	08300
8,4	33	75	117	8,0	6	08400	08400
8,5	33	75	117	8,0	6	08500	08500
8,6	36	81	125	9,0	6	08600	08600
8,7	36	81	125	9,0	6	08700	08700
8,8	36	81	125	9,0	6	08800	08800
8,9	36	81	125	9,0	6	08900	08900
9,0	36	81	125	9,0	6	09000	09000
9,1	36	81	125	9,0	6	09100	09100
9,2	36	81	125	9,0	6	09200	09200
9,3	36	81	125	9,0	6	09300	09300
9,4	36	81	125	9,0	6	09400	09400
9,5	36	81	125	9,0	6	09500	09500
9,6	38	87	133	10,0	6	09600	09600
9,7	38	87	133	10,0	6	09700	09700
9,8	38	87	133	10,0	6	09800	09800
9,9	38	87	133	10,0	6	09900	09900
10,0	38	87	133	10,0	6	10000	10000
10,1	38	87	133	10,0	6	10100	10100
10,2	38	87	133	10,0	6	10200	10200
10,3	38	87	133	10,0	6	10300	10300
10,4	38	87	133	10,0	6	10400	10400
10,5	38	87	133	10,0	6	10500	10500
10,6	38	87	133	10,0	6	10600	10600
10,7	41	96	142	10,0	6	10700	10700
10,8	41	96	142	10,0	6	10800	10800
10,9	41	96	142	10,0	6	10900	10900
11,0	41	96	142	10,0	6	11000	11000
11,1	41	96	142	10,0	6	11100	11100
11,2	41	96	142	10,0	6	11200	11200
11,3	41	96	142	10,0	6	11300	11300
11,4	41	96	142	10,0	6	11400	11400
11,5	41	96	142	10,0	6	11500	11500
11,6	41	96	142	10,0	6	11600	11600
11,7	41	96	142	10,0	6	11700	11700
11,8	41	96	142	10,0	6	11800	11800
11,9	44	100	151	10,0	6	11900	11900
12,0	44	100	151	10,0	6	12000	12000

	40 415 ...	40 405 ...
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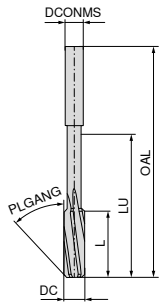
NC machine reamers, DIN 212-3-B

▲ maximum radial run-out accuracy
▲ PLGANG ≤ Ø 3,75 = 30° / > Ø 3,75 = 45°

NC



Left Hand Helix
HSS-E
Through hole

40 110 ...

DC H7 mm	L mm	LU mm	OAL mm	DCONMS h6 mm	ZEFP	
1,5	8	15,5	40	2	3	015
1,6	9	16,0	43	2	3	016
1,7	9	16,0	43	2	3	017
1,8	10	19,0	46	2	4	018
1,9	10	19,0	46	2	4	019
2,0	11	21,0	49	2	4	020
2,1	11	21,0	49	2	4	021
2,2	12	22,0	53	3	4	022
2,3	12	22,0	53	3	4	023
2,4	14	26,0	57	3	4	024
2,5	14	26,0	57	3	4	025
2,6	14	26,0	57	3	4	026
2,7	15	30,0	61	3	6	027
2,8	15	30,0	61	3	6	028
2,9	15	30,0	61	3	6	029
3,0	15	30,0	61	3	6	030
3,1	16	34,0	65	4	6	031
3,2	16	34,0	65	4	6	032
3,3	16	34,0	65	4	6	033
3,4	18	39,0	70	4	6	034
3,5	18	39,0	70	4	6	035
3,6	18	39,0	70	4	6	036
3,7	18	39,0	70	4	6	037
3,8	19	44,0	75	4	6	038
3,9	19	44,0	75	4	6	039
4,0	19	44,0	75	4	6	040
4,1	19	44,0	75	4	6	041
4,2	19	44,0	75	4	6	042
4,3	21	48,0	80	5	6	043
4,4	21	48,0	80	5	6	044
4,5	21	48,0	80	5	6	045
4,6	21	48,0	80	5	6	046
4,7	21	48,0	80	5	6	047
4,8	23	54,0	86	5	6	048
4,9	23	54,0	86	5	6	049
5,0	23	54,0	86	5	6	050
5,1	23	54,0	86	5	6	051
5,2	23	54,0	86	5	6	052
5,3	23	54,0	86	5	6	053
5,4	26	53,0	93	6	6	054
5,5	26	53,0	93	6	6	055
5,6	26	53,0	93	6	6	056
5,7	26	53,0	93	6	6	057
5,8	26	53,0	93	6	6	058
5,9	26	53,0	93	6	6	059
6,0	26	53,0	93	6	6	060
6,1	28	61,0	101	6	6	061
6,2	28	61,0	101	6	6	062
6,3	28	61,0	101	6	6	063
6,4	28	61,0	101	6	6	064
6,5	28	61,0	101	6	6	065
6,6	28	61,0	101	6	6	066

40 110 ...

DC H7 mm	L mm	LU mm	OAL mm	DCONMS h6 mm	ZEFP	
6,7	28	61,0	101	6	6	067
6,8	31	69,0	109	8	6	068
6,9	31	69,0	109	8	6	069
7,0	31	69,0	109	8	6	070
7,1	31	69,0	109	8	6	071
7,2	31	69,0	109	8	6	072
7,3	31	69,0	109	8	6	073
7,4	31	69,0	109	8	6	074
7,5	31	69,0	109	8	6	075
7,6	33	77,0	117	8	6	076
7,7	33	77,0	117	8	6	077
7,8	33	77,0	117	8	6	078
7,9	33	77,0	117	8	6	079
8,0	33	77,0	117	8	6	080
8,1	33	77,0	117	8	6	081
8,2	33	77,0	117	8	6	082
8,3	33	77,0	117	8	6	083
8,4	33	77,0	117	8	6	084
8,5	33	77,0	117	8	6	085
8,6	36	81,0	125	10	6	086
8,7	36	81,0	125	10	6	087
8,8	36	81,0	125	10	6	088
8,9	36	81,0	125	10	6	089
9,0	36	81,0	125	10	6	090
9,1	36	81,0	125	10	6	091
9,2	36	81,0	125	10	6	092
9,3	36	81,0	125	10	6	093
9,4	36	81,0	125	10	6	094
9,5	36	81,0	125	10	6	095
9,6	38	89,0	133	10	6	096
9,7	38	89,0	133	10	6	097
9,8	38	89,0	133	10	6	098
9,9	38	89,0	133	10	6	099
10,0	38	89,0	133	10	6	100
11,0	41	98,0	142	10	6	110
12,0	44	106,0	151	10	6	120
13,0	44	106,0	151	10	6	130
14,0	47	110,0	160	14	8	140
15,0	50	112,0	162	14	8	150
16,0	52	120,0	170	14	8	160
17,0	54	125,0	175	14	8	170
18,0	56	132,0	182	14	8	180
19,0	58	136,0	189	16	8	190
20,0	60	142,0	195	16	8	200

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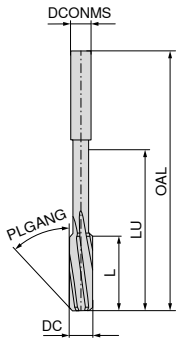
4

NC machine reamers, DIN 212-3-B

▲ 0.01 mm steps
▲ tolerance: Ø 1.00 – Ø 5.50 mm = +0.004 mm
▲ tolerance: Ø 5.51 – Ø 12.00 mm = +0.005 mm
▲ PLGANG ≤ Ø 3,75 = 30° / > Ø 3,75 = 45°

NC 100



Left Hand Helix
HSS-E
Through hole

40 115 ...

DC mm	L mm	LU mm	OAL mm	DCONMS h6 mm	ZEFP	
0,95 - 0,99	5,5	12,5	34	1	3	xxxxx[1]
1,00	5,5	12,5	34	1	3	01000
1,01	5,5	12,5	34	1	3	01010
1,02	5,5	12,5	34	1	3	01020
1,03 - 1,06	5,5	12,5	34	1	3	xxxxx[1]
1,07 - 1,18	6,5	13,0	36	1	3	xxxxx[1]
1,19 - 1,32	7,5	14,0	38	2	3	xxxxx[1]
1,33 - 1,41	8,0	15,5	40	2	3	xxxxx[1]
1,42 - 1,49	8,0	15,5	40	2	3	xxxxx[1]
1,50	8,0	15,5	40	2	3	01500
1,51	9,0	16,0	43	2	3	01510
1,52	9,0	16,0	43	2	3	01520
1,53 - 1,70	9,0	16,0	43	2	3	xxxxx[1]
1,71 - 1,90	10,0	19,0	46	2	4	xxxxx[1]
1,91 - 1,96	11,0	21,0	49	2	4	xxxxx[1]
1,97	11,0	21,0	49	2	4	01970
1,98	11,0	21,0	49	2	4	01980
1,99	11,0	21,0	49	2	4	01990
2,00	11,0	21,0	49	2	4	02000
2,01	11,0	21,0	49	2	4	02010
2,02	11,0	21,0	49	2	4	02020
2,03 - 2,12	11,0	21,0	49	2	4	xxxxx[1]
2,13 - 2,36	12,0	22,0	53	3	4	xxxxx[1]
2,37 - 2,47	14,0	26,0	57	3	4	xxxxx[1]
2,48	14,0	26,0	57	3	4	02480
2,49	14,0	26,0	57	3	4	02490
2,50	14,0	26,0	57	3	4	02500
2,51	14,0	26,0	57	3	4	02510
2,52	14,0	26,0	57	3	4	02520
2,53 - 2,65	14,0	26,0	57	3	4	xxxxx[1]
2,66 - 2,96	15,0	30,0	61	3	6	xxxxx[1]
2,97	15,0	30,0	61	3	6	02970
2,98	15,0	30,0	61	3	6	02980
2,99	15,0	30,0	61	3	6	02990
3,00	15,0	30,0	61	3	6	03000
3,01	15,0	30,0	61	3	6	03010
3,02	15,0	30,0	61	3	6	03020
3,03	15,0	30,0	61	3	6	03030[1]
3,04 - 3,35	16,0	34,0	65	4	6	xxxxx[1]
3,36 - 3,75	18,0	39,0	70	4	6	xxxxx[1]
3,76 - 3,96	19,0	44,0	75	4	6	xxxxx[1]
3,97	19,0	44,0	75	4	6	03970
3,98	19,0	44,0	75	4	6	03980
3,99	19,0	44,0	75	4	6	03990
4,00	19,0	44,0	75	4	6	04000
4,01	19,0	44,0	75	4	6	04010
4,02	19,0	44,0	75	4	6	04020
4,03 - 4,25	19,0	44,0	75	4	6	xxxxx[1]
4,26 - 4,75	21,0	48,0	80	5	6	xxxxx[1]
4,76 - 4,96	23,0	54,0	86	5	6	xxxxx[1]
4,97	23,0	54,0	86	5	6	04970
4,98	23,0	54,0	86	5	6	04980
4,99	23,0	54,0	86	5	6	04990
5,00	23,0	54,0	86	5	6	05000
5,01	23,0	54,0	86	5	6	05010

40 115 ...

DC mm	L mm	LU mm	OAL mm	DCONMS h6 mm	ZEFP	
5,02	23,0	54,0	86	5	6	05020
5,03 - 5,30	23,0	54,0	86	5	6	xxxxx[1]
5,31 - 5,60	26,0	53,0	93	6	6	xxxxx[1]
5,61 - 5,96	26,0	53,0	93	6	6	xxxxx[1]
5,97	26,0	53,0	93	6	6	05970
5,98	26,0	53,0	93	6	6	05980
5,99	26,0	53,0	93	6	6	05990
6,00	26,0	53,0	93	6	6	06000
6,01	26,0	53,0	93	6	6	06010
6,02	26,0	53,0	93	6	6	06020
6,03	26,0	53,0	93	6	6	06030[1]
6,04 - 6,70	28,0	61,0	101	6	6	xxxxx[1]
6,71 - 7,20	31,0	69,0	109	8	6	xxxxx[1]
7,21 - 7,50	31,0	69,0	109	8	6	xxxxx[1]
7,51 - 7,96	33,0	77,0	117	8	6	xxxxx[1]
7,97	33,0	77,0	117	8	6	07970
7,98	33,0	77,0	117	8	6	07980
7,99	33,0	77,0	117	8	6	07990
8,00	33,0	77,0	117	8	6	08000
8,01	33,0	77,0	117	8	6	08010
8,02	33,0	77,0	117	8	6	08020
8,03 - 8,20	33,0	77,0	117	8	6	xxxxx[1]
8,21 - 8,50	33,0	77,0	117	8	6	xxxxx[1]
8,51 - 8,99	36,0	81,0	125	10	6	xxxxx[1]
9,00	36,0	81,0	125	10	6	09000
9,01	36,0	81,0	125	10	6	09010
9,02	36,0	81,0	125	10	6	09020
9,03 - 9,20	36,0	81,0	125	10	6	xxxxx[1]
9,21 - 9,50	36,0	81,0	125	10	6	xxxxx[1]
9,51 - 9,96	38,0	89,0	133	10	6	xxxxx[1]
9,97	38,0	89,0	133	10	6	09970
9,98	38,0	89,0	133	10	6	09980
9,99	38,0	89,0	133	10	6	09990
10,00	38,0	89,0	133	10	6	10000
10,01	38,0	89,0	133	10	6	10010
10,02	38,0	89,0	133	10	6	10020
10,03 - 10,20	38,0	89,0	133	10	6	xxxxx[1]
10,21 - 10,60	38,0	89,0	133	10	6	xxxxx[1]
10,61 - 11,20	41,0	98,0	142	10	6	xxxxx[1]
11,21 - 11,80	41,0	98,0	142	10	6	xxxxx[1]
11,81 - 11,96	44,0	106,0	151	10	6	xxxxx[1]
11,97	44,0	106,0	151	10	6	11970
11,98	44,0	106,0	151	10	6	11980
11,99	44,0	106,0	151	10	6	11990
12,00	44,0	106,0	151	10	6	12000

P	●
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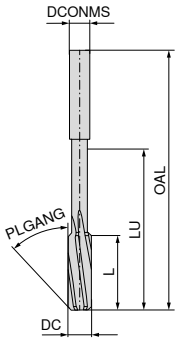
→ v_c Page 87

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 10 working days / Minimum order 5 pieces

→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.03 mm → Article no. 40 115 08030)!

Machine reamers, DIN 212-B

N



4

Left Hand Helix
PLGANG 45°
HSS-E
Through hole

40 150 ...

DC H7 mm	L mm	LU mm	OAL mm	DCONMS h9 mm	ZEFP	
1,0	5,5	13	34	1,0	3	**010**
1,5	8,0	16	40	1,5	3	**015**
2,0	11,0	22	49	2,0	4	**020**
2,5	14,0	26	57	2,5	4	**025**
3,0	15,0	29	61	3,0	6	**030**
3,5	18,0	38	70	3,5	6	**035**
4,0	19,0	46	75	4,0	6	**040**
4,5	21,0	51	80	4,5	6	**045**
5,0	23,0	57	86	5,0	6	**050**
5,5	26,0	56	93	5,6	6	**055**
6,0	26,0	56	93	5,6	6	**060**
6,5	28,0	64	101	6,3	6	**065**
7,0	31,0	72	109	7,1	6	**070**
7,5	31,0	72	109	7,1	6	**075**
8,0	33,0	80	117	8,0	6	**080**
8,5	33,0	80	117	8,0	6	**085**
9,0	36,0	84	125	9,0	6	**090**
9,5	36,0	84	125	9,0	6	**095**
10,0	38,0	92	133	10,0	6	**100**
11,0	41,0	101	142	10,0	6	**110**
12,0	44,0	110	151	10,0	6	**120**
13,0	44,0	110	151	10,0	6	**130**
14,0	47,0	114	160	12,5	8	**140**
15,0	50,0	116	162	12,5	8	**150**
16,0	52,0	124	170	12,5	8	**160**
17,0	54,0	129	175	14,0	8	**170**
18,0	56,0	136	182	14,0	8	**180**
19,0	58,0	140	189	16,0	8	**190**
20,0	60,0	146	195	16,0	8	**200**

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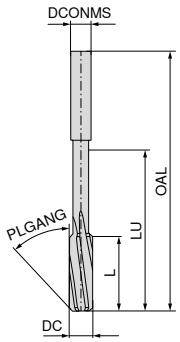
→ v_c Page 88

All other diameters, tolerance classes and chamfers also available on request.

Machine reamers, DIN 212-B

▲ 0.01 mm steps
▲ tolerance: Ø 0.95 – 5.50 mm = +0.004 mm
▲ tolerance: Ø 5.51 – 12.00 mm = +0.005 mm

N 100



Left Hand Helix
PLGANG 45°
HSS-E
Through hole

40 140 ...

DC mm	L mm	LU mm	OAL mm	DCONMS h9 mm	ZEFP	
0,95 - 1,06	5,5	13	34	1,0	3	xxxxx[1]
1,07 - 1,18	6,5	14	36	1,1	3	xxxxx[1]
1,19 - 1,32	7,5	15	38	1,2	3	xxxxx[1]
1,33 - 1,41	8,0	16	40	1,4	3	xxxxx[1]
1,42 - 1,47	8,0	16	40	1,5	3	xxxxx[1]
1,48	8,0	16	40	1,5	3	01480
1,49	8,0	16	40	1,5	3	01490
1,50	8,0	16	40	1,5	3	01500
1,51 - 1,70	9,0	18	43	1,6	3	xxxxx[1]
1,71 - 1,90	10,0	20	46	1,8	4	xxxxx[1]
1,91 - 1,97	11,0	22	49	2,0	4	xxxxx[1]
1,98	11,0	22	49	2,0	4	01980
1,99	11,0	22	49	2,0	4	01990
2,00	11,0	22	49	2,0	4	02000
2,01	11,0	22	49	2,0	4	02010
2,02	11,0	22	49	2,0	4	02020
2,03	11,0	22	49	2,0	4	02030
2,04	11,0	22	49	2,0	4	02040
2,05	11,0	22	49	2,0	4	02050
2,06 - 2,09	11,0	22	49	2,0	4	xxxxx[1]
2,10 - 2,12	11,0	22	49	2,0	4	xxxxx[1]
2,13 - 2,36	12,0	24	53	2,2	4	xxxxx[1]
2,37 - 2,49	14,0	26	57	2,5	4	xxxxx[1]
2,50 - 2,59	14,0	26	57	2,5	4	xxxxx[1]
2,60 - 2,65	14,0	26	57	2,5	4	xxxxx[1]
2,66 - 2,80	15,0	30	61	2,8	6	xxxxx[1]
2,81 - 2,94	15,0	29	61	3,0	6	xxxxx[1]
2,95	15,0	29	61	3,0	6	02950[1]
2,96	15,0	29	61	3,0	6	02960[1]
2,97	15,0	29	61	3,0	6	02970
2,98	15,0	29	61	3,0	6	02980
2,99	15,0	29	61	3,0	6	02990
3,00	15,0	29	61	3,0	6	03000
3,01	16,0	33	65	3,2	6	03010
3,02	16,0	33	65	3,2	6	03020
3,03	16,0	33	65	3,2	6	03030
3,04	16,0	33	65	3,2	6	03040
3,05	16,0	33	65	3,2	6	03050
3,06	16,0	33	65	3,2	6	03060
3,07	16,0	33	65	3,2	6	03070
3,08 - 3,09	16,0	33	65	3,2	6	xxxxx[1]
3,10 - 3,35	16,0	33	65	3,2	6	xxxxx[1]
3,36 - 3,49	18,0	38	70	3,5	6	xxxxx[1]
3,50 - 3,59	18,0	38	70	3,5	6	xxxxx[1]
3,60 - 3,75	18,0	38	70	3,5	6	xxxxx[1]
3,76 - 3,81	19,0	46	75	4,0	6	xxxxx[1]
3,82 - 3,94	19,0	46	75	4,0	6	xxxxx[1]
3,95	19,0	46	75	4,0	6	03950[1]
3,96	19,0	46	75	4,0	6	03960[1]
3,97	19,0	46	75	4,0	6	03970

40 140 ...

DC mm	L mm	LU mm	OAL mm	DCONMS h9 mm	ZEFP	
3,98	19,0	46	75	4,0	6	03980
3,99	19,0	46	75	4,0	6	03990
4,00	19,0	46	75	4,0	6	04000
4,01	19,0	46	75	4,0	6	04010
4,02	19,0	46	75	4,0	6	04020
4,03	19,0	46	75	4,0	6	04030
4,04	19,0	46	75	4,0	6	04040
4,05	19,0	46	75	4,0	6	04050
4,06	19,0	46	75	4,0	6	04060
4,07	19,0	46	75	4,0	6	04070
4,08	19,0	46	75	4,0	6	04080
4,09 - 4,20	19,0	46	75	4,0	6	xxxxx[1]
4,21 - 4,25	19,0	46	75	4,0	6	xxxxx[1]
4,26 - 4,75	21,0	51	80	4,5	6	xxxxx[1]
4,76 - 4,95	23,0	57	86	5,0	6	xxxxx[1]
4,96	23,0	57	86	5,0	6	04960[1]
4,97	23,0	57	86	5,0	6	04970
4,98	23,0	57	86	5,0	6	04980
4,99	23,0	57	86	5,0	6	04990
5,00	23,0	57	86	5,0	6	05000
5,01	23,0	57	86	5,0	6	05010
5,02	23,0	57	86	5,0	6	05020
5,03	23,0	57	86	5,0	6	05030
5,04	23,0	57	86	5,0	6	05040
5,05	23,0	57	86	5,0	6	05050
5,06	23,0	57	86	5,0	6	05060
5,07	23,0	57	86	5,0	6	05070
5,08 - 5,20	23,0	57	86	5,0	6	xxxxx[1]
5,21 - 5,30	23,0	57	86	5,0	6	xxxxx[1]
5,31 - 5,94	26,0	56	93	5,6	6	xxxxx[1]
5,95	26,0	56	93	5,6	6	05950[1]
5,96	26,0	56	93	5,6	6	05960[1]
5,97	26,0	56	93	5,6	6	05970
5,98	26,0	56	93	5,6	6	05980
5,99	26,0	56	93	5,6	6	05990

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O	●

→ v_c Page 88

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 16 working days

→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
For xxxxx please indicate required Ø in the order (e.g. Ø 10.06 mm → Article no. 40 140 10060)!

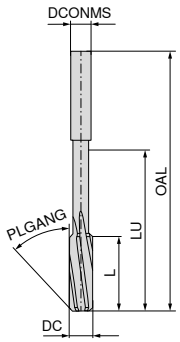
All other diameters, tolerance classes and chamfers also available on request.

Continued on next page

Machine reamers, DIN 212-B

▲ 0.01 mm steps
▲ tolerance: Ø 0.95 – 5.50 mm = +0.004 mm
▲ tolerance: Ø 5.51 – 12.00 mm = +0.005 mm

N 100



Left Hand Helix
PLGANG 45°
HSS-E
Through hole

40 140 ...

DC mm	L mm	LU mm	OAL mm	DCONMS h9 mm	ZEFP	
6,00	26	56	93	5,6	6	06000
6,01	28	64	101	6,3	6	06010
6,02	28	64	101	6,3	6	06020
6,03	28	64	101	6,3	6	06030
6,04	28	64	101	6,3	6	06040
6,05	28	64	101	6,3	6	06050
6,06 - 6,11	28	64	101	6,3	6	xxxxx[1]
6,12 - 6,34	28	64	101	6,3	6	xxxxx[1]
6,35	28	64	101	6,3	6	06350
6,36 - 6,70	28	64	101	6,3	6	xxxxx[1]
6,71 - 6,94	31	72	109	7,1	6	xxxxx[1]
6,95	31	72	109	7,1	6	06950[1]
6,96	31	72	109	7,1	6	06960[1]
6,97	31	72	109	7,1	6	06970[1]
6,98	31	72	109	7,1	6	06980[1]
6,99	31	72	109	7,1	6	06990[1]
7,00	31	72	109	7,1	6	07000[1]
7,01	31	72	109	7,1	6	07010[1]
7,02	31	72	109	7,1	6	07020[1]
7,03	31	72	109	7,1	6	07030[1]
7,04 - 7,50	31	72	109	7,1	6	xxxxx[1]
7,51 - 7,94	33	80	117	8,0	6	xxxxx[1]
7,95	33	80	117	8,0	6	07950[1]
7,96	33	80	117	8,0	6	07960[1]
7,97	33	80	117	8,0	6	07970
7,98	33	80	117	8,0	6	07980
7,99	33	80	117	8,0	6	07990
8,00	33	80	117	8,0	6	08000
8,01	33	80	117	8,0	6	08010
8,02	33	80	117	8,0	6	08020
8,03	33	80	117	8,0	6	08030
8,04	33	80	117	8,0	6	08040
8,05	33	80	117	8,0	6	08050
8,06 - 8,20	33	80	117	8,0	6	xxxxx[1]
8,21 - 8,50	33	80	117	8,0	6	xxxxx[1]
8,51 - 8,63	36	84	125	9,0	6	xxxxx[1]
8,64 - 8,95	36	84	125	9,0	6	xxxxx[1]
8,96	36	84	125	9,0	6	08960[1]
8,97	36	84	125	9,0	6	08970[1]
8,98	36	84	125	9,0	6	08980[1]
8,99	36	84	125	9,0	6	08990[1]
9,00	36	84	125	9,0	6	09000[1]
9,01	36	84	125	9,0	6	09010[1]
9,02	36	84	125	9,0	6	09020[1]
9,03 - 9,50	36	84	125	9,0	6	xxxxx[1]
9,51 - 9,63	38	92	133	10,0	6	xxxxx[1]
9,64 - 9,95	38	92	133	10,0	6	xxxxx[1]
9,96	38	92	133	10,0	6	09960[1]
9,97	38	92	133	10,0	6	09970
9,98	38	92	133	10,0	6	09980

40 140 ...

DC mm	L mm	LU mm	OAL mm	DCONMS h9 mm	ZEFP	
9,99	38	92	133	10,0	6	09990
10,00	38	92	133	10,0	6	10000
10,01	38	92	133	10,0	6	10010
10,02	38	92	133	10,0	6	10020
10,03	38	92	133	10,0	6	10030
10,04	38	92	133	10,0	6	10040
10,05	38	92	133	10,0	6	10050
10,06 - 10,09	38	92	133	10,0	6	xxxxx[1]
10,10	38	92	133	10,0	6	10100
10,11 - 10,19	38	92	133	10,0	6	xxxxx[1]
10,20	38	92	133	10,0	6	10200
10,21 - 10,60	38	92	133	10,0	6	xxxxx[1]
10,61 - 11,20	41	101	142	10,0	6	xxxxx[1]
11,21 - 11,80	41	101	142	10,0	6	xxxxx[1]
11,81 - 11,95	44	110	151	10,0	6	xxxxx[1]
11,96	44	110	151	10,0	6	11960[1]
11,97	44	110	151	10,0	6	11970
11,98	44	110	151	10,0	6	11980
11,99	44	110	151	10,0	6	11990
12,00	44	110	151	10,0	6	12000
12,01 - 12,05	44	110	151	10,0	6	xxxxx[1]

P	●
M	○
K	●
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O	●

→ v_c Page 88

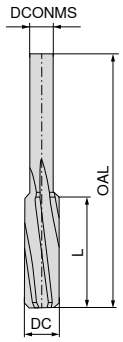
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 16 working days

→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
For xxxxx please indicate required Ø in the order (e.g. Ø 10.06 mm → Article no. 40 140 10060)!

All other diameters, tolerance classes and chamfers also available on request.

Stub reamers, DIN 8089-B

AR



Left Hand Helix
PLGANG 45°
HSS-E
Through hole

40 145 ...

DC $_{H7}$ mm	L mm	OAL mm	DCONMS $_{h8}$ mm	ZEFP	
4	20	56	3,55	6	**040**
5	22	63	4,00	6	**050**
6	22	63	5,00	6	**060**
8	25	71	6,30	6	**080**
10	25	71	8,00	6	**100**
12	28	80	10,00	6	**120**
14	32	90	12,50	8	**140**
16	32	90	12,50	8	**160**
18	36	100	16,00	8	**180**
20	36	100	16,00	8	**200**

P	●
M	○
K	●
N	●
S	○
H	
O	●

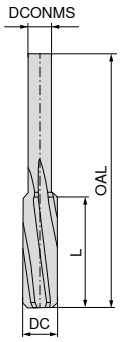
→ v_c Page 88

All other diameters, tolerance classes and chamfers also available on request.

Stub reamers, DIN 8089-B

▲ 0.01 mm steps
▲ tolerance: Ø 3.76 – 5.50 mm = +0.004 mm
▲ tolerance: Ø 5.51 – 12.00 mm = +0.005 mm

AR 100



Left Hand Helix
PLGANG 45°
HSS-E
Through hole

40 139 ...

DC mm	L mm	OAL mm	DCONMS h8 mm	ZEFP	
3,76 - 3,81	20	56	3,55	6	xxxxx[1]
3,82 - 3,94	20	56	3,55	6	xxxxx[1]
3,95	20	56	3,55	6	03950[1]
3,96	20	56	3,55	6	03960[1]
3,97	20	56	3,55	6	03970[1]
3,98	20	56	3,55	6	03980[1]
3,99	20	56	3,55	6	03990[1]
4,00	20	56	3,55	6	04000[1]
4,01	20	56	3,55	6	04010[1]
4,02	20	56	3,55	6	04020[1]
4,03 - 4,20	20	56	3,55	6	xxxxx[1]
4,21 - 4,25	20	56	3,55	6	xxxxx[1]
4,26 - 4,75	22	63	4,00	6	xxxxx[1]
4,76 - 4,94	22	63	4,00	6	xxxxx[1]
4,95	22	63	4,00	6	04950[1]
4,96	22	63	4,00	6	04960[1]
4,97	22	63	4,00	6	04970[1]
4,98	22	63	4,00	6	04980[1]
4,99	22	63	4,00	6	04990[1]
5,00	22	63	4,00	6	05000[1]
5,01	22	63	4,00	6	05010[1]
5,02	22	63	4,00	6	05020[1]
5,03	22	63	4,00	6	05030[1]
5,04	22	63	4,00	6	05040[1]
5,05	22	63	4,00	6	05050[1]
5,06 - 5,20	22	63	4,00	6	xxxxx[1]
5,21 - 5,30	22	63	4,00	6	xxxxx[1]
5,31 - 5,70	22	63	5,00	6	xxxxx[1]
5,71 - 5,94	22	63	5,00	6	xxxxx[1]
5,95	22	63	5,00	6	05950[1]
5,96	22	63	5,00	6	05960[1]
5,97	22	63	5,00	6	05970[1]
5,98	22	63	5,00	6	05980[1]
5,99	22	63	5,00	6	05990[1]
6,00	22	63	5,00	6	06000[1]
6,01	22	63	5,00	6	06010[1]
6,02	22	63	5,00	6	06020[1]
6,03 - 6,11	22	63	5,00	6	xxxxx[1]
6,12 - 6,70	22	63	5,00	6	xxxxx[1]
6,71 - 6,94	25	71	6,30	6	xxxxx[1]
6,95	25	71	6,30	6	06950[1]
6,96	25	71	6,30	6	06960[1]
6,97	25	71	6,30	6	06970[1]
6,98	25	71	6,30	6	06980[1]
6,99	25	71	6,30	6	06990[1]
7,00	25	71	6,30	6	07000[1]
7,01	25	71	6,30	6	07010[1]
7,02	25	71	6,30	6	07020[1]
7,03 - 7,25	25	71	6,30	6	xxxxx[1]
7,26 - 7,94	25	71	6,30	6	xxxxx[1]
7,95	25	71	6,30	6	07950[1]
7,96	25	71	6,30	6	07960[1]

40 139 ...

DC mm	L mm	OAL mm	DCONMS h8 mm	ZEFP	
7,97	25	71	6,30	6	07970[1]
7,98	25	71	6,30	6	07980[1]
7,99	25	71	6,30	6	07990[1]
8,00	25	71	6,30	6	08000[1]
8,01	25	71	6,30	6	08010[1]
8,02	25	71	6,30	6	08020[1]
8,03	25	71	6,30	6	08030[1]
8,04	25	71	6,30	6	08040[1]
8,05 - 8,20	25	71	6,30	6	xxxxx[1]
8,21 - 8,50	25	71	6,30	6	xxxxx[1]
8,51 - 8,94	25	71	8,00	6	xxxxx[1]
8,95	25	71	8,00	6	08950[1]
8,96	25	71	8,00	6	08960[1]
8,97	25	71	8,00	6	08970[1]
8,98	25	71	8,00	6	08980[1]
8,99	25	71	8,00	6	08990[1]
9,00	25	71	8,00	6	09000[1]
9,01	25	71	8,00	6	09010[1]
9,02	25	71	8,00	6	09020[1]
9,03 - 9,25	25	71	8,00	6	xxxxx[1]
9,26 - 9,94	25	71	8,00	6	xxxxx[1]
9,95	25	71	8,00	6	09950[1]
9,96	25	71	8,00	6	09960[1]
9,97	25	71	8,00	6	09970[1]
9,98	25	71	8,00	6	09980[1]
9,99	25	71	8,00	6	09990[1]
10,00	25	71	8,00	6	10000[1]
10,01	25	71	8,00	6	10010[1]
10,02	25	71	8,00	6	10020[1]
10,03 - 10,20	25	71	8,00	6	xxxxx[1]
10,21 - 10,60	25	71	8,00	6	xxxxx[1]
10,61 - 11,20	28	80	10,00	6	xxxxx[1]
11,21 - 11,25	28	80	10,00	6	xxxxx[1]
11,26 - 11,94	28	80	10,00	6	xxxxx[1]
11,95	28	80	10,00	6	11950[1]
11,96	28	80	10,00	6	11960[1]
11,97	28	80	10,00	6	11970[1]
11,98	28	80	10,00	6	11980[1]
11,99	28	80	10,00	6	11990[1]
12,00	28	80	10,00	6	12000[1]

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 88

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 16 working days

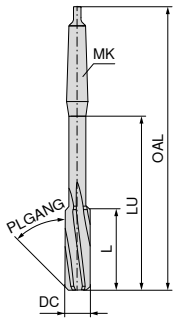
→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
For xxxxx please indicate required Ø in the order (e.g. Ø 10.06 mm → Article no. 40 139 10060)!

All other diameters, tolerance classes and chamfers also available on request.

Machine reamers HSS-E DIN 208

▲ the circular land on the cutting edge burnishes the hole and guides the reamer

N



Left Hand Helix
PLGANG 45°
HSS-E
Through hole

40 160 ...

DC H7 mm	L mm	LU mm	OAL mm	MK	ZEFP	
16	52	127	210	2	8	**160**
17	54	132	214	2	8	**170**
18	56	137	219	2	8	**180**
19	58	142	223	2	8	**190**
20	60	147	228	2	8	**200**
21	62	151	232	2	8	**210**
22	64	156	237	2	8	**220**
23	66	160	241	2	8	**230**
24	68	167	268	3	8	**240**
25	68	167	268	3	8	**250**
26	70	172	273	3	8	**260**
27	71	177	277	3	10	**270**
28	71	177	277	3	10	**280**
29	73	181	281	3	10	**290**
30	73	181	281	3	10	**300**
32	77	190	317	4	10	**320**
34	78	194	321	4	10	**340**
35	78	195	321	4	10	**350**
36	79	200	325	4	10	**360**
38	81	204	329	4	10	**380**
40	81	204	329	4	10	**400**
42	82	211	333	4	12	**420**
44	83	215	336	4	12	**440**
50	86	224	344	4	12	**500**

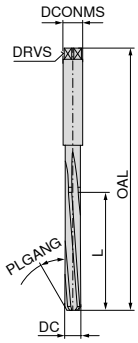
P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 88

Hand reamers, DIN 206-B

▲ PLGANG ≤ Ø 3,5 = 30°; > Ø 3,5 = 45°/30°

H



Left Hand Helix
HSS
Through hole

40 100 ...

DC H7 mm	L mm	OAL mm	DRVS mm	DCONMS mm	ZEFP	
3,0	31	62	2,24	3,0	6	**030**
3,2	33	66	2,50	3,2	6	**032**
3,5	35	71	2,80	3,5	6	**035**
4,0	38	76	3,15	4,0	6	**040**
4,5	41	81	3,55	4,5	6	**045**
5,0	44	87	4,00	5,0	6	**050**
5,5	47	93	4,50	5,5	6	**055**
6,0	47	93	4,50	6,0	6	**060**
7,0	54	107	5,60	7,0	6	**070**
8,0	58	115	6,30	8,0	6	**080**
9,0	62	124	7,10	9,0	6	**090**
10,0	66	133	8,00	10,0	6	**100**
11,0	71	142	9,00	11,0	6	**110**
12,0	76	152	10,00	12,0	6	**120**
13,0	76	152	10,00	13,0	6	**130**
14,0	81	163	11,20	14,0	8	**140**
15,0	81	163	11,20	15,0	8	**150**
16,0	87	175	12,50	16,0	8	**160**
17,0	87	175	14,00	17,0	8	**170**
18,0	93	188	14,00	18,0	8	**180**
19,0	93	188	14,00	19,0	8	**190**
20,0	100	201	16,00	20,0	8	**200**
22,0	107	215	18,00	22,0	8	**220**
24,0	115	231	20,00	24,0	8	**240**
25,0	115	231	20,00	25,0	8	**250**
26,0	115	231	20,00	26,0	8	**260**
28,0	124	247	22,40	28,0	10	**280**
30,0	124	247	22,40	30,0	10	**300**

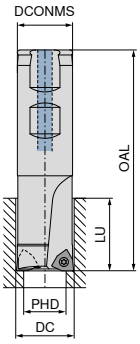
P	●
M	○
K	●
N	●
S	○
H	
O	●

All other diameters, tolerance classes and chamfers also available on request.

Insert countersink 180°

Scope of supply:
Indexable insert countersink including clamping screws

WPS



NEW

4

SIG 180°

30 198 ...

DC mm	PHD mm	ZEFP	ZNF	DCONMS mm	LU mm	OAL mm	Insert	
10	5,3	1	1	16	10	80	WOEX 030204	**01000** [1]
11	6,4	1	1	16	11	80	WOEX 030204	**01100** [1]
15	8,4	1	1	16	15	80	WOEX 05T304	**01500**
18	10,4	1	1	16	18	80	WOEX 05T304	**01800**
20	13,0	1	1	25	20	100	WOEX 05T304	**02000**
24	15,0	2	2	25	24	100	WOEX 05T304	**02400**
26	17,0	2	2	25	26	100	WOEX 05T304	**02600**
30	19,0	2	2	25	30	100	WOEX 06T304	**03000**
33	21,0	2	2	25	33	100	WOEX 080404	**03300**
36	21,0	2	2	25	36	100	WOEX 080404	**03600**
40	25,0	2	2	25	40	100	WOEX 080404	**04000**
48	28,0	2	2	32	48	120	WOEX 100504	**04800**

1) Without Through Coolant

Key D

80 950 ...

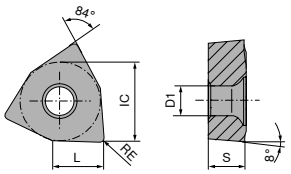
Clamping screw

10 950 ...

Spare parts DC				
10 - 11	T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
15 - 26	T08 - IP	**125**	M2,5x7,2 - 08IP	**10500**
30	T10 - IP	**127**	M3,5x7,3 - 10IP	**10600**
33 - 48	T15 - IP	**128**	M4,5x9 - 15IP	**12700**

WOEX

Designation	L	IC	S	D1
	mm	mm	mm	mm
WOEX 0302..	3,2	5	2,30	2,30
WOEX 05T3..	5,3	8	3,80	2,85
WOEX 06T3..	6,6	10	3,80	4,05
WOEX 0804..	7,9	12	4,80	4,90
WOEX 1005..	9,9	15	5,30	4,90



WOEX

	-01 K10	-01 BK8425
	WOEX	WOEX
	10 821 ...	10 821 ...

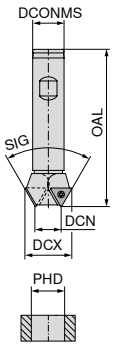
ISO	RE mm		
030204	0,4	35301	30301
05T304	0,4	35501	30501
06T304	0,4	35601	30601
080404	0,4	35801	30801
100504	0,4	36001	31001
P			●
M			●
K			●
N		●	○
S		●	●
H			○
O		●	

→ v_c Page 89

Indexable chamfer milling 90°

Scope of supply:
Indexable insert countersink including clamping screws

WPS



SIG 90°

30 196 ...

DCX mm	DCN mm	PHD mm	ZEFP	ZNF	DCONMS mm	OAL mm	Insert	
19	7	9,5	2	2	16	100	TOHX 090204	**19000**
23	11	12,0	2	2	16	100	TOHX 090204	**23000**
26	11	12,0	1	2	16	100	TOHX 090204	**26000**
30	12	13,0	2	2	20	100	TOHX 140305	**30000**
34	16	17,0	2	2	20	100	TOHX 140305	**34000**
37	19	20,0	2	2	20	100	TOHX 140305	**37000**

TORX® Screws

Key D

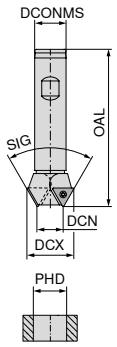
62 950 ... **80 950 ...**

Spare parts DCX				
19 - 26	M2,6x6,2 - 08IP	**09900**	T08 - IP	**125**
30 - 37	M3,5x7,3 - 10IP	**12600**	T10 - IP	**127**

Indexable chamfer milling 60°

Scope of supply:
Indexable insert countersink including clamping screws

WPS



SIG 60°

30 197 ...

DCX mm	DCN mm	PHD mm	ZEFP	ZNF	DCONMS mm	OAL mm	Insert	
16,5	8,1	8,5	1	1	16	100	TOHX 090204	**16500**
20,0	11,6	12,0	2	2	16	100	TOHX 090204	**20000**
22,0	13,6	14,0	2	2	16	100	TOHX 090204	**22000**
23,5	15,1	15,5	2	2	16	100	TOHX 090204	**23500**
25,5	17,1	17,5	2	2	16	100	TOHX 090204	**25500**

TORX® Screws

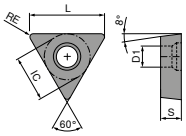
Key D

62 950 ... **80 950 ...**

Spare parts DCX				
16,5 - 22	M2,6x5,2 - 08IP	**12000**	T08 - IP	**125**
23,5 - 25,5	M2,6x6,2 - 08IP	**09900**	T08 - IP	**125**

TOHX

Designation	L mm	IC mm	S mm	D1 mm
TOHX 0902..	9,12	5,6	2,50	2,8
TOHX 1403..	13,62	8,2	3,00	3,8



TOHX

	-G06 BK8425	-U877 BK8425	-G12 BK8425
	F TOHX	F TOHX	F TOHX
ISO / RE mm	62 602 ...	62 604 ...	62 603 ...
090204EN 0,4		31400	31400
140305EN 0,5	33000		
P	●	●	●
M	●	●	●
K	●	●	●
N	○	○	○
S	●	●	●
H	○	○	○
O			

→ v_c Page 89

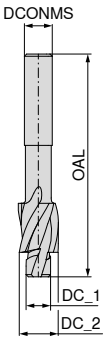
TOHX

	-U877 K10	-G12 K10
	F TOHX	F TOHX
ISO / RE mm	62 604 ...	62 603 ...
090204EN 0,4	51400	
090204FN 0,4		51600
140305FN 0,5		52800
P		
M		
K		
N	●	●
S	●	●
H		
O	●	●

→ v_c Page 89

Counterbore, DIN 373

▲ with fixed pilot
▲ with 3 cutting edges, right-hand flutes for counterbores according to DIN 74
▲ for countersinking to suit hexagon socket screws according to DIN 912, DIN 6912, DIN 7984 and cap screws according to DIN 84



fine
SIG 180°
HSS

medium
SIG 180°
HSS

Thread	DC_2 z9 mm	DCONMS h9 mm	OAL mm	DC_1 e8 mm	30 190 ...	30 191 ...
M3	6	5,0	71	3,2	030 1)	
M3	6	5,0	71	3,4		030 1)
M4	8	5,0	71	4,3	040 1)	
M4	8	5,0	71	4,5		040 1)
M5	10	8,0	80	5,3	050 1)	
M5	10	8,0	80	5,5		050 1)
M6	11	8,0	80	6,4	060 1)	
M6	11	8,0	80	6,6		060 1)
M8	15	12,5	100	8,4	080 1)	
M8	15	12,5	100	9,0		080 1)
M10	18	12,5	100	10,5	100 1)	
M10	18	12,5	100	11,0		100 1)
M12	20	12,5	100	13,0	120	
M12	20	12,5	100	13,5		120
P					●	●
M					●	●
K					●	●
N					●	●
S					○	○
H						
O					●	●

1) Included in the set

→ v_c Page 94

Counterbore, DIN 373 – Set

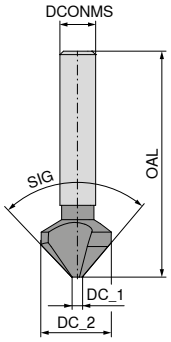
Scope of supply:
Counterbores M3; M4; M5; M6; M8; M10 in case

30 190 ...	30 191 ...
999	999

Countersink 90° with irregular pitch, DIN 335-C

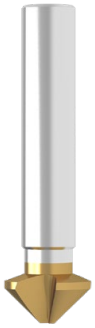
- ▲ all sizes with 3 cutting edges and highly irregular pitch, resulting in smooth running, excellent roundness and chatter reduction giving the highest surface quality
- ▲ special HPC-TiN coating
- ▲ for very high tool life in almost all materials
- ▲ greatly reduced axial and radial forces
- ▲ for countersinking to DIN 7991

N



NEW

HPC-TiN



SIG 90°
Solid carbide

4

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	DIN 7991	30 117 ...
6,3	1,5	5	45	M3	**06300**
8,3	2,0	6	50	M4	**08300**
10,4	2,5	6	50	M5	**10400** 1)
12,4	2,8	8	56	M6	**12400**
16,5	3,2	10	60	M8	**16500** 1)
20,5	3,5	10	60	M10	**20500**
25,0	3,8	10	67	M12	**25000** 1)
31,0	4,2	12	71	M16	**31000**

P	●
M	○
K	●
N	●
S	○
H	○
O	○

1) Included in the set

→ v_c Page 91

Countersink 90° with irregular pitch, DIN 335-C – Set

Scope of supply:
Countersinks Ø 10.4 / 16.5 / 25.0 mm in storage case

N

NEW

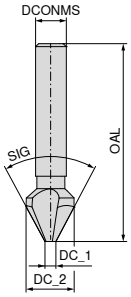
HPC-TiN

30 117 ...
99900

Countersink 60°
factory standard-C

▲ with 3 cutting edges for countersinking and deburring in high-tensile steels, grey cast iron, aluminium alloys containing silicon and corrosion resistant steels.

N



SIG 60°
Solid carbide

30 160 ...

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	
12,5	3,2	8	56	**125**
16,0	4,0	10	63	**160**
20,0	5,0	10	67	**200**
25,0	6,3	10	71	**250**

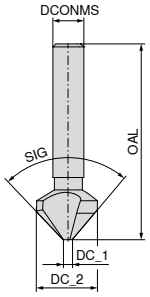
P	●
M	○
K	●
N	●
S	○
H	○
O	

→ v_c Page 90

Countersink 90°,
factory standard-C

▲ with 3 cutting edges for countersinking and deburring in high-tensile steels, grey cast iron, alumínium alloys containing silicon and corrosion resistant steels.

N



SIG 90°
Solid carbide

30 115 ...

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	DIN ISO 7721	DIN 7991	
10,4	2,5	8	46	M5		**100**
12,4	2,8	8	56		M6	**124**
15,0	3,2	10	60	M8		**150**
16,5	3,2	10	60		M8	**165**
20,5	3,5	10	63		M10	**205**
25,0	3,8	10	67		M12	**250**
31,0	4,2	12	71		M16	**310**

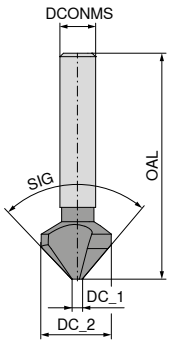
P	●
M	○
K	●
N	●
S	○
H	○
O	

→ v_c Page 90

Countersink 90° with irregular pitch, DIN 335-C

▲ all sizes with 3 cutting edges and highly irregular pitch, resulting in smooth running, excellent roundness and chatter reduction giving the highest surface quality
▲ for very high tool life in almost all materials
▲ greatly reduced axial and radial forces
▲ for countersinking to DIN ISO 7721 and DIN 7991

N



NEW

TiN

SIG 90°
HSS

4

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	DIN ISO 7721	DIN 7991	30 141 ...
4,3	1,3	4	40	M2		**04300**
6,0	1,5	5	45	M3		**06000**
6,3	1,5	5	45		M3	**06300**
8,0	2,0	6	50	M4		**08000**
8,3	2,0	6	50		M4	**08300**
10,0	2,5	6	50	M5		**10000**
10,4	2,5	6	50		M5	**10400** 1)
11,5	2,8	8	56	M6		**11500**
12,4	2,8	8	56		M6	**12400**
15,0	3,2	10	60	M8		**15000**
16,5	3,2	10	60		M8	**16500** 1)
19,0	3,5	10	63	M10		**19000**
20,5	3,5	10	63		M10	**20500**
23,0	3,8	10	67	M12		**23000**
25,0	3,8	10	67		M12	**25000** 1)
31,0	4,2	12	71		M16	**31000**

P	●
M	○
K	●
N	●
S	○
H	○
O	○

1) Included in the set

→ v_c Page 91

Countersink 90° with irregular pitch, DIN 335-C – Set

Scope of supply:
Countersinks Ø 10.4 / 16.5 / 25.0 mm in storage case

N

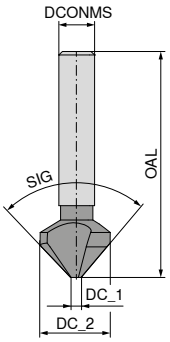
NEW

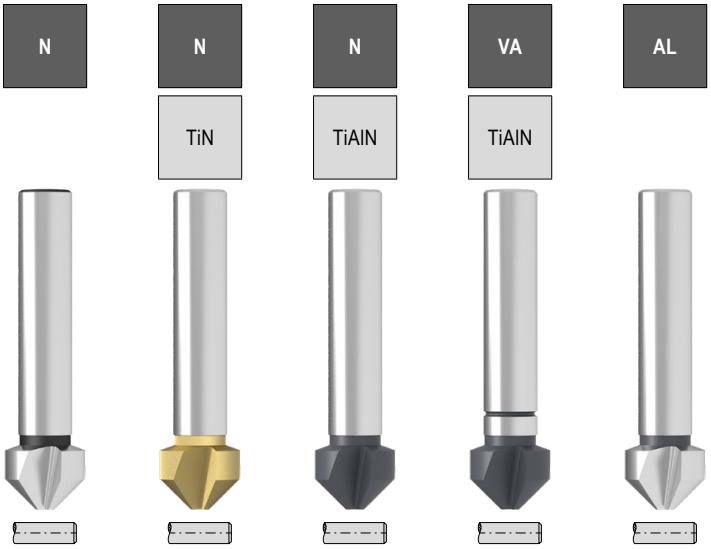
TiN

30 141 ...
99900

Countersink 90°, DIN 335-C

▲ 3 cutting edges to avoid burrs and chatter marks when countersinking and deburring in virtually all materials. Particularly suitable for DIN screws according to DIN ISO 7721 and 7991, as the countersink diameters are matched to the heads of these screws.
▲ the TiN version makes high cutting rates possible; very long tool life and very good friction resistance properties in order to avoid material sticking.
▲ TiAlN version shows considerably improved performance compared to TiN version. Particularly suitable for all abrasive materials (cast iron, AlSi) and/or at high temperature.





	N	N	N	VA	AL
		TiN	TiAlN	TiAlN	
	SIG 90° HSS	SIG 90° HSS	SIG 90° HSS	SIG 90° HSS	SIG 90° HSS
	30 100 ...	30 110 ...	30 130 ...	30 132 ...	30 102 ...

DC_2 z9 mm	DC_1 mm	DCONMS mm	OAL mm	DIN ISO 7721	DIN 7991									
4,3	1,3	4	40	M2		043								
5,0	1,5	4	40	M2,5		050		050		050				
6,0	1,5	5	45	M3		060								
6,3	1,5	5	45		M3	063 1)		063 1)		063		063		063
7,0	1,8	6	50	M3,5		070								
8,0	2,0	6	50	M4		080		080		080				
8,3	2,0	6	50		M4	083 1)		083 1)		083		083		083
9,4	2,2	6	50			094								
10,0	2,5	6	50	M5		100		100		100				
10,4	2,5	6	50		M5	104 1)		104 1)		104		104		104
11,5	2,8	8	56	M6		115								
12,4	2,8	8	56		M6	124 1)		124 1)		124		124		124
13,4	2,9	8	56			134								
15,0	3,2	10	60	M8		150		150		150		150		150
16,5	3,2	10	60		M8	165 1)		165 1)		165		165		165
19,0	3,5	10	63	M10		190								
20,5	3,5	10	63		M10	205 1)		205 1)		205		205		205
23,0	3,8	10	67	M12		230								
25,0	3,8	10	67		M12	250		250		250		250		250
31,0	4,2	12	71		M16	310		310		310		310		
31,0	4,2	12	67		M16									310
P						●		●		●		○		○
M						○		○		○		●		○
K						●		●		●		○		○
N						●		●		●		○		●
S						○		○		○		○		○
H								○		○		○		
O						●		●		●		●		●

1) Included in the set

→ v_c Page 92+93

Countersink 90°, DIN 335-C – set

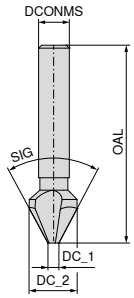
Scope of supply:
Countersinks Ø 6,3; 8,3; 10,4; 12,4; 16,5; 20,5 in case

N

TiN	
30 100 ...	30 110 ...
999	999

Countersink 60°, DIN 334-C

▲ 3 cutting edges for countersinking and deburring in virtually all materials



SIG 60°
HSS

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	30 150 ...
6,3	1,6	5	45	063 1)
8,0	2,0	6	50	080 1)
10,0	2,5	6	52	100 1)
12,5	3,2	8	56	125 1)
16,0	4,0	10	63	160 1)
20,0	5,0	10	67	200 1)
25,0	6,3	10	71	250

P	●
M	○
K	●
N	●
S	○
H	
O	●

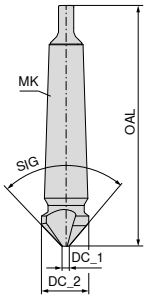
1) Included in the set

→ v_c Page 94

Countersink 90°, DIN 335-C

▲ 3 cutting edges to avoid burrs and chatter marks when countersinking and deburring in virtually all materials. Particularly suitable for DIN screws according to DIN ISO 7721 and 7991, as the countersink diameters are matched to the heads of these screws.

N



SIG 90°
HSS

DC_2 z9 mm	DC_1 mm	OAL mm	MK	30 105 ...
30	4,2	112	2	300
31	4,2	112	2	310
34	4,5	118	2	340
37	4,8	118	2	370
40	10,0	140	3	400
50	14,0	150	3	500
63	16,0	180	4	630
80	22,0	190	4	800

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 94

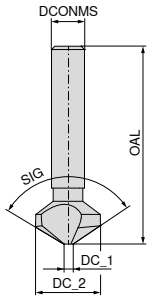
Countersink 60°, DIN 334-C – set

Scope of supply:
Countersinks Ø 6,3; 8,0; 10,0; 12,5; 16,0; 20,0 in case

30 150 ...
999

Countersink 120°, factory standard-C

▲ 3 cutting edges for countersinking and deburring in virtually all materials



SIG 120°
HSS

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	30 170 ...
6,3	1,5	5	45	063
8,3	2,0	6	50	083
10,4	2,5	6	50	104
12,4	2,8	8	56	124
16,5	3,2	10	60	165
20,5	3,5	10	60	205
25,0	3,8	10	63	250

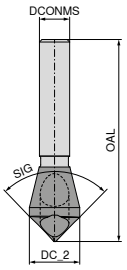
P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 94

Deburring countersink 90°, factory standard-A

▲ with angled hole to avoid burrs and chattermarks when countersinking and deburring in soft long-chipping materials, e.g. aluminium, plastics etc.

TiN



SIG 90°
HSS-E

SIG 90°
HSS-E

DC_2 mm	PHD mm	DCONMS h9 mm	OAL mm	30 120 ...	30 121 ...
6,3	1 - 4	6,3	45	040 1)	040 1)
10,0	2 - 5	6,0	45	050	050
14,0	5 - 10	8,0	48	101	101
21,0	10 - 15	10,0	65	150	150
28,0	15 - 20	12,0	85	200	200

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

1) can be used in both directions

→ v_c Page 95

Material examples for cutting data tables

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

* Tensile strength

Cutting data standard values for REAMAX TS

Index	40 577 ..., 40 585 ... 75J.65, 75H.65 – ASG3000 / HM-DBG-P						40 521 ..., 40 571 ... 75J.65, 75H.65 – ASG0106 / HM-DBG-P					
	Nominal Ø in mm ▸		18–21,999	22–31,799	31,8–51,999	52–65	Nominal Ø in mm ▸		18–21,999	22–31,799	31,8–51,999	52–65
	Reaming allowance Ø ▸		0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50	Reaming allowance Ø ▸		0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	Number of flutes ▸		6	6	8	10	Number of flutes ▸		6	6	8	10
	3xD	5xD					3xD	5xD				
	v_c (m/min)		f (mm/rev)				v_c (m/min)		f (mm/rev)			
P.1.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.5	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.3.1							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.3.2							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.3.3							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.4.1							**45** (35–60)	**40** (35–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.4.2							**45** (35–60)	**40** (35–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
M.1.1							**45** (35–60)	**40** (30–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
M.2.1							**45** (35–60)	**40** (30–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
M.3.1							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
K.1.1	**150** (130–220)	**120** (100–150)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.1.2	**150** (130–220)	**120** (100–150)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.2.1	**175** (150–300)	**150** (130–180)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.2.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
K.3.1	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
K.3.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

Cutting data standard values for REAMAX TS

Index	40 526 …, 40 580 … 75J.17, 75H.17 – ASG0706 / HM-DBC						40 539 … 75H.93 – ASG3000 / DST					
Nominal Ø in mm ▸			18–21,999	22–31,799	31,8–51,999	52–65			18–21,999	22–31,799	31,8–51,999	52–65
Reaming allowance Ø ▸			0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50			0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
Number of flutes ▸			6	6	8	10			6	6	8	10
	3xD	5xD					3xD	5xD				
	v_c (m/min)		f (mm/rev)				v_c (m/min)		f (mm/rev)			
P.1.1							**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.2							**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.3							**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.4							**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.5							**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.1							**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.2							**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.3							**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.4							**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1							**175** (150–300)	**150** (130–180)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40
K.2.2							**120** (100–150)	**100** (80–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
K.3.1							**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
K.3.2							**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
N.1.1	**150** (130–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						
N.1.2	**150** (130–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						
N.2.1	**200** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						
N.2.2	**200** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						
N.2.3	**200** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						
N.3.1							150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
N.3.2							150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
N.3.3												
N.4.1	**150** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1	250 (220–270)	250 (220–270)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						

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

Cutting data standard values for REAMAX TS

Index	40 544 … 75J.93 – ASG3000 / DST						40 597 … 75J.93 – ASG4000 / DST					
	Nominal Ø in mm ▸		18–21,999	22–31,799	31,8–51,999	52–65			18–21,999	22–31,799	31,8–51,999	52–65
	Reaming allowance Ø ▸		0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50			0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	Number of flutes ▸		6	6	8	10			6	6	8	10
	3xD	5xD					3xD	5xD				
	v_c (m/min)		f (mm/rev)				v_c (m/min)		f (mm/rev)			
P.1.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.1.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.1.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.1.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.1.5	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.2.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.2.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.2.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.2.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1	**175** (150–300)	**150** (130–180)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40	**225** (200–300)	**180** (160–240)	1,20–1,60	1,50–2,00	2,00–2,70	2,90–4,10
K.2.2	**120** (100–150)	**100** (80–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**120** (100–150)	**100** (80–120)	1,20–1,60	1,50–2,00	2,00–2,70	2,90–4,10
K.3.1	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
K.3.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**120** (100–180)	**120** (100–150)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10						
N.3.2	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10						
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

Cutting data standard values for REAMAX

Index	40 560 … 640.65 – ASG3000 / HM-DBG-P					40 551 … 640.65 – ASG0106 / HM-DBG-P				
Nominal Ø in mm ▸			12–21,999	22–32,000	32,001–40			12–21,999	22–32,000	32,001–40
Reaming allowance Ø ▸			0,10–0,30	0,20–0,40	0,20–0,40			0,10–0,30	0,20–0,40	0,20–0,40
Number of flutes ▸			6	8	8			6	8	8
	3xD	5xD				3xD	5xD			
	v_c (m/min)		f (mm/rev)			v_c (m/min)		f (mm/rev)		
P.1.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.4	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.5	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.4	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00
P.3.1						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
P.3.2						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
P.3.3						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
P.4.1						**45** (35–60)	**40** (35–50)	0,70–0,90	1,20–1,60	1,20–1,60
P.4.2						**45** (35–60)	**40** (35–50)	0,70–0,90	1,20–1,60	1,20–1,60
M.1.1						**45** (35–60)	**40** (35–50)	0,70–0,90	1,20–1,60	1,20–1,60
M.2.1						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
M.3.1						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
K.1.1	**200** (180–250)	**160** (140–200)	1,00–1,40	1,30–1,90	1,30–1,90					
K.1.2	**200** (180–250)	**160** (140–200)	1,00–1,40	1,30–1,90	1,30–1,90					
K.2.1	**225** (200–300)	**180** (160–240)	1,00–1,40	1,30–1,90	1,30–1,90					
K.2.2	**120** (100–150)	**100** (80–120)	0,90–1,20	1,20–1,60	1,20–1,60					
K.3.1	**150** (130–250)	**120** (100–200)	0,90–1,20	1,20–1,60	1,20–1,60					
K.3.2	**120** (100–150)	**100** (80–120)	0,90–1,20	1,20–1,60	1,20–1,60					
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1										
N.3.2										
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
H.1.2						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
H.1.3						**30** (25–50)	**30** (25–50)	0,40–0,80	0,60–1,00	0,60–1,00
H.1.4										
H.2.1						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
H.3.1						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

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

Cutting data standard values for REAMAX

Index	40 505 … 640.71 – ASG3000 / HM-TiN					40 570 … 640.27 – ASG0706 / HM-DBC				
Nominal Ø in mm ▸			12–21,999	22–32,000	32,001–40			12–21,999	22–32,000	32,001–40
Reaming allowance Ø ▸			0,10–0,30	0,20–0,40	0,20–0,40			0,10–0,30	0,20–0,40	0,20–0,40
Number of flutes ▸			6	8	8			6	8	8
	3xD	5xD				3xD	5xD			
	v_c (m/min)		f (mm/rev)			v_c (m/min)		f (mm/rev)		
P.1.1	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.2	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.3	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.4	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.5	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.1	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.2	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.3	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.4	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1	80 (60–130)	80 (60–120)	1,00–1,40	1,80–2,40	1,80–2,40					
K.1.2	80 (60–130)	80 (60–120)	1,00–1,40	1,80–2,40	1,80–2,40					
K.2.1										
K.2.2										
K.3.1										
K.3.2										
N.1.1						**150** (130–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.1.2						**200** (180–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.2.1						**200** (180–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.2.2						**200** (180–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.2.3										
N.3.1	**120** (100–200)	**120** (100–150)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.2	**120** (100–200)	**120** (100–150)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.3	**80** (60–150)	**80** (60–120)	0,80–1,20	1,40–2,00	1,40–2,00					
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1						250 (220–270)	250 (220–270)	1,00–1,40	1,70–2,40	1,70–2,40

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

Cutting data standard values for REAMAX

Index	40 525 … 640.93 – ASG3000 / DST					40 536 … 640.93 – ASG4000 / DST				
Nominal Ø in mm ▸			12–21,999	22–32,000	32,001–40			12–21,999	22–32,000	32,001–40
Reaming allowance Ø ▸			0,10–0,30	0,20–0,40	0,20–0,40			0,10–0,30	0,20–0,40	0,20–0,40
Number of flutes ▸			6	8	8			6	8	8
	3xD	5xD				3xD	5xD			
	v_c (m/min)		f (mm/rev)			v_c (m/min)		f (mm/rev)		
P.1.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.4	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.5	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.4										
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1										
K.1.2										
K.2.1	**175** (150–300)	**150** (130–180)	1,00–1,40	1,80–2,40	1,80–2,40	175 (150–300)	150 (130–180)	1,20–1,60	1,50–2,00	2,00–2,70
K.2.2	**150** (130–250)	**120** (100–160)	1,00–1,40	1,80–2,40	1,80–2,40	120 (100–180)	120 (100–150)	1,20–1,60	1,50–2,00	2,00–2,70
K.3.1	**150** (130–250)	**120** (100–160)	1,00–1,40	1,80–2,40	1,80–2,40					
K.3.2	**120** (100–180)	**120** (100–150)	0,90–1,20	1,50–2,00	1,50–2,00	120 (100–180)	120 (100–150)	1,00–1,30	1,20–1,70	1,70–2,30
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1	150 (130–300)	150 (130–200)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.2	150 (130–300)	150 (130–200)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

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

Cutting data for MultiChange exchange head reamers

Index	40 210 ..., 40 211 ... CWC10				40 220 ..., 40 221 ... TiAlN				40 240 ..., 40 241 ... K10			
	Nominal Ø in mm ▸	8,0–12,59	12,6–29,99	30,0–32,00	Nominal Ø in mm ▸	8,0–12,59	12,6–29,99	30,0–32,00	Nominal Ø in mm ▸	8,0–12,59	12,6–29,99	30,0–32,00
	Reaming allowance Ø ▸	0,15–0,3	0,2–0,4	0,2–0,4	Reaming allowance Ø ▸	0,15–0,3	0,15–0,3	0,15–0,3	Reaming allowance Ø ▸	0,15–0,5	0,15–0,5	0,15–0,5
	Number of flutes ▸	4 / 6	6	8	Number of flutes ▸	4 / 6	6	8	Number of flutes ▸	4 / 6	6	8
	v_c (m/min)	f (mm/rev)			v_c (m/min)	f (mm/rev)			v_c (m/min)	f (mm/rev)		
P.1.1	140	0,6	0,8	1,0								
P.1.2	140	0,6	0,8	1,0								
P.1.3	90	0,6	0,8	1,0								
P.1.4	90	0,6	0,8	1,0								
P.1.5	90	0,6	0,8	1,0								
P.2.1	140	0,6	0,8	1,0								
P.2.2	140	0,6	0,8	1,0								
P.2.3	90	0,6	0,8	1,0								
P.2.4	90	0,6	0,8	1,0								
P.3.1	120	0,6	0,8	1,0								
P.3.2	90	0,6	0,8	1,0								
P.3.3	90	0,6	0,8	1,0								
P.4.1					40	0,3	0,4	0,5				
P.4.2					40	0,3	0,4	0,5				
M.1.1					40	0,3	0,4	0,5				
M.2.1					40	0,3	0,4	0,5				
M.3.1					30	0,3	0,4	0,5				
K.1.1												
K.1.2												
K.2.1	120	0,7	1,2	1,6								
K.2.2	90	0,7	1,2	1,6								
K.3.1	90	0,7	1,2	1,6								
K.3.2	90	0,7	1,2	1,6								
N.1.1									30	0,4	0,5	0,6
N.1.2									30	0,4	0,5	0,6
N.2.1									30	0,4	0,5	0,6
N.2.2									30	0,4	0,5	0,6
N.2.3									30	0,4	0,5	0,6
N.3.1									30	0,4	0,5	0,6
N.3.2									30	0,4	0,5	0,6
N.3.3									30	0,4	0,5	0,6
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for Monomax

Index	40 656 …, 40 666 …, 40 657 …, 40 665 … 56J.65, 56R.65, 56H.65, 56Q.65 – ASG3000 / HM-DBG-P						40 652 …, 40 653 … 56J.65, 56R.65 – ASG0106 / HM-DBG-P					
	Nominal Ø in mm ▸		5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899	Nominal Ø in mm ▸		5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
	Reaming allowance Ø ▸		0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40	Reaming allowance Ø ▸		0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
	Number of flutes ▸		4	6	6	6	Number of flutes ▸		4	6	6	6
	3xD	5xD	f (mm/rev)				3xD	5xD	f (mm/rev)			
	v_c (m/min)						v_c (m/min)					
P.1.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.4	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.5	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.4	**60** (50–100)	**60** (50–100)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	**60** (50–100)	**60** (50–100)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
P.3.1							**40** (35–60)	**40** (35–60)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
P.3.2							**40** (35–60)	**40** (35–60)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
P.3.3							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
P.4.1							**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
P.4.2							**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
M.1.1							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
M.2.1							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
M.3.1							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
K.1.1	**150** (130–220)	**120** (100–150)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.1.2	**150** (130–220)	**120** (100–150)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.2.1	**175** (150–300)	**150** (130–180)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.2.2	**120** (100–180)	**120** (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
K.3.1	**150** (130–250)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.3.2	**120** (100–180)	**120** (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

Cutting data standard values for Monomax

Index	40 644 ..., 40 645 ...						40 605 ..., 40 606 ...					
	56H.65, 56Q.65 – ASG0106 / HM-DBG-P						56J.71, 56R.71 – ASG3000 / HM-TiN					
	Nominal Ø in mm ▸		5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899	Nominal Ø in mm ▸		5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
	Reaming allowance Ø ▸		0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40	Reaming allowance Ø ▸		0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
	Number of flutes ▸		4	6	6	6	Number of flutes ▸		4	6	6	6
	3xD	5xD					3xD	5xD				
	v_c (m/min)		f (mm/rev)				v_c (m/min)		f (mm/rev)			
P.1.1							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.2							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.3							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.4							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.5							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.1							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.2							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.3							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.4							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.3.1	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.3.2	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.3.3	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.4.1	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.4.2	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
M.1.1	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
M.2.1	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
M.3.1	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
K.1.1							80 (60–130)	80 (60–120)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50
K.1.2							80 (60–130)	80 (60–120)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1							**120** (–200)	**120** (–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
N.3.2							**120** (–200)	**120** (–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
N.3.3							**80** (–150)	**80** (–120)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

Cutting data standard values for Monomax

Index	40 625 ..., 40 626 ... 56J.93, 56R.93 – ASG3000 / DST						40 635 ... , 40 636 ... 56J.93, 56R.93 – ASG4000 / DST					
Nominal Ø in mm ▸			5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899			5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
Reaming allowance Ø ▸			0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40			0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
Number of flutes ▸			4	6	6	6			4	6	6	6
	3xD	5xD					3xD	5xD				
	v_c (m/min)		f (mm/rev)				v_c (m/min)		f (mm/rev)			
P.1.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.4	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.5	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1	**175** (150–300)	**150** (130–180)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50	175 (150–300)	150 (130–180)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50
K.2.2	**120** (100–150)	**100** (80–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	120 (100–180)	120 (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
K.3.1	**150** (130–250)	**120** (100–200)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50	120 (100–180)	120 (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
K.3.2	**120** (100–180)	**120** (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	120 (100–180)	120 (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	150 (130–300)	150 (130–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50						
N.3.2	150 (130–300)	150 (130–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50						
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

Cutting data standard values for Monomax

Index	40 648 …, 40 649 … 56J.17, 56R.17 – ASG0706 / DBC						40 640 …, 40 641 … 56H.17, 56Q.17 – ASG0706 / DBC					
Nominal Ø in mm ▸			5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899			5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
Reaming allowance Ø ▸			0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40			0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
Number of flutes ▸			4	6	6	6			4	6	6	6
	3xD	5xD					3xD	5xD				
	v_c (m/min)		f (mm/rev)				v_c (m/min)		f (mm/rev)			
P.1.1												
P.1.2												
P.1.3												
P.1.4												
P.1.5												
P.2.1												
P.2.2												
P.2.3												
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.1.2	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.1	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.2	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.3	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1	250 (220–270)	250 (220–270)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	250 (220–270)	250 (220–270)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50

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

Cutting data standard values for Fullmax, long

Index	UNI	40 484 ..., 40 485 ..., 40 486 ..., 40 487 ... Type UNI											
	Ø range (mm) ▸	Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
	Number of flutes ▸	4		4		6		6		6		6	
	v_c (m/min)	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø
P.1.1	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.2	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.3	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.4	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.5	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.1	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.2	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.3	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.4	**80** (70–120)	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
P.3.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.3.2	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.3.3	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.4.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.4.2	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.1.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.2.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.3.1	**15** (10–30)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
K.1.1	**120** (100–180)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.1.2	**120** (100–180)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.2.1	**200** (180–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.2.2	**120** (100–150)	0,50–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,00–1,30	0,20	1,30–1,60	0,20–0,30	1,50–1,80	0,30
K.3.1	**200** (180–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.3.2	**120** (100–150)	0,50–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,00–1,30	0,20	1,30–1,60	0,20–0,30	1,50–1,80	0,30
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	150 (130–250)	0,50–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,40	0,20	1,40–1,70	0,20	1,60–1,90	0,20–0,30	1,90–2,20	0,30
N.3.2	100 (80–150)	0,40–0,60	0,10–0,20	0,60–0,80	0,10–0,20	1,00–1,30	0,20	1,20–1,40	0,20	1,30–1,60	0,20–0,30	1,60–1,80	0,30
N.3.3													
N.4.1													
S.1.1													
S.1.2													
S.2.1	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.2	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.3													
S.3.1	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.2	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.3													
H.1.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20	1,20–1,80	0,20
H.1.2	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20	1,20–1,80	0,20
H.1.3	30 (25–50)	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20	1,30–2,00	0,20
H.1.4													
H.2.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
H.3.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

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

Cutting data standard values for Fullmax, long

Index	K	40 477 …, 40 478 …					
		Type K					
	Ø range (mm) ▸	Ø 2,97 – 4,05	Ø 4,06 – 6,05	Ø 6,06 – 7,55	Ø 7,56 – 12,05	Ø 12,06 – 16,05	Ø 16,06 – 20,05
	Reaming allowance Ø ▸	0,10–0,20	0,10–0,20	0,20	0,20	0,20–0,30	0,30
	Number of flutes ▸	6	6	8	8	8	8
	v_c (m/min)	f (mm/rev)					
K.1.1	**200** (180–250)	0,80–1,00	0,90–1,20	1,50–1,90	1,50–1,90	1,80–2,30	2,20–2,60
K.1.2	**200** (180–250)	0,80–1,00	0,90–1,20	1,50–1,90	1,50–1,90	1,80–2,30	2,20–2,60
K.2.1	**225** (200–300)	0,80–1,00	0,90–1,20	1,50–1,90	1,50–1,90	1,80–2,30	2,20–2,60
K.2.2	**120** (100–150)	0,60–0,90	0,70–1,00	1,20–1,60	1,20–1,60	1,50–1,90	1,80–2,20
K.3.1	**225** (200–300)	0,80–1,00	0,90–1,20	1,50–1,90	1,50–1,90	1,80–2,30	2,20–2,60
K.3.2	**120** (100–150)	0,60–0,90	0,70–1,00	1,20–1,60	1,20–1,60	1,50–1,90	1,80–2,20

Index	VA	40 401 …, 40 402 …, 40 403 …, 40 404 …					
		Type VA					
	Ø range (mm) ▸	Ø 2,97 – 4,05	Ø 4,06 – 6,05	Ø 6,06 – 7,55	Ø 7,56 – 12,05	Ø 12,06 – 16,05	Ø 16,06 – 20,05
	Reaming allowance Ø ▸	0,10–0,20	0,10–0,20	0,20	0,20	0,20–0,30	0,30
	Number of flutes ▸	4	4	6	6	6	6
	v_c (m/min)	f (mm/rev)					
P.3.1	20 (15–40)	0,32–0,50	0,32–0,50	0,48–0,60	0,48–0,60	0,60–0,72	0,60–0,72
P.3.2	20 (15–40)	0,32–0,50	0,32–0,50	0,48–0,60	0,48–0,60	0,60–0,72	0,60–0,72
P.3.3	20 (15–40)	0,32–0,50	0,32–0,50	0,48–0,60	0,48–0,60	0,60–0,72	0,60–0,72
P.4.1	**20** (15–40)	0,32–0,50	0,32–0,50	0,48–0,60	0,48–0,60	0,60–0,72	0,60–0,72
P.4.2	**20** (15–40)	0,32–0,50	0,32–0,50	0,48–0,60	0,48–0,60	0,60–0,72	0,60–0,72
M.1.1	**20** (15–40)	0,32–0,50	0,32–0,50	0,48–0,60	0,48–0,60	0,60–0,72	0,60–0,72
M.2.1	**15** (10–30)	0,32–0,50	0,32–0,50	0,48–0,60	0,48–0,60	0,60–0,72	0,60–0,72
M.3.1	**15** (10–30)	0,32–0,50	0,32–0,50	0,48–0,60	0,48–0,60	0,60–0,72	0,60–0,72

Index	ALU	40 471 …, 40 472 …, 40 473 …, 40 474 …					
		Type ALU					
	Ø range (mm) ▸	Ø 2,97 – 4,05	Ø 4,06 – 6,05	Ø 6,06 – 7,55	Ø 7,56 – 12,05	Ø 12,06 – 16,05	Ø 16,06 – 20,05
	Reaming allowance Ø ▸	0,10–0,20	0,10–0,20	0,20	0,20	0,20–0,30	0,30
	Number of flutes ▸	4	4	6	6	6	6
	v_c (m/min)	f (mm/rev)					
N.1.1	**200** (180–300)	0,50–0,60	0,60–0,90	1,10–1,60	1,20–1,60	1,20–1,80	1,20–1,80
N.1.2	**200** (180–300)	0,50–0,60	0,60–0,90	1,10–1,60	1,20–1,60	1,20–1,80	1,20–1,80
N.2.1	**200** (180–250)	0,50–0,70	0,70–1,00	1,20–1,70	1,30–1,70	1,30–2,00	1,30–2,00
N.2.2	**200** (180–300)	0,50–0,70	0,70–1,00	1,20–1,70	1,30–1,70	1,30–2,00	1,30–2,00
N.2.3	**200** (180–250)	0,50–0,70	0,70–1,00	1,20–1,70	1,30–1,70	1,30–2,00	1,30–2,00
O.3.1	250 (220–270)	0,50–0,70	0,70–1,00	1,20–1,70	1,30–1,70	1,30–2,00	1,30–2,00

Index	H	40 475 …, 40 476 …					
		Type H					
	Ø range (mm) ▸	Ø 2,97 – 4,05	Ø 4,06 – 6,05	Ø 6,06 – 7,55	Ø 7,56 – 12,05	Ø 12,06 – 16,05	Ø 16,06 – 20,05
	Reaming allowance Ø ▸	0,10–0,20	0,10–0,20	0,20	0,20	0,20	0,20
	Number of flutes ▸	4	4	6	6	6	6
	v_c (m/min)	f (mm/rev)					
H.1.1	**40** (35–60)	0,20–0,30	0,20–0,30	0,40–0,60	0,50–0,60	0,50–0,70	0,60–0,80
H.1.2	**30** (25–50)	0,20–0,30	0,20–0,30	0,40–0,60	0,50–0,60	0,50–0,70	0,60–0,80
H.1.3	**30** (25–50)	0,20–0,30	0,20–0,30	0,40–0,60	0,50–0,60	0,50–0,70	0,60–0,80
H.1.4	**30** (25–50)	0,20–0,30	0,20–0,30	0,40–0,60	0,50–0,60	0,50–0,70	0,60–0,80
H.2.1	**40** (35–60)	0,20–0,30	0,20–0,30	0,40–0,60	0,50–0,60	0,50–0,70	0,60–0,80
H.3.1	**40** (35–60)	0,20–0,30	0,20–0,30	0,40–0,60	0,50–0,60	0,50–0,70	0,60–0,80

* Wet machining recommended

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

Cutting data standard values for Fullmax, short

Index	UNI	40 481 …, 40 483 …, 40 488 …, 40 489 … Type UNI											
	Ø range (mm) ▸	Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 15,97		Ø 15,98 – 20,05	
	Number of flutes ▸	4		4		6		6		6		6	
	v_c (m/min)	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø
P.1.1	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.2	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.3	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.4	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.5	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.1	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.2	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.3	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.4	**65** (55–110)	0,45–0,50	0,10–0,20	0,45–0,60	0,10–0,20	1,00–1,10	0,20	1,20–1,30	0,20	1,20–1,40	0,20–0,30	1,90–2,10	0,30
P.3.1	**40** (30–80)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
P.3.2	**40** (30–80)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
P.3.3	**40** (30–80)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
P.4.1	**45** (40–65)	0,45–0,50	0,10–0,20	0,45–0,60	0,10–0,20	1,00–1,10	0,20	1,20–1,30	0,20	1,20–1,40	0,20–0,30	1,90–2,10	0,30
P.4.2	**45** (40–65)	0,45–0,50	0,10–0,20	0,45–0,60	0,10–0,20	1,00–1,10	0,20	1,20–1,30	0,20	1,20–1,40	0,20–0,30	1,90–2,10	0,30
M.1.1	**40** (35–60)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
M.2.1	**40** (35–60)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
M.3.1	**40** (35–60)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
K.1.1	**200** (180–250)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,50–2,90	0,30
K.1.2	**200** (180–250)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,50–2,90	0,30
K.2.1	**225** (200–300)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,50–2,90	0,30
K.2.2	**120** (100–150)	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	2,00–2,40	0,30
K.3.1	**225** (200–300)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,00–2,40	0,30
K.3.2	**120** (100–150)	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	2,00–2,40	0,30
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	150 (120–250)	0,50–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,40	0,20	1,40–1,70	0,20	1,60–1,90	0,20–0,30	2,50–2,90	0,30
N.3.2	100 (80–150)	0,40–0,60	0,10–0,20	0,60–0,80	0,10–0,20	1,00–1,30	0,20	1,20–1,40	0,20	1,30–1,60	0,20–0,30	2,10–2,40	0,30
N.3.3													
N.4.1													
S.1.1													
S.1.2													
S.2.1	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.2	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.3													
S.3.1	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.2	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.3													
H.1.1	40 (35–60)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,80–1,00	0,20
H.1.2	30 (25–50)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,80–1,00	0,20
H.1.3	30 (25–50)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,80–1,00	0,20
H.1.4													
H.2.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
H.3.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

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

Cutting data standard values for solid carbide reamers

Index	40 420 ..., 40 421 ..., 40 430 ..., 40 431 ...																			
			≤ Ø 0,94		Ø 0,95–5		Ø 5,01–8		Ø 8,01–10		Ø 10,01–12		Ø 12,01–15		Ø 15,01–20		Ø 20,01–25		Ø 25,01–30	
	uncoated	TiAlN																		
	v_c (m/min)		f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø
P.1.1	**20**	**30**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.2	**20**	**30**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.3	**12**	**15**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.4	**12**	**15**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.5	**12**	**15**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.1	**15**	**25**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.2	**12**	**15**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.3	**12**	**15**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.4	**12**	**15**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.3.1	**15**	**25**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.3.2	**12**	**15**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.3.3	**12**	**15**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.4.1																				
P.4.2																				
M.1.1		15			0,08	0,08	0,10	0,10	0,15	0,10	0,15	0,10	0,20	0,20	0,25	0,20	0,25	0,20	0,25	0,20
M.2.1		15			0,08	0,08	0,10	0,10	0,15	0,10	0,15	0,10	0,20	0,20	0,25	0,20	0,25	0,20	0,25	0,20
M.3.1		10			0,08	0,08	0,10	0,10	0,15	0,10	0,15	0,10	0,20	0,20	0,25	0,20	0,25	0,20	0,25	0,20
K.1.1	18	**30**	0,10	0,10	0,10	0,10	0,20	0,15	0,30	0,20	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.1.2	18	**30**	0,10	0,10	0,10	0,10	0,20	0,15	0,30	0,20	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.2.1	15	**25**	0,10	0,10	0,10	0,10	0,20	0,15	0,30	0,20	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.2.2	10	**20**	0,10	0,10	0,10	0,10	0,20	0,15	0,30	0,20	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.3.1	15	**25**	0,10	0,10	0,10	0,10	0,20	0,15	0,30	0,20	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.3.2	10	**20**	0,10	0,10	0,10	0,10	0,20	0,15	0,30	0,20	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.1.1	**40**		0,15	0,10	0,15	0,10	0,20	0,15	0,25	0,20	0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.1.2	**40**		0,15	0,10	0,15	0,10	0,20	0,15	0,25	0,20	0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.2.1	**25**		0,15	0,10	0,15	0,10	0,20	0,15	0,25	0,20	0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.2.2	**25**		0,15	0,10	0,15	0,10	0,20	0,15	0,25	0,20	0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.2.3																				
N.3.1	**30**		0,15	0,10	0,15	0,10	0,20	0,15	0,25	0,20	0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.3.2	**30**		0,15	0,10	0,15	0,10	0,20	0,15	0,25	0,20	0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.3.3	**30**		0,15	0,10	0,15	0,10	0,20	0,15	0,25	0,20	0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.4.1																				
S.1.1		10			0,06	0,05	0,10	0,10	0,12	0,10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.1.2		10			0,06	0,05	0,10	0,10	0,12	0,10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.2.1		10			0,06	0,05	0,10	0,10	0,12	0,10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.2.2		10			0,06	0,05	0,10	0,10	0,12	0,10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.2.3		10			0,06	0,05	0,10	0,10	0,12	0,10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.3.1		10			0,06	0,05	0,10	0,10	0,12	0,10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.3.2		10			0,06	0,05	0,10	0,10	0,12	0,10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.3.3		10			0,06	0,05	0,10	0,10	0,12	0,10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
H.1.1		8			0,05	0,05	0,08	0,05	0,10	0,10	0,10	0,10	0,13	0,10	0,15	0,15	0,15	0,15	0,15	0,15
H.1.2		8			0,05	0,05	0,08	0,05	0,10	0,10	0,10	0,10	0,13	0,10	0,15	0,15	0,15	0,15	0,15	0,15
H.1.3																				
H.1.4																				
H.2.1		8			0,05	0,05	0,08	0,05	0,10	0,10	0,10	0,10	0,13	0,10	0,15	0,15	0,15	0,15	0,15	0,15
H.3.1																				
O.1.1	**40**		0,15	0,10	0,15	0,10	0,20	0,15	0,25	0,20	0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
O.1.2	**40**		0,15	0,10	0,15	0,10	0,20	0,15	0,25	0,20	0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
O.2.1																				
O.2.2																				
O.3.1																				

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for solid carbide reamers – Type H

Index	H / *	40 435 …							
		Ø 0,98 – 3,99		Ø 4,00 – 8,00		Ø 8,01 – 16,00		Ø 16,01 – 20,00	
	v_c (m/min)	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø
P.1.1	16	0,10	0,20	0,20	0,20	0,238	0,30	0,275	0,30
P.1.2	13	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.1.3	12	0,075	0,20	0,15	0,20	0,175	0,30	0,20	0,30
P.1.4	12	0,075	0,20	0,15	0,20	0,175	0,30	0,20	0,30
P.1.5	19	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.1	15	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.2	14	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.3	13	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.4	12	0,075	0,20	0,15	0,20	0,175	0,30	0,20	0,30
P.3.1									
P.3.2	11	0,063	0,20	0,125	0,20	0,15	0,30	0,175	0,30
P.3.3	11	0,063	0,20	0,125	0,20	0,15	0,30	0,175	0,30
P.4.1	11	0,063	0,20	0,125	0,20	0,15	0,30	0,175	0,30
P.4.2	8	0,05	0,20	0,10	0,20	0,113	0,30	0,125	0,30
M.1.1									
M.2.1	9	0,063	0,10	0,125	0,10	0,15	0,20	0,175	0,20
M.3.1	9	0,063	0,10	0,125	0,10	0,15	0,20	0,175	0,20
K.1.1	17	0,125	0,20	0,25	0,20	0,325	0,30	0,40	0,30
K.1.2	14	0,113	0,20	0,225	0,20	0,275	0,30	0,325	0,30
K.2.1	17	0,113	0,20	0,225	0,20	0,275	0,30	0,325	0,30
K.2.2	14	0,10	0,20	0,20	0,20	0,238	0,30	0,275	0,30
K.3.1	17	0,113	0,20	0,225	0,20	0,275	0,30	0,325	0,30
K.3.2	14	0,10	0,20	0,20	0,20	0,238	0,30	0,275	0,30
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1									
N.3.2									
N.3.3									
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1	8	0,075	0,10	0,15	0,20	0,175	0,30	0,20	0,30
H.1.2	7	0,063	0,10	0,125	0,20	0,15	0,30	0,175	0,30
H.1.3	5	0,05	0,10	0,10	0,20	0,113	0,30	0,125	0,30
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

* Wet machining preferred/dry machining possible

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for solid carbide reamers

Index	40 405 …, 40 415 …						
	uncoated	≤ Ø 4,80		Ø 4,81 – 8,00		Ø 8,01 – 12,00	
	v_c (m/min)	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø
P.1.1	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.1.2	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.1.3	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.1.4	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.1.5	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.2.1	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.2.2	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.2.3	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.2.4	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.3.1	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.3.2	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.3.3							
P.4.1							
P.4.2							
M.1.1							
M.2.1							
M.3.1							
K.1.1	15 (10–15)	0,1	0,05–0,1	0,2	0,1–0,15	0,25–0,3	0,1–0,2
K.1.2	15 (10–20)	0,1	0,05–0,1	0,2	0,1–0,15	0,25–0,3	0,1–0,2
K.2.1	15 (10–15)	0,1	0,05–0,1	0,2	0,1–0,15	0,25–0,3	0,1–0,2
K.2.2	10 (5–15)	0,1	0,05–0,1	0,2	0,1–0,15	0,25–0,3	0,1–0,2
K.3.1	15 (10–20)	0,1	0,05–0,1	0,2	0,1–0,15	0,25–0,3	0,1–0,2
K.3.2	10 (5–15)	0,1	0,05–0,1	0,2	0,1–0,15	0,25–0,3	0,1–0,2
N.1.1	**30** (20–40)	0,1–0,15	0,05–0,1	0,15–0,2	0,1–0,15	0,175–0,25	0,1–0,2
N.1.2	**30** (20–40)	0,1–0,15	0,05–0,1	0,15–0,2	0,1–0,15	0,175–0,25	0,1–0,2
N.2.1	**15** (10–20)	0,1–0,15	0,05–0,1	0,15–0,2	0,1–0,15	0,175–0,25	0,1–0,2
N.2.2	**15** (10–20)	0,1–0,15	0,05–0,1	0,15–0,2	0,1–0,15	0,175–0,25	0,1–0,2
N.2.3							
N.3.1	**20** (15–25)	0,1–0,15	0,05–0,1	0,15–0,2	0,1–0,15	0,175–0,25	0,1–0,2
N.3.2	**20** (15–25)	0,1–0,15	0,05–0,1	0,15–0,2	0,1–0,15	0,175–0,25	0,1–0,2
N.3.3	**20** (15–25)	0,1–0,15	0,05–0,1	0,15–0,2	0,1–0,15	0,175–0,25	0,1–0,2
N.4.1							
S.1.1							
S.1.2							
S.2.1							
S.2.2							
S.2.3							
S.3.1							
S.3.2							
S.3.3							
H.1.1							
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1							
O.1.1							
O.1.2							
O.2.1							
O.2.2							
O.3.1							

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

Cutting data for HSS-E reamers

Index	40 110 …, 40 115 …								
Nominal Ø in mm ▸		≤ Ø 5	Ø 5,01–8	Ø 8,01–12	Ø 12,01–15	Ø 15,01–20	Ø 20,01–25	Ø 25,01–30	Ø 30,01–40	Ø 40,01–50
Reaming allowance Ø ▸		0,10	0,15	0,20	0,20	0,30	0,30	0,30	0,30	0,30
	v_c (m/min)	f (mm/rev)								
P.1.1	12	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.1.2	12	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.1.3	10	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.1.4	10	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.1.5	10	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.2.1	12	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.2.2	12	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.2.3	10	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.2.4	10	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.3.1	12	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.3.2	10	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.3.3	10	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1	12	0,15	0,20	0,25	0,30	0,35	0,35	0,35	0,40	0,40
K.1.2	12	0,15	0,20	0,25	0,30	0,35	0,35	0,35	0,40	0,40
K.2.1	10	0,15	0,20	0,25	0,30	0,35	0,35	0,35	0,40	0,40
K.2.2	10	0,15	0,20	0,25	0,30	0,35	0,35	0,35	0,40	0,40
K.3.1	10	0,15	0,20	0,25	0,30	0,35	0,35	0,35	0,40	0,40
K.3.2	10	0,15	0,20	0,25	0,30	0,35	0,35	0,35	0,40	0,40
N.1.1	15	0,15	0,20	0,20	0,25	0,30	0,30	0,30	0,40	0,40
N.1.2	15	0,15	0,20	0,20	0,25	0,30	0,30	0,30	0,40	0,40
N.2.1										
N.2.2										
N.2.3										
N.3.1	20	0,15	0,20	0,20	0,25	0,30	0,30	0,30	0,40	0,40
N.3.2	20	0,15	0,20	0,20	0,25	0,30	0,30	0,30	0,40	0,40
N.3.3	20	0,15	0,20	0,20	0,25	0,30	0,30	0,30	0,40	0,40
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1	25	0,15	0,20	0,20	0,25	0,30	0,30	0,30	0,40	0,40
O.1.2	25	0,15	0,20	0,20	0,25	0,30	0,30	0,30	0,40	0,40
O.2.1										
O.2.2										
O.3.1										

4

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data for HSS-E reamers

Index	40 139 ..., 40 140 ..., 40 145 ..., 40 150 ..., 40 160 ...																			
		≤ Ø 5		Ø 5,01–8		Ø 8,01–12		Ø 12,01–15		Ø 15,01–20		Ø 20,01–25		Ø 25,01–30		Ø 30,01–40		Ø 40,01–50	
	v_c (m/min)	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø
P.1.1	15	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,30	0,25	0,35	0,30	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.2	12	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,30	0,25	0,35	0,30	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.3	10	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,30	0,25	0,35	0,30	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.4	10	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.5	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.1	10	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,25	0,25	0,35	0,30	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.2	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.3	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.4	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.3.1	8	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,30	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.3.2	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.3.3	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.4.1	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.4.2	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
M.1.1	6	0,08	0,10	0,12	0,15	0,20	0,20	0,20	0,20	0,25	0,25	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35
M.2.1	4	0,08	0,10	0,12	0,15	0,20	0,20	0,20	0,20	0,25	0,25	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35
M.3.1	4	0,08	0,10	0,12	0,15	0,20	0,20	0,20	0,20	0,25	0,25	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35
K.1.1	14	0,10	0,10–0,15	0,16	0,20	0,24	0,20	0,28	0,25	0,35	0,30	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.1.2	12	0,10	0,10–0,15	0,16	0,20	0,24	0,20	0,28	0,25	0,35	0,30	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.2.1	12	0,10	0,10–0,15	0,16	0,15–0,20	0,20	0,20	0,25	0,25	0,35	0,30	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.2.2	10	0,10	0,10–0,15	0,16	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30	0,30	0,35	0,35	0,35	0,40	0,40	0,40	0,40
K.3.1	12	0,10	0,10–0,15	0,16	0,20	0,24	0,20	0,28	0,25	0,35	0,30	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.3.2	10	0,10	0,10–0,15	0,16	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30	0,30	0,35	0,35	0,35	0,40	0,40	0,40	0,40
N.1.1	20	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30	0,40	0,35	0,50	0,40	0,60	0,45	0,80	0,50
N.1.2	20	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30	0,40	0,35	0,50	0,40	0,60	0,45	0,80	0,50
N.2.1	18	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30	0,40	0,35	0,50	0,40	0,60	0,45	0,80	0,50
N.2.2	18	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30	0,40	0,35	0,50	0,40	0,50	0,45	0,80	0,50
N.2.3																			
N.3.1	18	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
N.3.2	15	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
N.3.3	15	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
N.4.1	18	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
S.1.1																			
S.1.2																			
S.2.1	4	0,08	0,10	0,12	0,15	0,16	0,20	0,20	0,20	0,25	0,20	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.2.2	4	0,08	0,10	0,12	0,15	0,16	0,20	0,20	0,20	0,25	0,20	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.2.3																			
S.3.1	6	0,08	0,10	0,12	0,15	0,16	0,20	0,20	0,20	0,25	0,20	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.3.2	4	0,08	0,10	0,10	0,15	0,125	0,20	0,20	0,20	0,25	0,20	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1	15	0,15	0,15	0,20	0,20	0,25	0,20	0,25	0,25	0,30	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,40	0,50
O.1.2	12	0,12	0,15	0,16	0,20	0,20	0,20	0,20	0,25	0,25	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35	0,50
O.2.1																			
O.2.2																			
O.3.1																			

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values indexable insert countersink

Index	30 196 ..., 30 197 ...			30 198 ...					
	Insert		Tool diameter	Insert		Tool diameter			
	BK8425	K10	Ø 16,5–37	BK8425	K10	Ø 10–15	Ø 15–20	Ø 20–30	Ø 30–48
	v_c (m/min)		f (mm/rev)	v_c (m/min)		f (mm/rev)			
P.1.1	200		0,12–0,16	260		0,06–0,12	0,12–0,20	0,15–0,25	0,20–0,30
P.1.2	200		0,20–0,30	260		0,06–0,12	0,12–0,20	0,15–0,25	0,20–0,30
P.1.3	200		0,20–0,30	270		0,06–0,12	0,12–0,20	0,25–0,40	0,25–0,40
P.1.4	180		0,20–0,30	240		0,06–0,12	0,12–0,20	0,25–0,40	0,25–0,40
P.1.5	180		0,17–0,27	230		0,04–0,08	0,15	0,20–0,30	0,20–0,35
P.2.1	160		0,20–0,30	270		0,06–0,12	0,12–0,20	0,25–0,40	0,25–0,40
P.2.2	160		0,20–0,30	260		0,04–0,08	0,15	0,20–0,30	0,20–0,35
P.2.3	160		0,15–0,20	180		0,04–0,08	0,15	0,20–0,30	0,20–0,35
P.2.4	160		0,10–0,16	150		0,04–0,08	0,15	0,20–0,30	0,20–0,35
P.3.1	140		0,10–0,15	160		0,04–0,08	0,15	0,20–0,30	0,20–0,35
P.3.2	140		0,08–0,13	130		0,04–0,08	0,15	0,20–0,30	0,20–0,35
P.3.3	140		0,06–0,12	120		0,04–0,08	0,15	0,20–0,30	0,20–0,35
P.4.1	120		0,10–0,16	180		0,08	0,15	0,16	0,18
P.4.2	120		0,06–0,12	130		0,08	0,15	0,16	0,18
M.1.1	160		0,10–0,15	150		0,08	0,15	0,16	0,18
M.2.1	140		0,10–0,15	150		0,08	0,15	0,16	0,18
M.3.1	100		0,07–0,13	130		0,08	0,15	0,16	0,18
K.1.1	180		0,40	160		0,15	0,30	0,40	0,60
K.1.2	160		0,32	120		0,15	0,30	0,40	0,60
K.2.1	140		0,30	160		0,15	0,25	0,30	0,35
K.2.2	140		0,18	100		0,12	0,20	0,25	0,35
K.3.1	120		0,20	120		0,10	0,18	0,25	0,30
K.3.2	120		0,18	100		0,10	0,18	0,25	0,30
N.1.1		250	0,20	400	250	0,05	0,12	0,15	0,20
N.1.2		250	0,20	400	250	0,05	0,12	0,15	0,20
N.2.1		250	0,30	250	250	0,06	0,16	0,20	0,25
N.2.2		250	0,30	250	250	0,06	0,16	0,20	0,25
N.2.3		250	0,25	230	250	0,10	0,20	0,25	0,30
N.3.1		230	0,30	200	230	0,05	0,10	0,12	0,15
N.3.2		230	0,32	220	230	0,05	0,10	0,12	0,15
N.3.3		230	0,22	330	230	0,05	0,10	0,12	0,15
N.4.1		230	0,30	200	230	0,05	0,10	0,12	0,15
S.1.1	60	20	0,12		20	0,05	0,10	0,12	0,15
S.1.2	50	20	0,10		20	0,05	0,10	0,12	0,15
S.2.1	60	20	0,12		20	0,05	0,10	0,12	0,15
S.2.2	50	20	0,10		20	0,05	0,10	0,12	0,15
S.2.3	30	20	0,06		20	0,05	0,10	0,12	0,15
S.3.1	100	60	0,22		60	0,05	0,10	0,12	0,15
S.3.2	80	30	0,20		30	0,05	0,10	0,12	0,15
S.3.3	50	30	0,12		30	0,05	0,10	0,12	0,15
H.1.1	100		0,10	100		0,05	0,10	0,15	0,20
H.1.2	80		0,08	80		0,05	0,10	0,15	0,20
H.1.3	50		0,05	50		0,05	0,10	0,15	0,20
H.1.4									
H.2.1	100		0,10	100		0,05	0,10	0,15	0,20
H.3.1	80		0,08	80		0,05	0,10	0,15	0,20
O.1.1		100	0,10		100	0,05	0,12	0,15	0,20
O.1.2		100	0,10		100	0,05	0,12	0,15	0,20
O.2.1									
O.2.2		100	0,03		100	0,05	0,12	0,15	0,20
O.3.1		100	0,08		100	0,05	0,12	0,15	0,20

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data for solid carbide countersinks

Index	30 115 … Solid carbide 90°						30 160 … Solid carbide 60°			
		Ø 8,0–12,4	Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0	Ø 25,0–31,0		Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0
	v_c (m/min)	f (mm/rev)					v_c (m/min)	f (mm/rev)		
P.1.1	40	0,10	0,12	0,14	0,18	0,22	40	0,12	0,14	0,18
P.1.2	40	0,10	0,12	0,14	0,18	0,22	40	0,12	0,14	0,18
P.1.3	30	0,08	0,10	0,10	0,14	0,18	30	0,10	0,10	0,14
P.1.4	30	0,08	0,10	0,12	0,14	0,18	30	0,10	0,12	0,14
P.1.5	18	0,05	0,06	0,08	0,10	0,12	18	0,06	0,08	0,10
P.2.1	30	0,08	0,10	0,12	0,14	0,18	30	0,10	0,12	0,14
P.2.2	20	0,05	0,06	0,08	0,10	0,12	20	0,06	0,08	0,10
P.2.3	18	0,05	0,06	0,08	0,10	0,12	18	0,06	0,08	0,10
P.2.4	18	0,05	0,06	0,08	0,10	0,12	18	0,06	0,08	0,10
P.3.1	18	0,05	0,06	0,08	0,10	0,12	18	0,06	0,08	0,10
P.3.2	18	0,05	0,06	0,08	0,10	0,12	18	0,06	0,08	0,10
P.3.3	18	0,05	0,06	0,08	0,10	0,12	18	0,06	0,08	0,10
P.4.1										
P.4.2										
M.1.1	15	0,06	0,07	0,08	0,09	0,12	15	0,07	0,08	0,09
M.2.1	15	0,06	0,07	0,08	0,09	0,12	15	0,07	0,08	0,09
M.3.1	15	0,06	0,07	0,08	0,09	0,12	15	0,07	0,08	0,09
K.1.1	24	0,12	0,14	0,18	0,20	0,25	24	0,14	0,18	0,20
K.1.2	24	0,12	0,14	0,18	0,20	0,25	24	0,14	0,18	0,20
K.2.1	18	0,12	0,14	0,18	0,20	0,25	18	0,14	0,18	0,20
K.2.2	18	0,12	0,14	0,18	0,20	0,25	18	0,14	0,18	0,20
K.3.1	24	0,12	0,14	0,18	0,20	0,25	24	0,14	0,18	0,20
K.3.2	18	0,12	0,14	0,18	0,20	0,25	18	0,14	0,18	0,20
N.1.1	58	0,12	0,14	0,18	0,22	0,26	58	0,14	0,18	0,22
N.1.2	58	0,12	0,14	0,18	0,22	0,26	58	0,14	0,18	0,22
N.2.1	45	0,12	0,14	0,18	0,22	0,26	45	0,14	0,18	0,22
N.2.2	45	0,12	0,14	0,18	0,22	0,26	45	0,14	0,18	0,22
N.2.3	50	0,14	0,18	0,20	0,24	0,30	50	0,18	0,20	0,24
N.3.1	50	0,14	0,18	0,20	0,24	0,30	50	0,18	0,20	0,24
N.3.2	50	0,14	0,18	0,20	0,24	0,30	50	0,18	0,20	0,24
N.3.3	50	0,14	0,18	0,20	0,24	0,30	50	0,18	0,20	0,24
N.4.1	50	0,14	0,18	0,20	0,24	0,30	50	0,18	0,20	0,24
S.1.1	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.1.2	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.2.1	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.2.2	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.2.3	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.3.1	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.3.2	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.3.3	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
H.1.1	8	0,06	0,08	0,08	0,10	0,12	8	0,08	0,08	0,10
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for countersinks with irregular pitch

Index	30 117 ... HPC-TiN / Solid carbide							30 141 ... TiN / HSS						
	N	Ø 4,3–8,0	Ø 8,0–12,4	Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0	Ø 25,0–31,0	N	Ø 4,3–8,0	Ø 8,0–12,4	Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0	Ø 25,0–31,0
	v_c (m/min)	f (mm/rev)						v_c (m/min)	f (mm/rev)					
P.1.1	58	0,08	0,10	0,12	0,14	0,18	0,22	38	0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	58	0,08	0,10	0,12	0,14	0,18	0,22	38	0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	50	0,06	0,08	0,10	0,10	0,14	0,18	30	0,06	0,08	0,10	0,10	0,14	0,18
P.1.4	50	0,06	0,08	0,10	0,12	0,14	0,18	30	0,06	0,08	0,10	0,12	0,14	0,18
P.1.5	50	0,06	0,05	0,06	0,08	0,10	0,12	30	0,06	0,05	0,06	0,08	0,10	0,12
P.2.1	50	0,06	0,08	0,10	0,12	0,14	0,18	30	0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	50	0,06	0,05	0,06	0,08	0,10	0,12	12	0,06	0,05	0,06	0,08	0,10	0,12
P.2.3	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	50	0,06	0,05	0,06	0,08	0,10	0,12	30	0,06	0,05	0,06	0,08	0,10	0,12
P.3.2	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.4.1	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
P.4.2	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.1.1	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	25	0,05	0,06	0,07	0,08	0,09	0,12							
K.1.1	50	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	50	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	45	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	45	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	35	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	35	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	80	0,10	0,12	0,14	0,18	0,22	0,26	48	0,10	0,12	0,14	0,18	0,22	0,26
N.1.2	80	0,10	0,12	0,14	0,18	0,22	0,26	48	0,10	0,12	0,14	0,18	0,22	0,26
N.2.1	60	0,10	0,12	0,14	0,18	0,22	0,26	40	0,10	0,12	0,14	0,18	0,22	0,26
N.2.2	60	0,10	0,12	0,14	0,18	0,22	0,26	40	0,10	0,12	0,14	0,18	0,22	0,26
N.2.3	60	0,10	0,14	0,18	0,20	0,24	0,30	40	0,10	0,14	0,18	0,20	0,24	0,30
N.3.1	68	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	68	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	68	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
N.4.1														
S.1.1	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.1.2	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.2.1	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.2.2	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.2.3	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.3.1	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.3.2	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.3.3	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
H.1.1	12	0,05	0,06	0,07	0,07	0,08		6	0,05	0,06	0,07	0,07	0,08	
H.1.2	8	0,05	0,06	0,07	0,07	0,08								
H.1.3														
H.1.4														
H.2.1	12	0,05	0,06	0,07	0,07	0,08								
H.3.1														
O.1.1	68	0,12	0,14	0,18	0,20	0,24	0,30	38	0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	68	0,12	0,14	0,18	0,20	0,24	0,30	38	0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	25	0,10	0,12	0,14	0,18	0,20	0,25							
O.2.2	25	0,10	0,12	0,14	0,18	0,20	0,25							
O.3.1	25	0,10	0,12	0,14	0,18	0,20	0,25							

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for HSS countersink

Index	30 100 ... Type N							30 102 ... Type AL						
	N	Ø 4,3–8,0	Ø 8,0–12,4	Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0	Ø 25,0–31,0	AL	Ø 4,3–8,0	Ø 8,0–12,4	Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0	Ø 25,0–31,0
	v_c (m/min)	f (mm/rev)						v_c (m/min)	f (mm/rev)					
P.1.1	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.4	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.5	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.1	25	0,04–0,06	0,08	0,10	0,12	0,14	0,18	25	0,04–0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.2	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.4.1														
P.4.2														
M.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
K.1.1	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	35	0,08–0,10	0,12	0,14	0,18	0,22	0,26	39	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.1.2	35	0,08–0,10	0,12	0,14	0,18	0,22	0,26	39	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.1	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	28	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.2	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	28	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.3	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	28	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.3.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	39	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	39	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	39	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.4.1	60	0,10–0,13	0,16	0,20	0,23	0,26	0,30	66	0,10–0,13	0,16	0,20	0,23	0,26	0,30
S.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.3.1														

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for HSS countersink

Index	30 110 ..., 30 130 ... Type N – TiN / TiAlN							30 132 ... Type VA – TiAlN						
	N	Ø 4,3–8,0	Ø 8,0–12,4	Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0	Ø 25,0–31,0	VA	Ø 4,3–8,0	Ø 8,0–12,4	Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0	Ø 25,0–31,0
	v_c (m/min)	f (mm/rev)						v_c (m/min)	f (mm/rev)					
P.1.1	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.4	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.5	14	0,03–0,04	0,05	0,06	0,08	0,10	0,12	14	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.1	29	0,04–0,06	0,08	0,10	0,12	0,14	0,18	29	0,04–0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	13	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.2	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	13	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	13	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.4.1														
P.4.2														
M.1.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	11	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	11	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	11	0,04–0,05	0,06	0,07	0,08	0,09	0,12
K.1.1	9	0,06–0,10	0,12	0,14	0,18	0,20	0,25	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	9	0,06–0,10	0,12	0,14	0,18	0,20	0,25	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	9	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.1.2	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.1	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.2	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.3	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.3.1	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.4.1	69	0,10–0,13	0,16	0,20	0,23	0,26	0,30	69	0,10–0,13	0,16	0,20	0,23	0,26	0,30
S.1.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
H.1.1	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12
O.1.1	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.2	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.3.1														

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for HSS countersink and counterbore

Index	30 105 ..., 30 150 ..., 30 170 .... HSS – 60° / 90° / 120°									30 190 ..., 30 191 ... HSS			
		Ø 4,3–8,0	Ø 8,0–12,4	Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0	Ø 25,0–31,0	Ø 31,0–55,0	Ø 55,0–80,0		DC_2 Ø 6,3	DC_2 Ø 10,0	DC_2 Ø 14,0
	v_c (m/min)	f (mm/rev)								v_c (m/min)	f (mm/rev)		
P.1.1	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22	0,22–0,26	0,26–0,36	30	0,07	0,10	0,12
P.1.2	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22	0,22–0,26	0,26–0,36	30	0,07	0,10	0,12
P.1.3	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	0,14–0,22	0,22–0,28	25	0,05	0,07	0,09
P.1.4	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	0,14–0,22	0,22–0,28	25	0,05	0,07	0,09
P.1.5	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	0,12–0,14	0,14–0,18	12	0,04	0,05	0,07
P.2.1	25	0,04–0,06	0,08	0,10	0,12	0,14	0,18	0,18–0,24	0,24–0,30	25	0,05	0,07	0,09
P.2.2	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	0,12–0,16	0,16–0,18	10	0,04	0,05	0,06
P.2.3	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	0,12–0,16	0,16–0,18	10	0,04	0,05	0,06
P.2.4	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	0,12–0,16	0,16–0,18	10	0,04	0,05	0,06
P.3.1	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	0,12–0,16	0,16–0,18	10	0,04	0,05	0,06
P.3.2	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	0,12–0,16	0,16–0,18	10	0,04	0,05	0,06
P.3.3	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	0,12–0,16	0,16–0,18	10	0,04	0,05	0,06
P.4.1													
P.4.2													
M.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12–0,16	0,16–0,18	8	0,04	0,06	0,07
M.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12–0,16	0,16–0,18	8	0,04	0,06	0,07
M.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12–0,16	0,16–0,18	8	0,04	0,06	0,07
K.1.1	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	0,25–0,27	0,27–0,36	12	0,08	0,13	0,16
K.1.2	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	0,25–0,27	0,27–0,36	12	0,08	0,13	0,16
K.2.1	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	0,25–0,27	0,27–0,36	10	0,08	0,13	0,16
K.2.2	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	0,25–0,27	0,27–0,36	10	0,08	0,13	0,16
K.3.1	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	0,25–0,27	0,27–0,36	12	0,08	0,13	0,16
K.3.2	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	0,25–0,27	0,27–0,36	10	0,08	0,13	0,16
N.1.1	35	0,08–0,10	0,12	0,14	0,18	0,22	0,26	0,26–0,34	0,34–0,40	35	0,09	0,13	0,16
N.1.2	35	0,08–0,10	0,12	0,14	0,18	0,22	0,26	0,26–0,34	0,34–0,40	35	0,09	0,13	0,16
N.2.1	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	0,26–0,34	0,34–0,40	25	0,09	0,13	0,16
N.2.2	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	0,26–0,34	0,34–0,40	25	0,09	0,13	0,16
N.2.3	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	0,26–0,34	0,34–0,40	25	0,09	0,13	0,16
N.3.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	0,30–0,42	0,42–0,46	35	0,11	0,16	0,18
N.3.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	0,30–0,42	0,42–0,46	35	0,11	0,16	0,18
N.3.3	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	0,30–0,42	0,42–0,46	35	0,11	0,16	0,18
N.4.1	60	0,10–0,13	0,16	0,20	0,23	0,26	0,30	0,30–0,42	0,42–0,46	60	0,12	0,18	0,21
S.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12	0,12	8	0,04	0,06	0,07
S.1.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12	0,12	8	0,04	0,06	0,07
S.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12	0,12	8	0,04	0,06	0,07
S.2.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12	0,12	8	0,04	0,06	0,07
S.2.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12	0,12	8	0,04	0,06	0,07
S.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12	0,12	8	0,04	0,06	0,07
S.3.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12	0,12	8	0,04	0,06	0,07
S.3.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12	0,12	8	0,04	0,06	0,07
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	0,30	0,30	35	0,11	0,16	0,18
O.1.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	0,30	0,30	35	0,11	0,16	0,18
O.2.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	0,30	0,30	35	0,11	0,16	0,18
O.2.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	0,30	0,30	35	0,11	0,16	0,18
O.3.1													

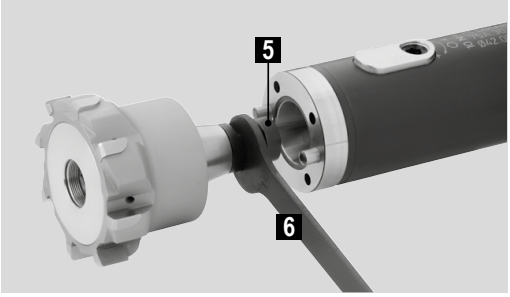
The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for HSS-E deburring countersink

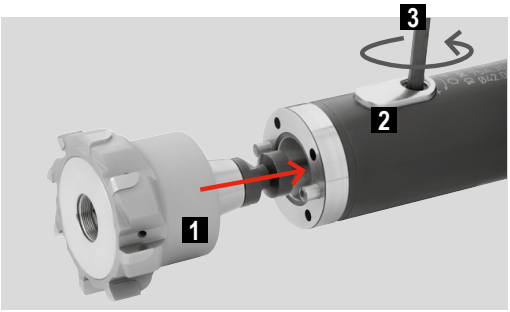
Index	30 120 ..., 30 121 ... HSS-E – 90°						
	TiN	uncoated	Ø 6,3	Ø 10,0	Ø 14,0	Ø 21,0	Ø 28,0
	v_c (m/min)		f (mm/rev)				
P.1.1	35	30	0,06–0,08	0,10	0,12	0,14	0,18
P.1.2	35	30	0,06–0,08	0,10	0,12	0,14	0,18
P.1.3	29	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12
P.1.4	29	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12
P.1.5	14	12	0,03–0,04	0,05	0,06	0,08	0,10
P.2.1	29	25	0,04–0,06	0,08	0,10	0,12	0,14
P.2.2	12	10	0,03–0,04	0,05	0,06	0,08	0,10
P.2.3	12	10	0,03–0,04	0,05	0,06	0,08	0,10
P.2.4	12	10	0,03–0,04	0,05	0,06	0,08	0,10
P.3.1	12	10	0,03–0,04	0,05	0,06	0,08	0,10
P.3.2	12	10	0,03–0,04	0,05	0,06	0,08	0,10
P.3.3	12	10	0,03–0,04	0,05	0,06	0,08	0,10
P.4.1							
P.4.2							
M.1.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09
M.2.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09
M.3.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09
K.1.1	9	12	0,06–0,10	0,12	0,14	0,18	0,20
K.1.2	9	12	0,06–0,10	0,12	0,14	0,18	0,20
K.2.1	9	10	0,06–0,10	0,12	0,14	0,18	0,20
K.2.2	14	10	0,06–0,10	0,12	0,14	0,18	0,20
K.3.1	14	12	0,06–0,10	0,12	0,14	0,18	0,20
K.3.2	12	10	0,06–0,10	0,12	0,14	0,18	0,20
N.1.1	40	35	0,08–0,1	0,12	0,14	0,18	0,22
N.1.2	40	35	0,08–0,1	0,12	0,14	0,18	0,22
N.2.1	29	25	0,08–0,1	0,12	0,14	0,18	0,22
N.2.2	29	25	0,08–0,1	0,12	0,14	0,18	0,22
N.2.3	29	25	0,08–0,1	0,12	0,14	0,18	0,22
N.3.1	40	35	0,1–0,12	0,14	0,18	0,20	0,24
N.3.2	40	35	0,1–0,12	0,14	0,18	0,20	0,24
N.3.3	40	35	0,1–0,12	0,14	0,18	0,20	0,24
N.4.1	69	60	0,1–0,13	0,16	0,20	0,23	0,26
S.1.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09
S.1.2	9	8	0,04–0,05	0,06	0,07	0,08	0,09
S.2.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09
S.2.2	9	8	0,04–0,05	0,06	0,07	0,08	0,09
S.2.3	9	8	0,04–0,05	0,06	0,07	0,08	0,09
S.3.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09
S.3.2	9	8	0,04–0,05	0,06	0,07	0,08	0,09
S.3.3	9	8	0,04–0,05	0,06	0,07	0,08	0,09
H.1.1	4		0,04–0,05	0,06	0,07	0,08	0,10
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1	4		0,04–0,05	0,06	0,07	0,08	0,10
O.1.1	40	35	0,1–0,12	0,14	0,18	0,20	0,24
O.1.2	40	35	0,1–0,12	0,14	0,18	0,20	0,24
O.2.1	40	35	0,1–0,12	0,14	0,18	0,20	0,24
O.2.2	40	35	0,1–0,12	0,14	0,18	0,20	0,24
O.3.1							

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

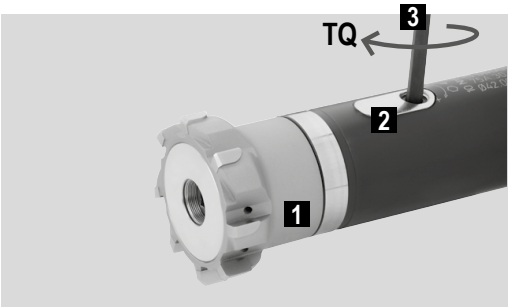
REAMAX TS – Assembly instructions



Clean the Morse taper adapter/face contact → grease-free.
Screw the pull stud (5) into the reaming head and tighten using the open-ended spanner (6).

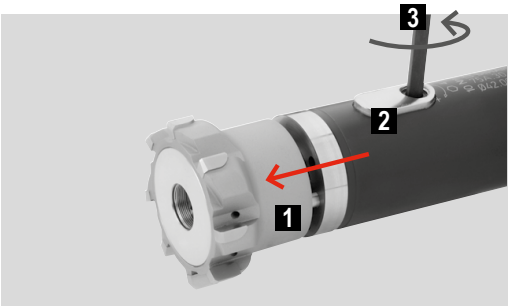


Use key (3) to open jaws (2), but do not fully release, and insert reaming head (1).

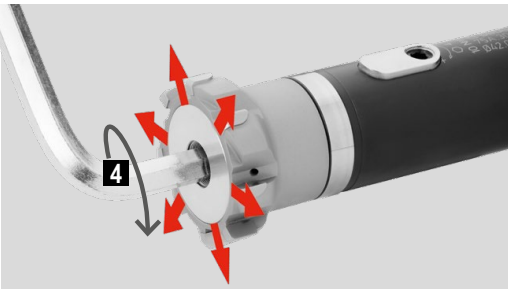


Use the key (3) to close the jaws (2), observe the recommended tightening torque.
When inserting the reaming head (1), this is pulled into its final position when the jaws (2) are closed.

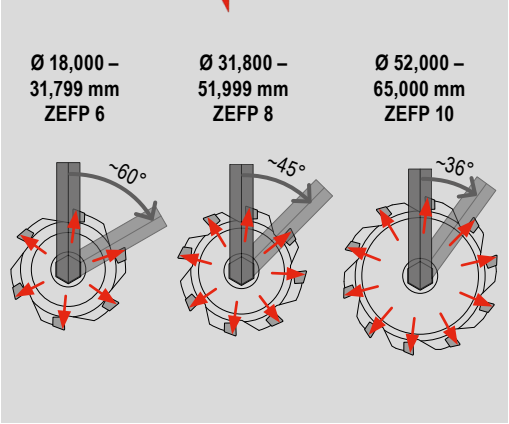
Ø Range	Tightening torque (TQ)
18,000 – 19,999	1,5 Nm
20,000 – 21,999	2,5 Nm
22,000 – 26,999	4 Nm
27,000 – 34,999	5 Nm
35,000 – 41,999	6 Nm
42,000 – 51,999	10 Nm
52,000 – 65,000	13 Nm



When removing the reamer head (1), this is pressed out of its position by the jaws (2) and can thus be easily removed from the holder:
Use key (3) to open the jaws (2) but do not fully release, and remove reamer head (1).



Adjustment for wear compensation:
The smallest drilling tolerances up to IT4 can be achieved through adjustment with the hex key (4).



ZEFP = Number of effective cutting edges, around the periphery	ZEFP 6		ZEFP 8		ZEFP 10	
Pitch	~ 60°		~ 45°		~ 36°	
Turning the hex key by ~ ...°, results in an adjustment of ~ ... mm in diameter	~ 15°	~ 0,006 mm in the Ø	~ 15°	~ 0,003 mm in the Ø	~ 18°	~ 0,005 mm in the Ø
	~ 30°	~ 0,012 mm in the Ø	~ 30°	~ 0,006 mm in the Ø	~ 36°	~ 0,010 mm in the Ø
	~ 45°	~ 0,018 mm in the Ø	~ 45°	~ 0,009 mm in the Ø		
	~ 60°	~ 0,024 mm in the Ø				

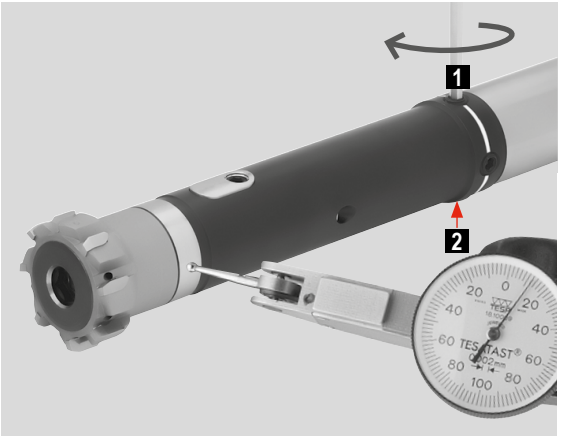
Caution: For technical reasons, all REAMAX TS reaming heads and Monomax reamers have an irregular cutting edge pitch. For this reason, the angles specified above are approximate values, to make handling easier.
If the required diameter is over turned, turning back the adjustment screw is not enough! If this occurs, the reaming head/reamer must be fully released and re-set again.
This adjustment facility is only intended to compensate for wear. Therefore, an adjustment of 0.015 mm in diameter should not normally be exceeded!
The adjustment values given above are recommended values based on empirical values and test results. However, these may vary slightly from case to case.

REAMAX TS – Operating instructions

Aligning the DAH Zero holder

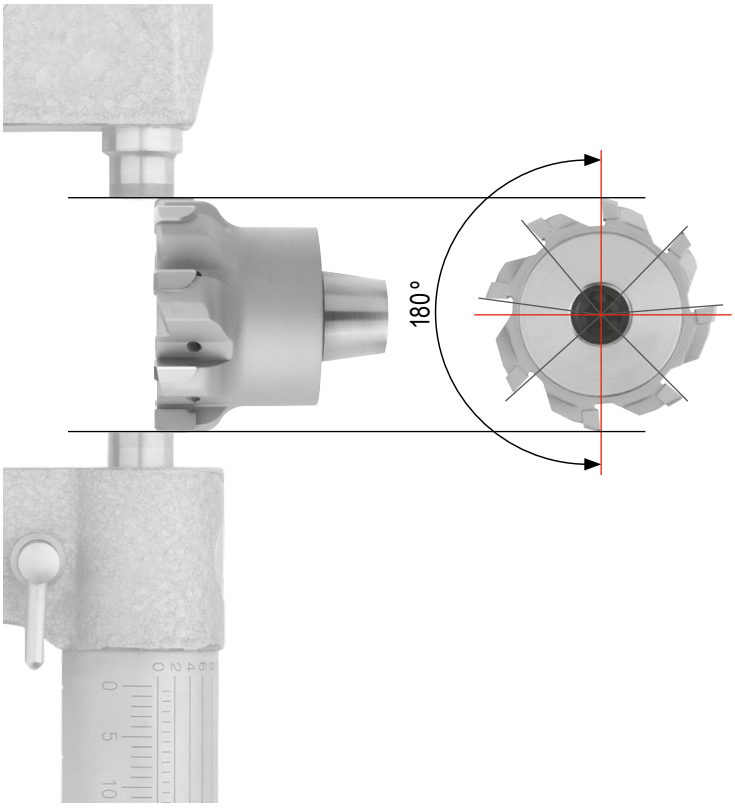
The tool is recommended for radial alignment of max. 20 µm.

1. Loosen all adjustment screws and pre-load with 1 Nm (new tools are already supplied like this).
2. Place dial gauge with µm display on the ground bezel diameter.
3. Turn the tool to determine the point with the largest runout error using the dial gauge.
4. Adjust the corresponding adjustment screw with the hex key clockwise (1) until half the runout error has been corrected. In doing so, over-tighten by approx. 5 µm.
5. Release the opposite adjustment screw (2) by the over-tightened amount.
6. Adjust all 4 adjustment screws until the runout is < 2 µm.

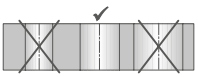


Please note:
- ▲ The runout must be checked and if necessary re-aligned after an adapter changeover, change of application, after any adjustment for wear compensation and before every re-commissioning, using adjustment steps 1 to 6
- ▲ Adjustment screws must always be tightened during usage with at least 1 Nm
- ▲ The max. re-adjustment torque is 4.5 Nm

Please note:
- ▲ Both measurement cutting edges are marked on the reaming head by a dot. Please use only this pair of cutting edges for mechanical measurement. Using other pairs of cutting edges will result in measurement errors.
- ▲ Measure the diameter at the front on the cutting edge due to back taper (see diagram)
- ▲ Please also avoid damage to the cutting edges during the measurement process.

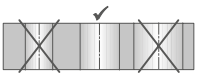


Problems / possible causes / solutions



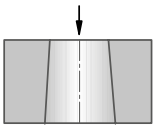
Hole too large

- ▲ Runout error for reamer in the spindle → use DAH compensation system and correct runout
- ▲ Inaccurate alignment, reamer back-cuts → correct alignment and use DPS floating holder
- ▲ Built-up edge → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant
- ▲ Reamer too large → have reamer adapted



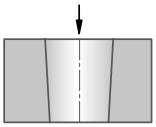
Hole too small

- ▲ Worn reamer → have reamer adjusted, replaced or repaired
- ▲ Reaming allowance too small → increase reaming allowance
- ▲ Cutting force too high → reduce feed or select other lead geometry (ASG)
- ▲ Reamer too small → have reamer adjusted, replaced or repaired



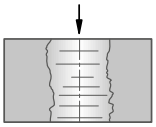
Conical hole, tapered backwards

- ▲ Inaccurate alignment → correct alignment and use DPS floating holder
- ▲ Misalignment between headstock and turret → correct turret and use DPS floating holder



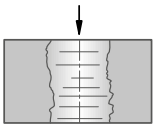
Conical hole, tapered forwards

- ▲ Poor alignment, cutting edges push initially → correct alignment and use DPS floating holder



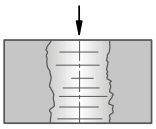
Hole is not round

- ▲ Reamer runout error too large → correct the runout with DAH compensation system
- ▲ Alignment error → correct alignment error and use DPS floating holder
- ▲ Asymmetric initial cutting through angled entry surface → countersink hole
- ▲ Workpiece tensioning → correct clamping of the workpieces
- ▲ Poor pre-machining → optimise pre-machining
- ▲ Feed too high → reduce feed



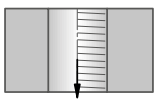
Hole exhibits chatter marks

- ▲ Cutting speed v_c too high → reduce cutting speed
- ▲ L to D ratio too high→ reduce the speed of entry, pilot the bore or select other lead geometry (ASG)



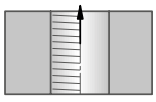
Non clean-up

- ▲ Built-up edge → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant
- ▲ Cutting edge worn→ have cutting edge repaired or replace the tool
- ▲ Reamer runout error → correct the runout with DAH compensation system
- ▲ No or insufficient cooling, chips are getting trapped → use thro' coolant supply and increase coolant pressure
- ▲ Unsuitable coolant → increase the oil content of the coolant
- ▲ Incorrect cutting data→ use data according to catalogue recommendation



Grooves in the hole "Feed marking"

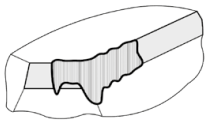
- ▲ Faulty cutting edge (edge breakage) → have reamer replaced or repaired
- ▲ Built-up edges → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant



Grooves in the hole "Retraction marking"

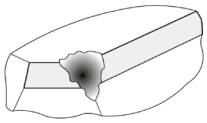
- ▲ Cutting edges moved too far out of the hole → move no more than lead length + 2 mm out of the hole
- ▲ Material springs back → do not retract at high speed but with increased (2-3 times) feed rate

Types of wear



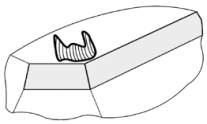
Wear on clearance face

Reduce the cutting speed and select a more wear resistant cutting material or coating.



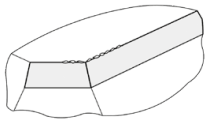
Cutting edge breakage

Reduce feed and reaming allowance. In the case of interrupted holes, use coated carbide instead of DST.



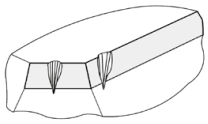
Cratering

Reduce the cutting speed and use a positive cutting edge geometry.



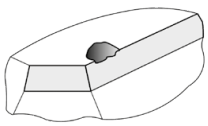
Edge breakages

Increase the cutting speed and use larger rake angle.



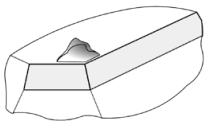
Notch wear

Reduce the cutting speed and select a more wear resistant cutting material or coating.



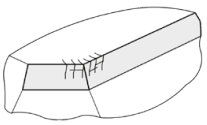
Fatigue fracture

Reduce feed, increase reamer stability.



Built-up edge

Use positive cutting edge geometry, increase the oil content of the coolant, reduce the cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material.



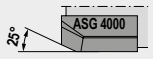
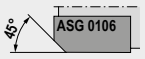
Cracks at right angles to the cutting edge

Use sufficient coolant and thro' coolant, reduce the cutting speed.

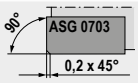
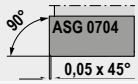
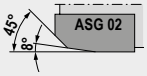
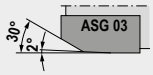
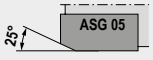
Common cutting edge geometries in the performance area

REAMAX, REAMAX TS, Monomax

Standard geometries

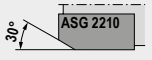
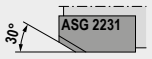
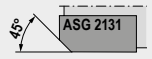
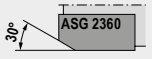
Cutting edge geometry	Flute type	Chip flow	Lead angle
Through hole			
ASG4000	straight	←	
Through hole-Blind hole			
ASG3000	straight	↔	
ASG0706	straight	↔	
ASG0106	straight	↔	

Special geometries

Cutting edge geometry	Flute type	Chip flow Comments	Lead angle
ASG0703	straight	Leading edge	
ASG0704	straight	Leading edge with increased positional accuracy	
ASG09B	straight	Swarf control < Ø 32 mm	
ASG1402	straight	Swarf control > Ø 32 mm	
ASG02	straight	↔	
ASG03	straight	↔	
ASG05	left-handed		

Fullmax

Standard geometries

Cutting edge geometry	Flute type	Chip flow	Lead angle
Through hole			
ASG2210	left-hand helix	←	
ASG2231	left-hand helix	←	
ASG2270	straight	←	
Blind hole			
ASG2110	straight	→	
ASG2131	straight	→	
ASG2170	straight	→	
Through hole-Blind hole			
ASG2350	straight	↔	
ASG2360	straight	↔	

Numerous other cutting edge geometries, especially for your application, are available on request. Simply contact our technicians or use the form „Semi standard – Solid carbide reamer“ on our homepage in the download area.

Achievable surface quality

		Roughness ▸	N11	N10	N9	N8		N7	N6		N5	N4	N3	N2	N1
		Average roughness R_a ▸	25	12,5	6,3	3,2		1,6	0,8		0,4	0,2	0,1	0,05	0,025
		Surface roughness R_z ▸	100	63	40	25	16	10	6,3	4	2,5	1,6	1	0,63	0,25
Material group	P	1.0 – 4.2													
	M	1.1 – 3.1													
	K	1.1 + 2.1 + 3.1													
		1.2 + 2.2 + 3.2													
	N	1.1 – 2.3													
		3.1 – 3.3													
	S	1.1 – 3.3													
	H	1.1 – 1.3													

reachable conditionally reachable

This information is based on experience and may vary from case to case, depending on the prevailing conditions.
(all other surface values on request)

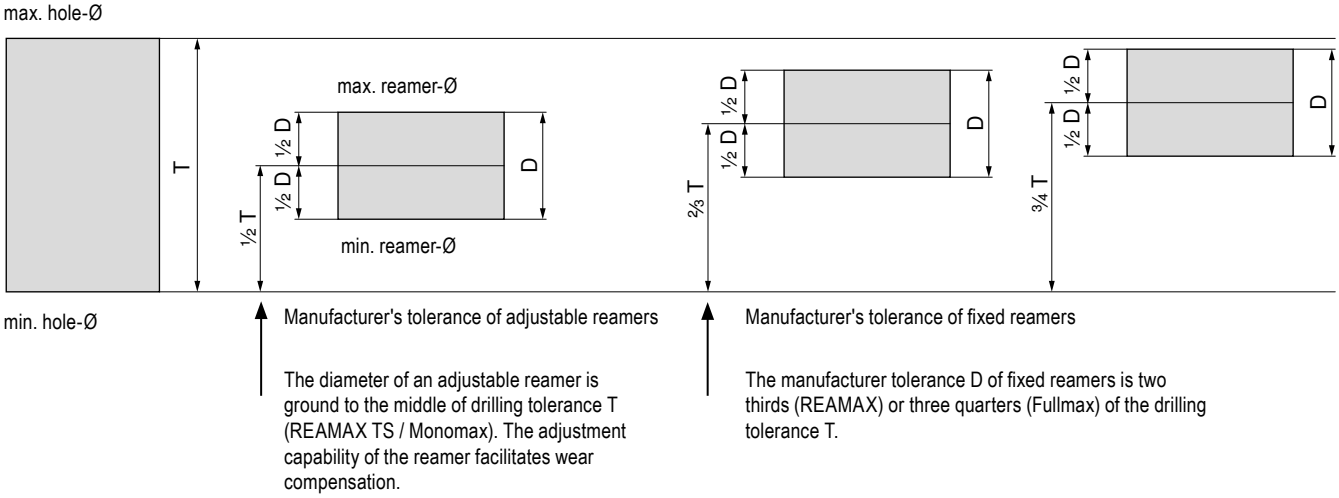
Tolerance classes covered with 1/100 reamer

The most common tolerance is H7, so most reamers configured for an H7 fit tolerance.
With the 1/100 reamers, increments of 0.01 mm can be covered, but are also suitable for various other dimensions.
For example, a 1/100 reamer diameter 8.02 mm can be used for a 8.0 fit F7.
Other fit sizes shown in the table.

Tolerance zone	Nominal Ø in mm											
	1,0	2,0	3,0	4,0	5,0	6,0	7,0	8,0	9,0	10,0	11,0	12,0
A9				4,29	5,29	6,29	7,30	8,30	9,30	10,30	11,32	12,32
A11	1,31	2,31	3,31	4,32	5,32	6,32	7,35	8,35	9,35	10,35	11,37	12,37
B8				4,15	5,15	6,15	7,16	8,16	9,16	10,16		
B9				4,16	5,16	6,16	7,17	8,17	9,17	10,17	11,18	12,18
B10	1,17	2,17	3,17	4,17	5,17	6,17	7,19	8,19	9,19	10,19	11,20	12,20
B11	1,18	2,18	3,18	4,19	5,19	6,19	7,22	8,22	9,22	10,22	11,23	12,23
C8				4,08	5,08	6,08	7,09	8,09	9,09	10,09	11,11	12,11
C9	1,07	2,07	3,07	4,09	5,09	6,09	7,10	8,10	9,10	10,10	11,12	12,12
C10	1,09	2,09	3,09	4,10	5,10	6,10	7,12	8,12	9,12	10,12	11,14	12,14
C11	1,10	2,10	3,10	4,12	5,12	6,12	7,15	8,15	9,15	10,15	11,18	12,18
D7											11,06	12,06
D8				4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,06	12,06
D9				4,05	5,05	6,05	7,06	8,06	9,06	10,06	11,08	12,08
D10	1,05	2,05	3,05	4,06	5,06	6,06	7,08	8,08	9,08	10,08	11,10	12,10
D11	1,06	2,06	3,06	4,08	5,08	6,08	7,10	8,10	9,10	10,10	11,13	12,13
E7							7,03	8,03	9,03	10,03	11,04	12,04
E8	1,02	2,02	3,02	4,03	5,03	6,03	7,04	8,04	9,04	10,04	11,05	12,05
E9	1,03	2,03	3,03	4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,06	12,06
F7	1,01	2,01	3,01				7,02	8,02	9,02	10,02	11,02	12,02
F8	1,01	2,01	3,01	4,02	5,02	6,02	7,02	8,02	9,02	10,02	11,03	12,03
F9	1,02	2,02	3,02	4,03	5,03	6,03	7,03	8,03	9,03	10,03	11,04	12,04
F10				4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,07	12,07
G7				4,01	5,01	6,01	7,01	8,01	9,01	10,01		
H7										10,01	11,01	12,01
H8				4,01	5,01	6,01	7,01	8,01	9,01	10,01	11,02	12,02
H9	1,01	2,01	3,01	4,02	5,02	6,02	7,02	8,02	9,02	10,02	11,03	12,03
H10	1,03	2,03	3,03	4,03	5,03	6,03	7,04	8,04	9,04	10,04	11,05	12,05
H11	1,04	2,04	3,04	4,05	5,05	6,05	7,06	8,06	9,06	10,06	11,08	12,08
H12	1,07	2,07	3,07	4,08	5,08	6,08	7,10	8,10	9,10	10,10	11,13	12,13
H13	1,11	2,11	3,11	4,14	5,14	6,14	7,18	8,18	9,18	10,18	11,22	12,22
J6				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
J7				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
J8	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS7				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS8	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS9	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,01	12,01
K8	0,99	1,99	2,99				6,99	7,99	8,99	9,99	10,99	11,99
M6							6,99	7,99	8,99	9,99	10,99	11,99
M7							6,99	7,99	8,99	9,99	10,99	11,99
M8	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,99	11,99
N6				3,99	4,99	5,99						
N7	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,99	11,99
N8	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,98	11,98
N9	0,98	1,98	2,98	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,98	11,98
N10	0,98	1,98	2,98	3,98	4,94	5,98	6,98	7,98	8,98	9,98	10,98	11,98
N11	0,98	1,98	2,98	3,98	4,94	5,98	6,98	7,98	8,98	9,98	10,97	11,97
P6	0,99	1,99	2,99								10,98	11,98
P7	0,99	1,99	2,99				6,98	7,98	8,98	9,98	10,98	11,98
P8	0,99	1,99	2,99	3,98	4,98	5,98					10,97	11,97
R6							6,98	7,98	8,98	9,98		
R7				3,98	4,98	5,98	6,98	7,98	8,98	9,98	10,97	11,97
S6				3,98	4,98	5,98					10,97	11,97
S7	0,98	1,98	2,98	3,98	4,98	5,98	6,97	7,97	8,97	9,97	10,97	11,97
U6							6,97	7,97	8,97	9,97		
U7				3,97	4,97	5,97	6,97	7,97	8,97	9,97		
X7				3,97	4,97	5,97						
X8	0,97	1,97	2,97				6,96	7,96	8,96	9,96	10,95	11,95
X9	0,97	1,97	2,97	3,96	4,96	5,96	6,95	7,95	8,95	9,95		
Z7	0,97	1,97	2,97	3,96	4,96	5,96	6,96	7,96	8,96	9,96	10,95	11,95
Z8	0,97	1,97	2,97	3,96	4,96	5,96	6,95	7,95	8,95	9,95	10,94	11,94
Z9				3,95	4,95	5,95						
Z10	0,96	1,96	2,96	3,95	4,95	5,95	6,94	7,94	8,94	9,94	10,93	11,93
ZA7	0,96	1,96	2,96	3,95	4,95	5,95	6,94	7,94	8,94	9,94		
ZA8							6,94	7,94	8,94	9,94	10,93	11,93
ZB8	0,95	1,95	2,95	3,94	4,94	5,94					10,90	11,90
ZB9	0,95	1,95	2,95	3,94	4,94	5,94	6,92	7,92	8,92	9,92	10,90	11,90

Manufacturer's tolerance of the reamers

T = Hole tolerance field
D = Manufacturer's tolerance of the reamer



Manufacturer's tolerance of adjustable reamers

The diameter of an adjustable reamer is ground to the middle of drilling tolerance T (REAMAX TS / Monomax). The adjustment capability of the reamer facilitates wear compensation.

Manufacturer's tolerance of fixed reamers

The manufacturer tolerance D of fixed reamers is two thirds (REAMAX) or three quarters (Fullmax) of the drilling tolerance T.

Coatings – Reaming and Countersinking

HPC TiN

- Nanostructured TiN multilayer coating
- Friction-optimised top layer enables process-secure dry hard machining
- Extreme resistance to oxidation and elevated-temperature hardness
- Maximum application temperature: 900 °C

TiN

- TiN coating
- Maximum application temperature: 450 °C

TiAlN

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

TiAlSiN

- TiAlSiN- Multilayer coating
- Maximum application temperature: 800 °C
- Specially designed for machining hardened steels: high hardness and heat resistance with low thermal conductivity.

DBC

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

DBG-U

- AlTiN Multilayer coating
- Especially for universal use in a variety of materials as well as for the machining of tempered materials < 62 HRC
- For high cutting speeds and suitable for MMS application
- Maximum application temperature: 1000 °C

DBG-P

- AlTiN Multilayer coating
- Especially for universal use in a variety of materials at high cutting speeds
- Suitable for MMS application
- Maximum application temperature: 1000 °C

DBC-N

- Diamond-like ta-C-Multilayer-carbon coating
- Particularly hard and smooth coating and therefore especially for machining non-ferrous metals
- Maximum application temperature: 500 °C

DBQ

- AlCrN-Multilayer-Beschichtung
- Particularly suitable for machining stainless steels and titanium
- Low formation of built-up edges
- Maximum application temperature: > 1000 °C

DBF-A

- AlCrN Multilayer coating
- specially developed for the machining of tempered materials < 62 HRC
- maximum application temperature: > 1100 °C

Grade description – Reamers

DST

- Cermet, uncoated
- ISO | **P15** | **M10** | K10
- The uncoated cermet grade for finish machining stainless and hardened steel
- Particularly wear resistant thanks to high heat resistance

CWC10

- Cermet, uncoated
- ISO | **P15** | **M10** | K10
- The uncoated cermet grade for finish machining of stainless and hardened steel
- Particularly wear-resistant due to high heat resistance

K10

- Carbide, uncoated
- ISO | **K10**
- Uncoated carbide grade for machining grey cast iron or non-ferrous metals, depending on the cutting edge geometry

4

Grade description – Indexable insert countersink

BK8425

- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25** | **K25**
- Universal grade with greater wear resistance thanks to innovative PVD multi-layer coating

K10

- Carbide, uncoated
- ISO | **K10**
- Uncoated carbide grade for machining grey cast iron or non-ferrous metals, depending on the cutting edge geometry

Chip breakers

-01

- Rake angle 12°
- All-round topography chamfered, rounded
- Very smooth-cutting thanks to positive cutting edge geometry
- Also suitable for less-powerful machines and unstable workpieces
- Easily controllable chip formation also in less solid materials

-U877

- Rake angle 6°
- circumferentially ground
- Three-ground chip breaker with second clearance angle for clearance with small tool diameters

-G06

- Rake angle 6°
- For P / M / K materials
- High stability due to significant wedge angle

-G12

- Rake angle 12°
- For P / N / S materials
- Extremely smooth-cutting thanks to positive cutting edge geometry
- Extremely suitable for less-powerful machines and unstable workpieces
- Easily controllable chip formation also in less solid materials

Adapters which are ideal for reaming operations (such as the DAH compensation holder) can be found in the → **Clamping technology catalogue, Chapter 16**

New products for machining technicians

NEW Precision adjustment head hi.flex micro

▲ The continuation of the hi.flex system success story: the ultimate milestone in terms of precision, flexibility and user-friendliness is now getting a well-deserved “little brother”. With a boring range of Ø 0.5 mm – 60 mm, it covers a very wide range of all upcoming spindle machining operations.

→ Page 19–21

NEW UltraMini/EcoCut boring bar adapter

▲ The new boring bar adapter can be used in all heads with a clamping diameter of 12 mm or 16 mm such as both sizes of the hi.flex micro precision adjustment head (and BluFlex 2). Using the UltraMini and EcoCut boring bars makes particular sense here since the adapter is also suitable for boring bars with a thro' coolant supply.

DCONMS 12 → Page 20
DCONMS 16 → Page 14

NEW **MicroKom** – Precision spindle set

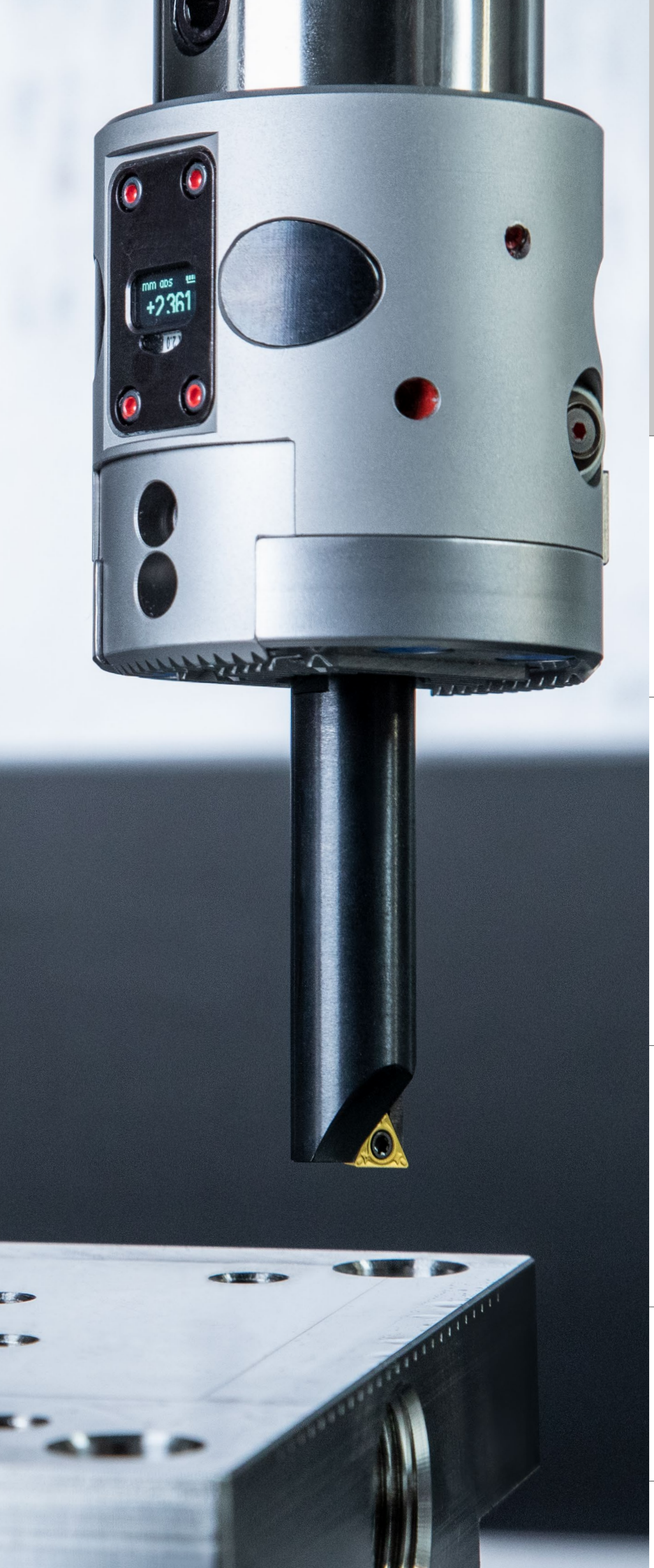
▲ New: the MicroKom precision adjustment heads BluFlex 2, hi.flex and hi.flex micro are also available as a set

BluFlex 2 → Page 12
hi.flex → Page 13
hi.flex micro → Page 19

NEW Interface adapter

▲ Total freedom in tool selection: thanks to the new interface adapters, ABS tools in STM base holders and STM tools in ABS base holders can be accommodated reliably and precisely.

→ Page 56



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling 5

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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Chip breakers	79
Grades / coatings	80+81

KOMET \ Performance

Premium quality tools for high performance.

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

KOMET \ Standard

Quality tools for standard applications.

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

Symbol explanation

F Fine Machining

M Medium Machining

R Rough Machining

Smooth cut

Irregular cutting depth

Interrupted cut

ABS **KOMET ABS** – modular coupling system for rotating and stationary tools

STM Modular SpinTools interface

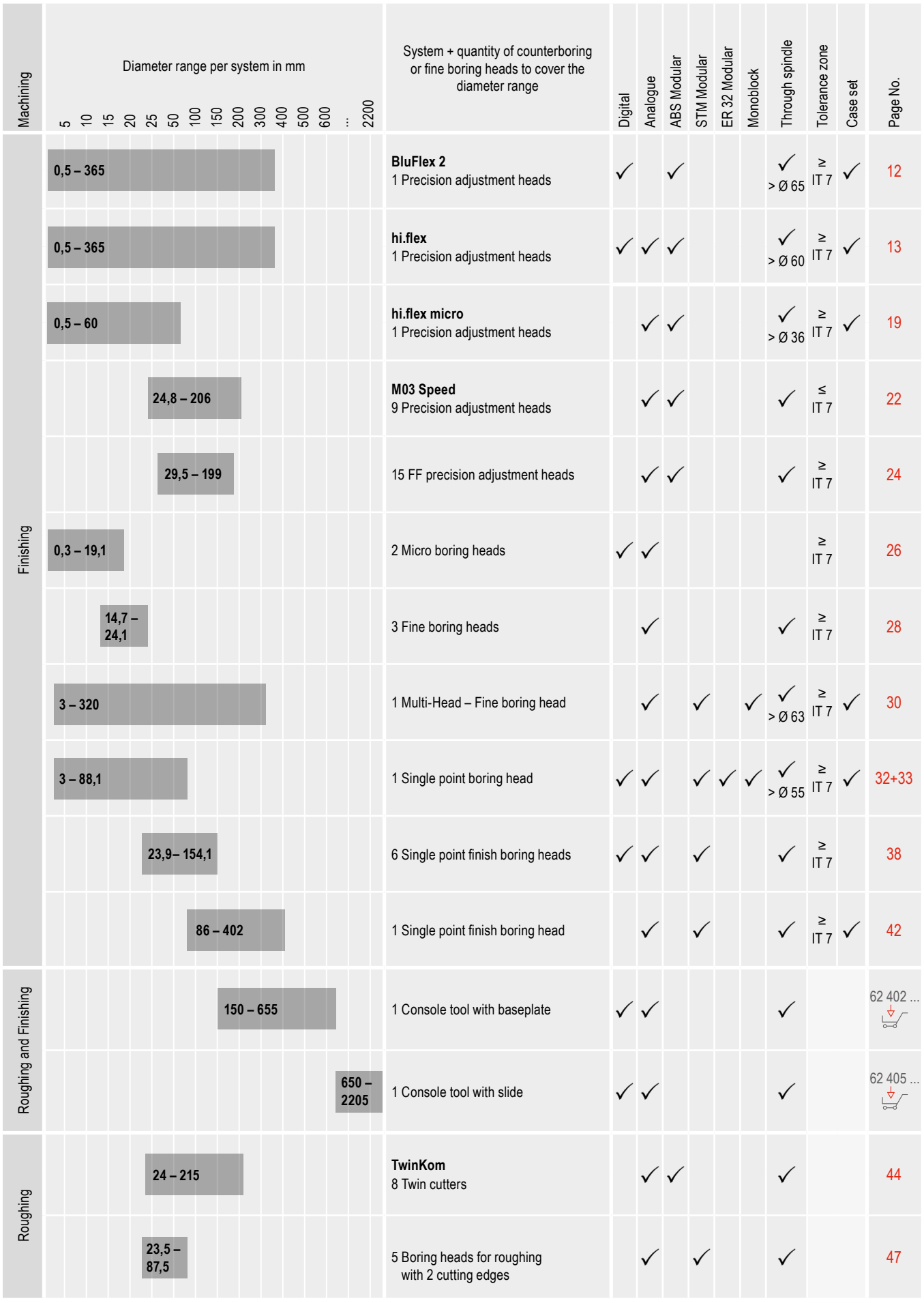
ER 32 System-independent ER 32 interface

Coolant supply central
Steep taper Form AD

hi.flex / hi.flex micro

- ▲ The precision adjustment heads are characterised by their high precision, absolute reliability and enormous flexibility
- ▲ Available as analogue and digital variants (hi.flex: analogue + digital, hi.flex micro: analogue)
- ▲ Comprehensive accessories offer maximum flexibility (hi.flex: diameter range 0.5 – 365 mm, hi.flex micro: diameter range 0.5 – 60 mm)
- ▲ Higher RPMs can be reached thanks to the symmetrically balanced design (hi.flex: 17,500 rpm, hi.flex micro: 30,000 rpm)
- ▲ The sensitive adjustment for µ-precise width of cut
- ▲ With thro' coolant supply
- ▲ Universal ABS interface

Toolfinder



System + quantity of counterboring or fine boring heads to cover the diameter range	Digital	Analogue	ABS Modular	STM Modular	ER 32 Modular	Monoblock	Through spindle	Tolerance zone	Case set	Page No.
BluFlex 2 1 Precision adjustment heads	✓		✓				✓ > Ø 65	≥ IT 7	✓	12
hi.flex 1 Precision adjustment heads	✓	✓	✓				✓ > Ø 60	≥ IT 7	✓	13
hi.flex micro 1 Precision adjustment heads		✓	✓				✓ > Ø 36	≥ IT 7	✓	19
M03 Speed 9 Precision adjustment heads		✓	✓				✓	≤ IT 7		22
15 FF precision adjustment heads		✓	✓				✓	≥ IT 7		24
2 Micro boring heads	✓	✓						≥ IT 7		26
3 Fine boring heads		✓					✓	≥ IT 7		28
1 Multi-Head – Fine boring head		✓		✓		✓	✓ > Ø 63	≥ IT 7	✓	30
1 Single point boring head	✓	✓		✓	✓	✓	✓ > Ø 55	≥ IT 7	✓	32+33
6 Single point finish boring heads	✓	✓		✓			✓	≥ IT 7		38
1 Single point finish boring head		✓		✓			✓	≥ IT 7	✓	42
1 Console tool with baseplate	✓	✓					✓			62 402 ...
1 Console tool with slide	✓	✓					✓			62 405 ...
TwinKom 8 Twin cutters		✓	✓				✓			44
5 Boring heads for roughing with 2 cutting edges		✓		✓			✓			47

This article can be found in our online shop at cuttingtools.ceratizit.com

Overview – Fine boring systems

MicroKom

BluFlex 2 / hi.flex

Ø 0,5 – 365 mm

ABS

BluFlex 2 – Digital
12

hi.flex – Analogue / digital
13

Ø 0,5 – 26 mm

- Ø 0,5 – 8 mm → UltraMini + EcoCut → Chapters 10 + 12 → Adapter 14
- Ø 5,6 – 24 mm → Boring Bar 18 → Adapter 17
- Ø 5,6 – 11 mm → Boring bar, vibration-optimised 17 → Adapter 17
- Ø 13 – 26 mm → Boring bar 17
- Ø 6 – 22 mm * → Steel boring bar 14
- Ø 7,9 – 23,9 mm → ABS32 boring bar 18

Ø 25 – 365 mm

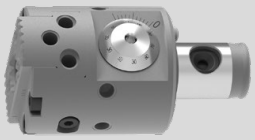
- Ø 25 – 44 mm → Insert holder 15 → Serrated body 15
- Ø 44 – 63 mm → Insert holder 15 → Serrated body 15
- Ø 63 – 93 mm → Insert holder 15 → Filling piece 16
- Ø 90 – 365 mm → Insert holder 15 → Bridge 16 → Filling piece 16

Ø 5 – 70 mm → Spindle tool for external machining 16

hi.flex micro

Ø 0,5 – 60 mm

ABS



Analogue
19

Ø 0,5 – 25 mm

- Ø 0,5 – 8 mm → UltraMini + EcoCut → Chapters 10 + 12 → Adapter 20
- Ø 8 – 13,8 mm → Boring Bar 20
- Ø 13,8 – 19,8 mm → Boring Bar 20
- Ø 19,8 – 25 mm → Boring Bar 20

Ø 25 – 60 mm

- Ø 25 – 44,8 mm → Insert holder 21 → Serrated body 21
- Ø 44,8 – 60 mm → Insert holder 21 → Filling piece 21

TO.X
58+59

WOHX *
57

* Used for steel boring bars Ø 6 – 8 mm

necessary
optional

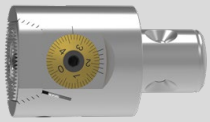
5

SpinTools

Multi-Head boring and fine boring head

Ø 3 – 320 mm

HSK-A | SK | MAS BT | STM



Analogue
30

Ø 3 – 53,1 mm

Ø 3 – 12 mm

Boring steel
35

Ø 5,8 – 13,2 mm

Boring bar
36

Reduction sleeve
36

Ø 8,75 – 40,1 mm

High-speed boring head + boring shank
37

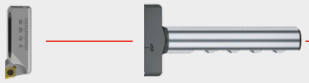
Ø 9,75 – 53,1 mm

Steel boring bar
35

Boring tool extension
36

Ø 29,75 – 320 mm

Ø 29,75 – 88,1 mm



Insert holder
35

Adjustable boring bar
35

Ø 86 – 320 mm

Counterweight
31

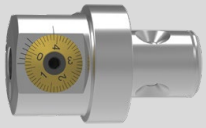
Bridge
31

Insert holder
31

Single point finish boring head

Ø 3 – 88,1 mm

HSK-A | SK | MAS BT | STM | ER 32



Analogue / digital
32+33

Ø 3 – 53,1 mm

Ø 3 – 12 mm

Boring steel
35

Ø 5,8 – 13,2 mm

Boring bar
36

Reduction sleeve
36

Ø 8,75 – 40,1 mm

High-speed boring head + boring shank
37

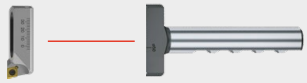
Ø 9,75 – 53,1 mm

Steel boring bar
35

Boring tool extension
36

Ø 29,75 – 88,1 mm

Ø 29,75 – 88,1 mm

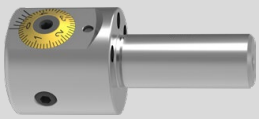


Insert holder
35

Adjustable boring bar
35

Micro Boring Head

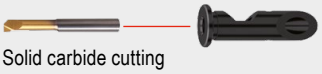
Ø 0,3 – 19,1 mm



Analogue / digital
26

Ø 0,3 – 19,1 mm

Ø 0,3 – 7,1 mm



Solid carbide cutting insert
27

Adapter
27

Ø 5,2 – 8,1 mm

Solid carbide cutting insert
27

Ø 6,9 – 19,1 mm

Solid carbide insert
27

Tool holder
27

CC..
63

Overview – Fine boring tools

MicroKom

M03 Speed
Analogue

Ø 24,8 – 206 mm

ABS

Ø 24,8 – 39 mm

Precision adjustment heads
22

Insert holder
23

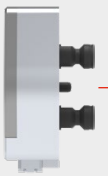
Ø 38 – 103 mm

Precision adjustment heads
22

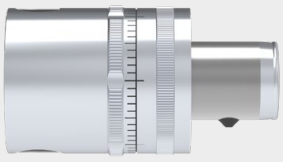
Insert holder
23

Ø 38 – 206 mm

Interchangeable bridge
23



Precision adjustment heads
22



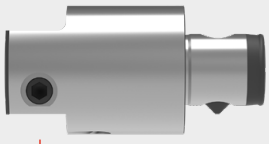
Insert holder
23

FF precision adjustment head
Analogue

Ø 29,5 –199 mm

ABS

Precision adjustment heads
24



Precision turning insert
25

TO.X
58+59

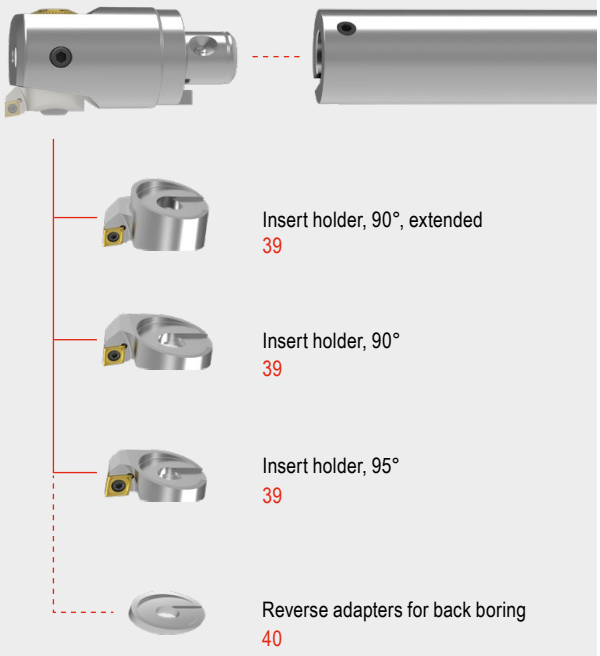
necessary
optional

SpinTools

Single point finish boring head
Analogue / digital

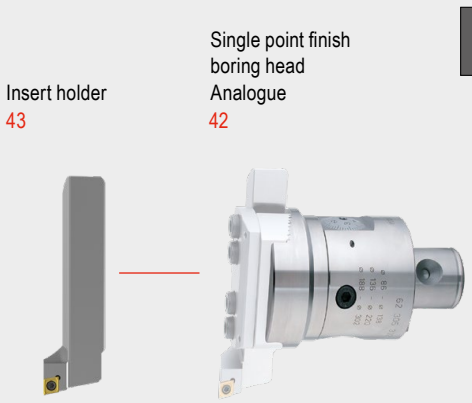
Ø 23,9 – 154,1 mm

STM



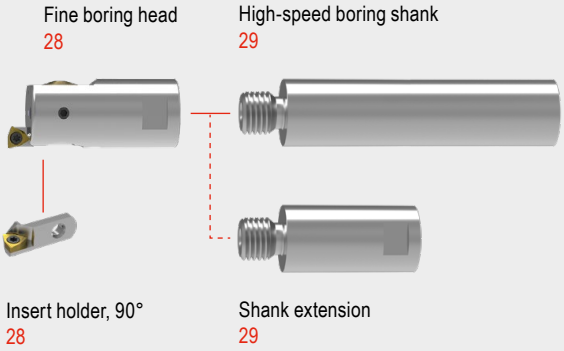
Ø 86 – 402 mm

STM



Fine boring head
Analogue

Ø 14,7 – 24,1 mm



CC..
63

WC..
62

Overview – Counterboring and console tools

necessary
optional

TwinKom

Twin cutter
Analogue

Ø 24 – 215 mm

ABS

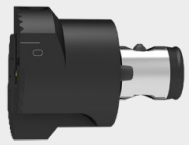
Tool holder 90° radially adjustable
45

Tool holder 80° radially adjustable
45

Basic tool holder, radially + axially adjustable
46

Indexable insert 90°
46

Indexable insert 80°
46



Base body short/long
44

WO..
60+61

SpinTools

Twin rough boring head
Analogue

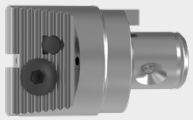
Ø 23,5 – 87,5 mm

STM

Pair of insert holders, Standard 90°
48

Pair of insert holders, Standard 70°
48

Pair of insert holders, Synchro 90°
49



Boring Head
47

CC.. / CN..
63

SpinTools

Console tool
Analogue / digital

Ø 150 – 2205 mm

Rough boring block 90° (CC..)
62 412 ...

Rough boring block 90° (CN..)
62 413 ...

Rough boring block 70° (CN..)
62 414 ...

Finish boring block analogue / digital
62 410 ... / 62 409 ...

Insert holder 90° / 95°
62 318 ... / 62 320 ...

Counterweight
62 427 ...

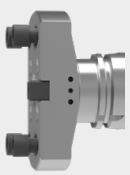
Ø 150 – 655 mm

Base plates
62 402 ...

Ø 650 – 2205 mm
Elongation console

Slide
62 406 ...

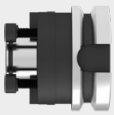
Basis
62 405 ...



Base adapter
62 392 ...

HSK-A
SK
MAS BT

Ø 60 mm
DIN 6357



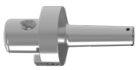
SK
MAS BT

Overview of base adapters and accessories

System			ISO 7388-1		ISO 7388-2		ISO 12164		ISO 26623-1
			SK	SK-FC	MAS-BT	MAS-BT-FC	HSK-A	HSK-E	PSC
Base adapter		ABS	→ Clamping technology catalogue, Chapter 16, Adapters and accessories						
			16|43	16|45	16|88	16|108	16|141		16|170
		STM	50		51		52		

5

Accessories

Extension		ABS	→ Clamping technology catalogue, Chapter 16, Adapters and accessories						
			16|187						
		STM	55						
Reduction		ABS	→ Clamping technology catalogue, Chapter 16, Adapters and accessories						
			16|191						
		STM	53						
Interface adapter ABS → STM		ABS	56						
Interface adapter STM → ABS		STM	56						

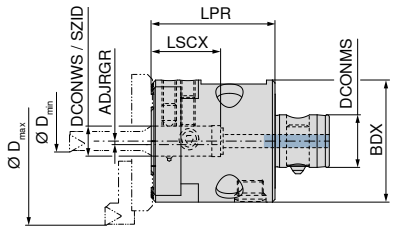
Additional accessories available on request, such as balancing rings, axial grooving holders (UltraMini) and counterboring insert holders (0.4 mm offset) for SpinTools systems.

MicroKom – BluFlex 2 – precision adjustment head

▲ Via the free app (Android/iOS), an extended display can be transferred to a standard smartphone (62 840 16097)
▲ For MicroKom boring bars with Ø 16 or with ABS 32, MicroKom bridges, and serrated body
▲ With thro' coolant supply
▲ LSCX = Recess depth of boring bar

Scope of supply:
incl. Battery

ABS



D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	SZID	DCONMS mm	BDX mm	LPR mm	LSCX mm	ADJRGR mm	WT kg	without Bluetooth 62 820 ...	with Bluetooth 62 840 ...
0,5 - 365	M04 30100	ABS 50	16	ABS 32	28	65	71	38	-0,2 - 2,3	1,45	**16097**	
0,5 - 365	M04 30000	ABS 50	16	ABS 32	28	65	71	38	-0,2 - 2,3	1,45		**16097**

Clamping screw

Clamping screw

Clamping screw

Clamping sleeve

Battery cover

Spare parts for Article no.		62 950 ...		62 950 ...		62 950 ...	62 950 ...	62 950 ...
62 820 16097	M8x1x12/SW4	**13989**	M8x1x20/SW4	**13700**	M5x14/SW4	**18600**	**18500**	**18400**
62 840 16097	M8x1x12/SW4	**13989**	M8x1x20/SW4	**13700**	M5x14/SW4	**18600**	**18500**	**18400**

A detailed operating manual is available for download in the online shop next to the product.

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

→ **Page 6**
Here you will find a detailed system overview.

MicroKom – Precision spindle set BluFlex 2

NEW

Scope of supply:

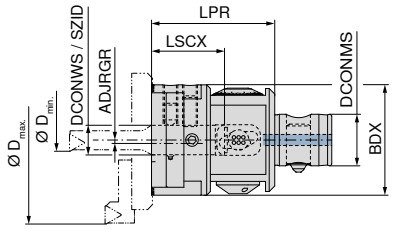
- **▲ 1 plastic case**
- **▲ 1 precision adjustment head**
- **▲ 5 boring bars**
  - 62 850 00600 Ø 6 mm
  - 62 850 01000 Ø 10 mm
  - 62 850 01400 Ø 14 mm
  - 62 850 01800 Ø 18 mm
  - 62 850 02200 Ø 22 mm
- **▲ 2 insert holders**
  - 62 863 04400 Ø 25 – Ø 44 mm
  - 62 863 12500 Ø 44 – Ø 63 mm (– Ø 125 mm)
- **▲ 1 bridge**
  - 62 860 12500 Ø 90 – Ø 125 mm
- **▲ 1 serrated body**
  - 62 861 06300 Ø 25 – Ø 63 mm
- **▲ 1 filling piece**
  - 62 862 09300 Ø 16x35 mm
- **▲ 10 indexable inserts**
  - 2 pieces 62 600 00102 – WOHX02T001EL-G12 BK8440
  - 4 pieces 62 601 90206 – TOGX06T102EN-14 BK60
  - 4 pieces 62 601 70409 – TOGX090204EN-14 BK60
- **▲ 5 cylindrical screws**
  - 62 950 00000 M5x16 mm
- **▲ 5 screwdrivers**
  - 5IP, 6IP, 8IP, SW3, SW4

D_{min} - D_{max} mm	without Bluetooth 62 820 ...	with Bluetooth 62 840 ...
6 - 125	**99997**	**99997**

MicroKom – hi.flex – precision adjustment head

▲ For MicroKom boring bars with Ø 16 mm or ABS 32, MicroKom bridges and serrated bodies
▲ With thro' coolant supply
▲ LSCX = Recess depth of boring bar
▲ Digital variant: please order the digital stick separately

ABS



											Analogue	Digital
											62 800 ...	62 800 ...
D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	SZID	DCONMS mm	BDX mm	LPR mm	LSCX mm	ADJRGR mm	WT kg		
0,5 - 365	M05 01000	ABS 50	16	ABS 32	28	60	67	39,7	-0,25 - 5	1,23	**16097**	
0,5 - 365	M04 10040	ABS 50	16	ABS 32	28	60	67	39,7	-0,25 - 5	1,23		**16197**

Clamping screw

Clamping screw

Clamping screw

		62 950 ...		62 950 ...		62 950 ...
Spare parts for Article no.						
62 800 16097	M8x8 - SW4	**14700**	M8x1x12/SW4	**13989**	M8x1x20/SW4	**13700**
62 800 16197	M8x8 - SW4	**14700**	M8x1x12/SW4	**13989**	M8x1x20/SW4	**13700**

A detailed operating manual is available for download in the online shop next to the product.

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

→ **Page 6**
Here you will find a detailed system overview.

→ **Page 26**
Here you will find the SpinTools – Digital Stick.

MicroKom – Precision spindle set hi.flex

NEW

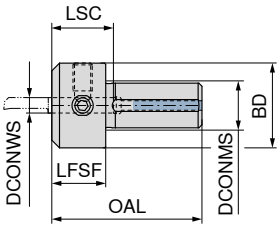
Scope of supply:

- **▲ 1 plastic case**
- **▲ 1 precision adjustment head**
- **▲ 5 boring bars**
  - – 62 850 00600 Ø 6 mm
  - – 62 850 01000 Ø 10 mm
  - – 62 850 01400 Ø 14 mm
  - – 62 850 01800 Ø 18 mm
  - – 62 850 02200 Ø 22 mm
- **▲ 2 insert holders**
  - – 62 863 04400 Ø 25 – Ø 44 mm
  - – 62 863 12500 Ø 44 – Ø 63 mm (– Ø 125 mm)
- **▲ 1 bridge**
  - – 62 860 12500 Ø 90 – Ø 125 mm
- **▲ 1 serrated body**
  - – 62 861 06300 Ø 25 – Ø 63 mm
- **▲ 1 filling piece**
  - – 62 862 09300 Ø 16x35 mm
- **▲ 10 indexable inserts**
  - – 2 pieces 62 600 00102 – WOHX02T001EL-G12 BK8440
  - – 4 pieces 62 601 90206 – TOGX06T102EN-14 BK60
  - – 4 pieces 62 601 70409 – TOGX090204EN-14 BK60
- **▲ 5 cylindrical screws**
  - – 62 950 00000 M5x16 mm
- **▲ 5 screwdrivers**
  - – 5IP, 6IP, 8IP, SW3, SW4

	Analogue	Digital
	62 800 ...	62 800 ...
D_{min} - D_{max} mm		
6 - 125	**99997**	**99897**

MicroKom – UltraMini / EcoCut boring bar adapter

▲ for **hi.flex** and **BluFlex 2**
▲ 4 clamping flats (offset by 90°) on Ø DCONMS
▲ with thro' coolant supply



NEW

DCONWS mm	KOMET no.	OAL mm	BD mm	LFSF mm	LSC mm	DCONMS mm	62 851 ...
4	M05 90950	39	22	14	18	16	16499
5	M05 90960	39	22	14	18	16	16599
6	M05 90970	39	22	14	18	16	16699
7	M05 90980	39	25	14	18	16	16799
8	M05 90990	39	25	14	18	16	16899

Clamping screw

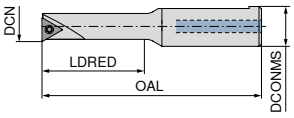
70 950 ...

Spare parts DCONWS	
4 - 5	867
6 - 8	123

Suitable UltraMini / EcoCut tools can be found in → **Chapters 10 and 12.**

MicroKom – Steel boring bar for hi.flex, BluFlex 2

▲ with thro' coolant



DCN mm	KOMET no.	OAL mm	LDRED mm	DCONMS mm	Insert	62 850 ...
6	B05 20100	71,7	21,0	16	WO.. 02T0	00600
8	B05 20120	77,4	28,0	16	TO.. 06T1	00800
10	B05 20140	81,8	34,0	16	TO.. 0902	01000
12	B05 20160	88,2	42,0	16	TO.. 0902	01200
14	B05 20180	94,4	50,0	16	TO.. 0902	01400
18	B05 20220	100,0	60,0	16	TO.. 0902	01800
22	B05 20260	108,0	68,5	16	TO.. 1403	02200

TORX® Screws

62 950 ...

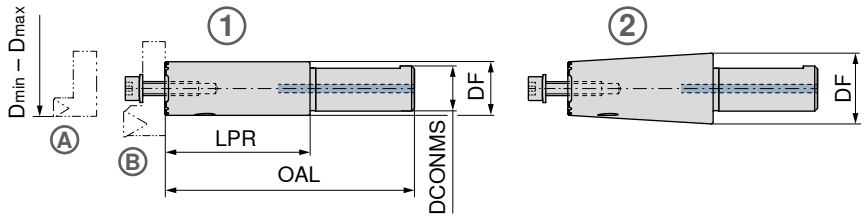
Spare parts Insert	
WO.. 02T0	11800
TO.. 06T1	12800
TO.. 0902	12000
TO.. 1403	12600

→ **Page 57–59**
Find suitable indexable inserts here.

MicroKom – Serrated body for hi.flex, BluFlex 2

▲ with thro' coolant

Scope of supply:
without insert holder



5

D_{min} - D_{max} mm	KOMET no.	DCONMS mm	OAL mm	LPR mm	DF mm	Fig.	62 861 ...
25 - 63	M05 90100	16	89,12	52,12	19	1	**06300**
25 - 63	M05 90110	16	128,39	91,93	24	2	**16300**

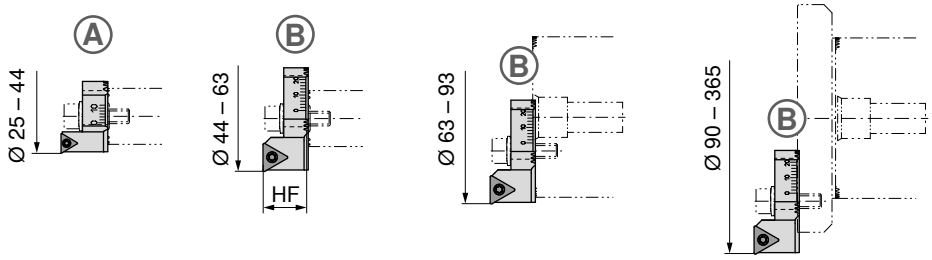
Cylindrical screw

Disk spring

Spare parts

DCONMS		62 950 ...		62 950 ...
16	M5x16	**00000**	10x5,2x0,3	**19100**

MicroKom – Insert holder for hi.flex, BluFlex 2



DCN mm	DCX mm	KOMET no.	HF mm	Insert	Fig.	62 863 ...
25	44	M05 20101	13,5	TO.. 06T1	A	**04400**
44	365	M05 20151	13,5	TO.. 0902	B	**12500**

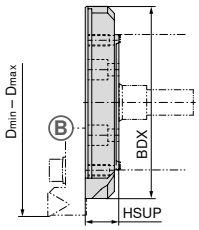
TORX® Screws

Spare parts

Insert		62 950 ...
TO.. 06T1	M2x4,9/IP6	**09700**
TO.. 0902	M2,6x6,2 - 08IP	**09900**

→ **Page 58+59**
Find suitable indexable inserts here.

MicroKom –
Bridge for hi.flex, BluFlex 2



62 860 ...

D_{min} - D_{max} mm	KOMET no.	BDX mm	HSUP mm	WT kg	
90 - 125	M05 80101	85	14,89	0,147	**12500**
120 - 155	M05 80200	115	16,89	0,107	**15500**
150 - 185	M05 80300	145	18,89	0,152	**18500**
180 - 215	M05 80400	175	21,89	0,229	**21500**
210 - 245	M05 80500	205	25,00	0,309	**24500**
240 - 275	M05 80510	235	25,00	0,349	**27500**
270 - 305	M05 80520	265	25,00	0,394	**30500**
300 - 335	M05 80530	295	25,00	0,435	**33500**
330 - 365	M05 80540	325	25,00	0,478	**36500**

Cylindrical screw

62 950 ...

Disk spring

62 950 ...

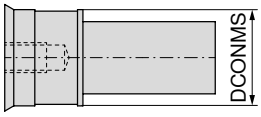
Spare parts

BDX	
85 - 325	**00000**

	19100

MicroKom –
Filling piece for hi.flex, BluFlex 2

▲ For targeted redirecting of the thro' coolant to the cutting edge when using bridges or insert holders with diameters from 63 mm

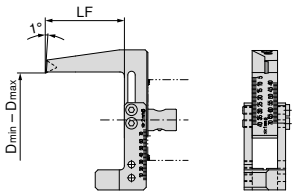


62 862 ...

DCONMS mm	KOMET no.	
16	M05 90501	**09300**

MicroKom –
Spindle tool for external machining

▲ for **hi.flex** and **BluFlex 2**



62 866 ...

D_{min} - D_{max} mm	KOMET no.	LF mm	Adapter	WT kg	Insert	
5 - 70	M05 90300	58	ABS 32	0,377	TO.X 0902..	**07000**

Cylindrical screw

62 950 ...

TORX® Screws

62 950 ...

Spare parts

Insert	
TO.X 0902..	**26800**

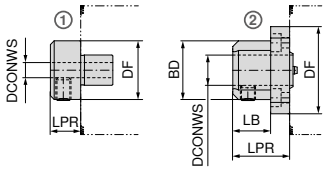
	12000

→ **Page 58+59**
Find suitable indexable inserts here.

A detailed operating manual is available for download in the online shop next to the product.

MicroKom – Adapter

▲ for 62 852 ..., 62 853 ..., 62 856 ... (essential for using the boring bar)



DCONWS mm	KOMET no.	DF mm	BD mm	LPR mm	LB mm	Fig.	62 851 ...
6	M05 90200	31		16		1	00600
8	M05 90210	31		16		1	00800
10	M05 90220	46	31	25	15	2	01000
12	M05 90230	46	31	25	15	2	01200
16	M05 90240	46	31	30	20	2	01600

Cylindrical screw

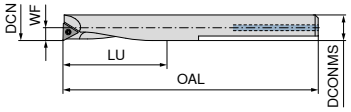
Clamping screw

Spare parts DCONWS	Cylindrical screw 62 950 ...	Clamping screw 62 950 ...
6 - 8		44800
10 - 12	00000	44800
16	00000	14700

A detailed operating manual is available for download in the online shop next to the product.

MicroKom – Boring bar, vibration-optimised

▲ can only be used with adapter 62 851 ...
▲ with internal coolant supply



DCN mm	KOMET no.	WF mm	LU mm	OAL mm	DCONMS mm	Insert	62 852 ...
5,6	B00 30280	2,80	22	65	6	WOHX 02T0..	10600
6,9	B00 30290	3,45	36	80	6	WOHX 02T0..	00600[1]
9,0	B00 00680	4,45	48	90	8	TO.X 06T1..	00800[1]
11,0	B00 00690	5,45	60	95	10	TO.X 06T1..	01000[1]

1) Carbide version

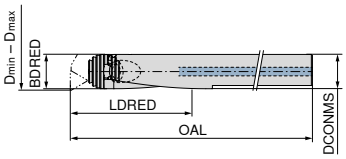
TORX® Screws

Spare parts Insert	TORX® Screws 62 950 ...
WOHX 02T0..	11800
TO.X 06T1..	09700

→ **Page 57–59**
Find suitable indexable inserts here.

MicroKom – Carbide boring shank

▲ for boring head 62 854 ...
▲ can only be used with adapter 62 851 ...
▲ with internal coolant supply



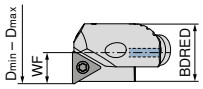
Dmin - Dmax mm	KOMET no.	OAL mm	BDRED mm	LDRED mm	DCONMS mm	62 853 ...
13 - 17	G10 12060	120	12	75	12	01300
17 - 22	G10 12070	140	16	100	16	01700
22 - 26	G10 12080	140	16	100	16	02200

Fixing screw

Spare parts DCONMS	Fixing screw 62 950 ...
12	19700
16	19800

MicroKom – Boring head

▲ for boring shank 62 853 ...



Dmin - Dmax mm	KOMET no.	WF mm	BDRED mm	Insert	62 854 ...
13 - 15	G10 12621	6,45	12	TO.X 0902..	01300
15 - 17	G10 12841	7,45	12	TO.X 0902..	01500
17 - 19	G10 12711	8,45	16	TO.X 0902..	01700
19 - 22	G10 12861	9,45	16	TO.X 0902..	01900
22 - 26	G10 12731	10,95	16	TO.X 0902..	02200

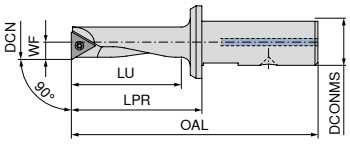
TORX® Screws

Spare parts Insert	TORX® Screws 62 950 ...
TO.X 0902..	12000

→ **Page 58+59**
Find suitable indexable inserts here.

MicroKom – Boring bar

▲ can only be used with adapter 62 851 ...
▲ with internal coolant supply



62 856 ...

DCN mm	KOMET no.	OAL mm	LPR mm	LU mm	DCONMS mm	WF mm	Insert	
5,6	B00 37010	48	26	20	8	2,75	WOHX 02T0..	**05600**
6,5	B00 37020	52	30	24	8	3,20	WOHX 02T0..	**06500**
8,0	B00 15510	57	35	28	8	3,95	TO.X 06T1..	**08000**
8,0	B00 15610	75	35	28	16	3,95	TO.X 06T1..	**00800**
10,0	B00 15620	80	40	33	16	4,95	TO.X 06T1..	**01000**
11,0	B00 15710	85	45	38	16	5,45	TO.X 0902..	**01100**
12,0	B00 15530	67	45	39	8	5,95	TO.X 0902..	**11200**
12,0	B00 15630	85	45	38	16	5,95	TO.X 0902..	**01200**
14,0	B00 15640	90	50	43	16	6,95	TO.X 0902..	**01400**
16,0	B00 15650	95	55	49	16	7,95	TO.X 0902..	**01600**
18,0	B00 15661	100	60	54	16	8,95	TO.X 0902..	**01800**
19,0	B00 15751	105	65	59	16	9,45	TO.X 0902..	**01900**
20,0	B00 15671	105	65	59	16	9,95	TO.X 0902..	**02000**
22,0	B00 15681	105	65	59	16	10,95	TO.X 0902..	**02200**
24,0	B00 15691	105	65	60	16	11,95	TO.X 0902..	**02400**

TORX® Screws

62 950 ...

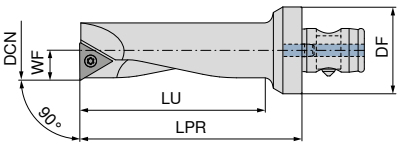
Spare parts DCN	
5,6 - 6,5	**11800**
8 - 10	**12800**
11 - 24	**12000**

→ **Page 57–59**
Find suitable indexable inserts here.

MicroKom – Boring bar

▲ with thro' coolant

ABS



62 857 ...

DCN mm	KOMET no.	WF mm	DF mm	LU mm	LPR mm	Insert	
8	B00 25610	3,95	32	26	42	TO.X 06T1..	**07989**
9	B00 25700	4,45	32	32	48	TO.X 06T1..	**21989**
10	B00 25620	4,95	32	32	48	TO.X 06T1..	**08989**
11	B00 25710	5,45	32	41	57	TO.X 0902..	**23989**
12	B00 25630	5,95	32	41	57	TO.X 0902..	**09989**
14	B00 25640	6,95	32	49	64	TO.X 0902..	**10989**
16	B00 25650	7,95	32	57	72	TO.X 0902..	**11989**
18	B00 25661	8,95	32	57	72	TO.X 0902..	**13989**
20	B00 25671	9,95	32	67	82	TO.X 0902..	**15989**
22	B00 25681	10,95	32	68	82	TO.X 0902..	**17989**
24	B00 25691	11,95	32	68	82	TO.X 0902..	**19989**

TORX® Screws

62 950 ...

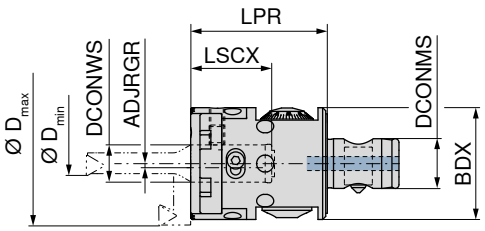
Spare parts Insert	
TO.X 06T1..	**12800**
TO.X 0902..	**12000**

→ **Page 58+59**
Find suitable indexable inserts here.

MicroKom – hi.flex micro – precision adjustment head

- ▲ for MicroKom boring bars and serrated bodies with DCONMS = 12 mm
- ▲ with thro' coolant supply
- ▲ LSCX = Recess depth of boring bar
- ▲ max. speed 30,000 rpm with slide in centre position
- ▲ UltraMini / EcoCut boring bar adapter for diameters from 0.5 mm

ABS



NEW

Analogue

62 800 ...

D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	DCONMS mm	BDX mm	LPR mm	LSCX mm	ADJRGR mm	WT kg	
0,5 - 60	M05 03000	ABS 32	12	16	36	44	26	-0,25 - 2,5	0,3	**06089**

Disk spring

62 950 ...

Spare parts for Article no.		
62 800 06089	Ø5,5x1,0	**53700**

Grubscrew

62 950 ...

M5x8 DIN913	**53500**

A detailed operating manual is available for download in the online shop next to the product.

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

→ **Page 6**
Here you will find a detailed system overview.

MicroKom – Precision spindle set hi.flex micro

NEW

Scope of supply:

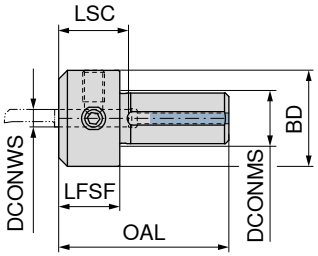
- ▲ **1 plastic case**
- ▲ **1 precision adjustment head**
- ▲ **1 insert holder**
  - – 62 863 14400 Ø 25 – Ø 44 mm
- ▲ **3 boring bars**
  - – 62 845 00800 Ø 8 mm
  - – 62 845 01400 Ø 14 mm
  - – 62 845 02000 Ø 20 mm
- ▲ **2 adapters**
  - – 62 851 12499 Ø 4 mm
  - – 62 851 12699 Ø 6 mm
- ▲ **1 serrated body**
  - – 62 861 04400 Ø 25 – Ø 44 mm
- ▲ **1 filling piece**
  - – 62 862 01200 Ø 12x24 mm
- ▲ **10 indexable inserts**
  - – 5 pieces 62 601 90206 – TOGX06T102EN-14 BK60
  - – 5 pieces 62 601 70409 – TOGX090204EN-14 BK60
- ▲ **1 cylindrical screw**
  - – 62 950 53600 M5x16 mm
- ▲ **1 screwdriver**
  - – SW2,5

62 800 ...

D_{min} - D_{max} mm	
8 - 60	**99989**

MicroKom – UltraMini / EcoCut boring bar adapter

▲ for **hi.flex micro**
▲ 4 clamping flats (offset by 90°) on Ø DCONMS
▲ with thro' coolant supply



NEW

62 851 ...

DCONWS mm	KOMET no.	OAL mm	BD mm	LFSF mm	LSC mm	DCONMS mm	
4	M05 90900	39	22	14	18	12	**12499**
5	M05 90910	39	22	14	18	12	**12599**
6	M05 90920	39	22	14	18	12	**12699**
7	M05 90930	39	25	14	18	12	**12799**
8	M05 90940	39	25	14	18	12	**12899**

Clamping screw

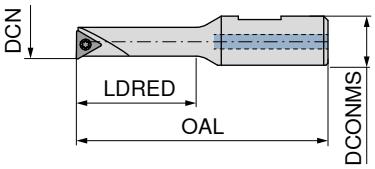
70 950 ...

Spare parts DCONWS		
4 - 5	M5x10 ISO 4026	**867**
6 - 8	M8x1x8 - SW4	**123**

Suitable UltraMini / EcoCut tools can be found in → **Chapters 10 and 12.**

MicroKom – Boring bar for hi.flex micro

▲ with thro' coolant



NEW

62 845 ...

DCN mm	KOMET no.	OAL mm	LDRED mm	DCONMS mm	Insert	
8	B05 80080	58,88	28,0	12	TO.X 06T1..	**00800**
14	B05 80140	70,00	39,5	12	TO.X 0902..	**01400**
20	B05 80200	85,00	54,4	12	TO.X 0902..	**02000**

TORX® Screws

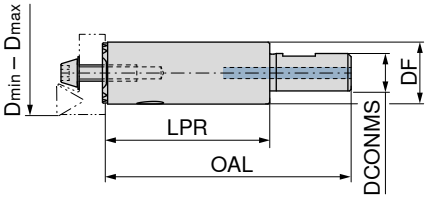
62 950 ...

Spare parts Insert		
TO.X 06T1..	M2x3,8/IP6	**12800**
TO.X 0902..	M2,6x5,2 - 08IP	**12000**

MicroKom – Serrated body for hi.flex micro

▲ with thro' coolant

Scope of supply:
without insert holder



NEW

62 861 ...

D_{min} - D_{max} mm	KOMET no.	DCONMS mm	OAL mm	LPR mm	DF mm	
25 - 44	M05 90120	12	76,39	51,39	19	**04400**

Cylindrical screw

62 950 ...

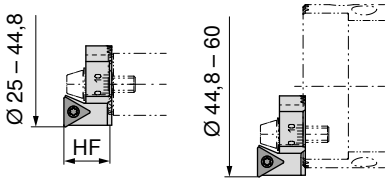
Disk spring

62 950 ...

Spare parts

DCONMS				
12	M5x16	**53600**	10x5,2x0,3	**19100**

MicroKom – Insert holder for hi.flex micro



NEW

62 863 ...

DCN mm	DCX mm	KOMET no.	HF mm	Insert	
25	60	M05 20110	14,48	TO.. 0902	**14400**

TORX® Screws

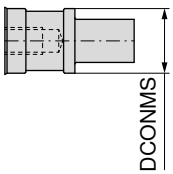
62 950 ...

Spare parts

Insert	
TO.. 0902	**09900**

MicroKom – Filling piece for hi.flex micro

▲ For targeted redirecting of the thro' coolant to the cutting edge when using insert holders with diameters from 45 mm



NEW

62 862 ...

DCONMS mm	KOMET no.	
12	M05 90700	**01200**

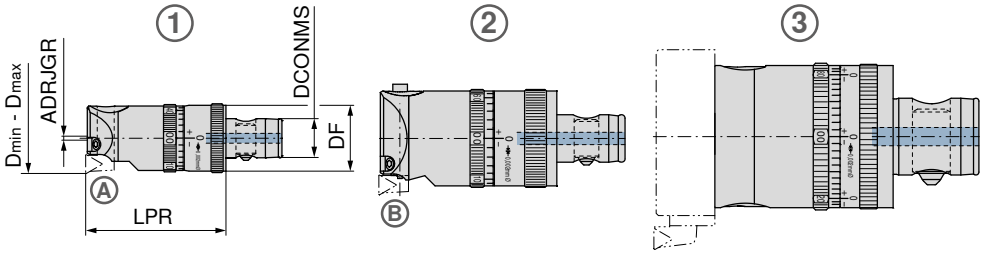
→ **Page 58+59**
Find suitable indexable inserts here.

MicroKom – M03Speed – precision adjustment head

Scope of supply:

Precision adjustment head with clamping screw
Please order insert holder and indexable insert separately

ABS



62 815 ...

D_{min} - D_{max} mm	KOMET no.	Adapter	DCONMS mm	DF mm	LPR mm	Fig.	Suitable insert holders	ADJRGR mm	WT kg	
24,8 - 33,0	M03 00115	ABS 25	13	25	50	1	62 864 03300	0,25 Ø	0,15	**03390**
29 - 39	M03 00515	ABS 25	13	25	50	1	62 864 03900	0,4 Ø	0,17	**03990**
38 - 50	M03 01025	ABS 32	16	32	60	2	62 864 05000	0,4 Ø	0,35	**05089**[1)]
49 - 63	M03 01535	ABS 40	20	40	70	2	62 864 08000	0,4 Ø	0,63	**06388**[1)]
62 - 80	M03 02045	ABS 50	28	50	75	2	62 864 08000	0,6 Ø	1,12	**08097**[1)]
79 - 103	M03 02555	ABS 63	34	63	80	2	62 864 10300	0,6 Ø	1,91	**10396**[1)]
38 - 63	M03 20170	ABS 32	16	32	81	3		0,4 Ø	0,35	**06389**[2)]
62 - 103	M03 20140	ABS 50	28	50	103	3		0,6 Ø	1,30	**10397**[2)]
100 - 206	M03 20090	ABS 63	34	63	106	3		0,6 Ø	1,91	**20696**[2)]

1) With dynamic balancing compensation
2) With dynamic balancing compensation / can only be used with interchangeable bridge (Art. No. 62 865 ...)

TORX® Screws

Clamping screw

Grub screw

Spare parts for Article no.		62 950 ...		62 950 ...		10 950 ...
62 815 03390					M4x0,5	**15600**
62 815 03990					M4x0,5	**15600**
62 815 05089	M3,5x7,3 - 10IP	**12600**			M4x0,5	**15600**
62 815 06388	M3,5x7,3 - 10IP	**12600**			M5x0,5	**15700**
62 815 08097	M3,5x7,3 - 10IP	**12600**			M5x0,5	**15700**
62 815 10396	M5x9,4/IP6	**45400**			M6x8 - SW3	**11300**
62 815 06389			M8x10	**37400**		
62 815 10397			M8x10	**37400**		
62 815 20696	M5x9,4/IP6	**45400**	M8x10	**37400**		

The TORX® screws 62 950 12600 / 62 950 45400 are designed for mounting the insert holder on the precision adjustment head.

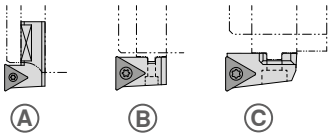
A detailed operating manual is available for download in the online shop next to the product.

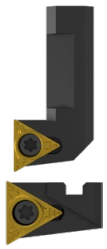
Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

→ **Page 8**
Here you will find a detailed system overview.

MicroKom – M03Speed – Insert holder

Scope of supply:
without inserts
incl. mounting screws





For precision adjustment head	For precision adjustment head (with interchangeable bridge)	KOMET no.	Insert	Fig.	62 864 ...
62 815 03390		M03 10011	TO.. 06T1	A	**03300**
62 815 03990		M03 10021	TO.. 06T1	A	**03900**
62 815 05089	62 815 06389 (62 865 05100 / 62 865 06300)	M03 10033	TO.. 06T1	B	**05000**
62 815 06388 / 62 815 08097	62 815 10397 (62 865 08300 / 62 865 10300)	M03 10043	TO.. 0902	B	**08000**
62 815 10396		M03 10063	TO.. 0902	B	**10300**
	62 815 20696 (62 865 13000 / 62 865 16800 / 62 865 20600)	M03 10070	TO.. 0902	C	**20600**

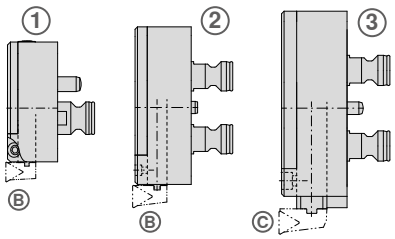
TORX® Screws

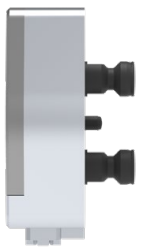
Spare parts Insert		62 950 ...
TO.. 06T1	M2x4,9/IP6	**09700**
TO.. 0902	M2,6x5,2 - 08IP	**12000**

→ **Page 58+59**
Find suitable indexable inserts here.

MicroKom – M03Speed – Interchangeable bridge

Scope of supply:
without insert holder





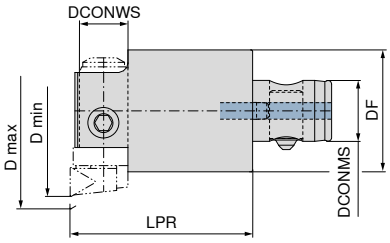
D_{min} - D_{max} mm	KOMET no.	Fig.	WT kg	For precision adjustment head	Suitable insert holders	62 865 ...
38 - 51	M03 20180	1	0,06	62 815 06389	62 864 05000	**05100**
50 - 63	M03 20190	1	0,08	62 815 06389	62 864 05000	**06300**
62 - 83	M03 20150	2	0,20	62 815 10397	62 864 08000	**08300**
82 - 103	M03 20160	2	0,24	62 815 10397	62 864 08000	**10300**
100 - 130	M03 20100	3	0,39	62 815 20696	62 864 20600	**13000**
128 - 168	M03 20110	3	0,49	62 815 20696	62 864 20600	**16800**
166 - 206	M03 20120	3	0,59	62 815 20696	62 864 20600	**20600**

MicroKom – FF precision adjustment head

Scope of supply:

Head with clamping screw
Without precision turning insert

ABS



D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	DCONMS mm	DF mm	LPR mm	WT kg	62 810 ...
29,5 - 36	B30 11010	ABS 25	10	13	25	50	0,17	**03690**
35,5 - 42	B30 11020	ABS 25	10	13	25	50	0,18	**04290**
39 - 45	B30 12010	ABS 32	12	16	32	60	0,35	**04589**
44 - 50	B30 12020	ABS 32	12	16	32	60	0,35	**05089**
47 - 57	B30 13010	ABS 40	16	20	40	60	0,52	**05788**
56 - 66	B30 13020	ABS 40	16	20	40	60	0,52	**06688**
58 - 71	B30 14010	ABS 50	20	28	50	70	0,97	**07197**
70 - 83	B30 14020	ABS 50	20	28	50	70	1,05	**08397**
79 - 94	B30 15010	ABS 63	25	34	63	70	1,58	**09496**
93 - 108	B30 15020	ABS 63	25	34	63	70	1,61	**10896**
100 - 121	B30 16010	ABS 80	32	46	80	90	3,33	**12192**
120 - 141	B30 16020	ABS 80	32	46	80	90	3,37	**14192**
138 - 159	B30 17010	ABS 100	32	56	100	90	6,56	**15991**
158 - 179	B30 17020	ABS 100	32	56	100	90	6,80	**17991**
178 - 199	B30 17030	ABS 100	32	56	100	90	6,61	**19991**

Clamping screw

Spare parts for Article no.		**62 950 ...**
62 810 03690	M6x6/SW3	**44700**
62 810 04290	M6x6/SW3	**44700**
62 810 04589	M8x8 - SW4	**14700**
62 810 05089	M8x10 - SW4	**44800**
62 810 05788	M10x10/SW5	**44900**
62 810 06688	M10x10/SW5	**44900**
62 810 07197	M12x12/SW6	**45000**
62 810 08397	M12x12/SW6	**45000**
62 810 09496	M16x16/SW8	**45100**
62 810 10896	M16x16/SW8	**45100**
62 810 12192	M20x20 - SW10	**45200**
62 810 14192	M20x20 - SW10	**45200**
62 810 15991	M20x30/SW10	**45300**
62 810 17991	M20x20 - SW10	**45200**
62 810 19991	M20x20 - SW10	**45200**

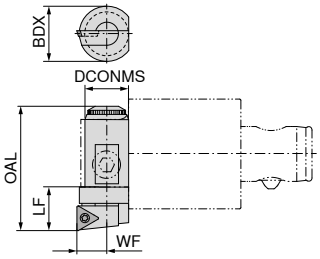
Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

→ **Page 8**
Here you will find a detailed system overview.

MicroKom – FF precision turning insert

Scope of supply:

Precision turning insert with fixing screw
Please order indexable insert separately



5

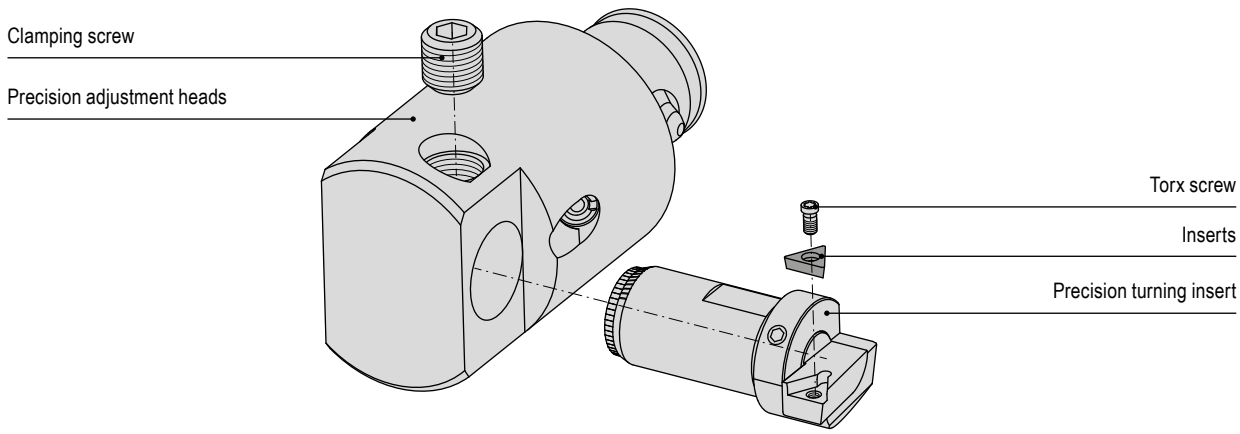
for	DCONMS mm	KOMET no.	LF mm	WF mm	BDX mm	OAL mm	Insert	62 855 ...
62 810 03690 / 62 810 04290	10	M30 20011	11,0	7,5	14	28,5	TO.. 06T1	**03000**
62 810 04589 / 62 810 05089	12	M30 20021	12,5	9,0	16	37,5	TO.. 06T1	**03900**
62 810 05788 / 62 810 06688	16	M30 20031	16,0	11,0	20	45,0	TO.. 0902	**04700**
62 810 07197 / 62 810 08397	20	M30 20041	18,0	14,5	25	56,0	TO.. 0902	**05800**
62 810 09496 / 62 810 10896	25	M30 20051	21,6	16,0	32	77,5	TO.. 1403	**07900**
62 810 12192 / 62 810 14192	32	M30 20061	25,5	19,0	40	97,0	TO.. 1403	**10000**
62 810 15991 / 62 810 17991 / 62 810 19991	32	M30 20071	25,5	19,0	40	131,0	TO.. 1403	**13800**

TORX® Screws

Screwdriver

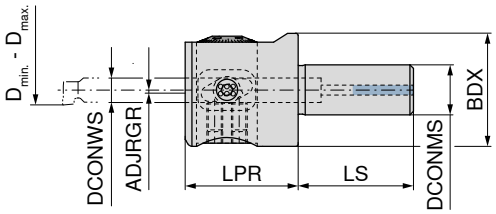
Spare parts DCONMS		62 950 ...		80 950 ...
10	M2x3,8/IP6	**12800**		
12	M2x3,8/IP6	**12800**		
16	M2,6x5,2 - 08IP	**12000**	T08 - IP	**060**
20	M2,6x6,2 - 08IP	**09900**	T08 - IP	**060**
25	M3,5x7,3 - 10IP	**12600**	T10 - IP	**062**
32	M3,5x7,3 - 10IP	**12600**	T10 - IP	**062**

→ **Page 58+59**
Find suitable indexable inserts here.



SpinTools – Micro-Boring Head

▲ max. speed 30,000 U/min
▲ Digital variant: please order the digital stick separately



								Analogue	Digital
								62 382 ...	62 386 ...
D_{min} - D_{max} mm	BDX mm	DCONWS mm	DCONMS mm	LPR mm	LS mm	ADJRGR mm	WT kg		
0,3 - 7,1	25	4	10	25	25	0 - 1,7	0,10	**025**	**025**
0,3 - 19,1	32	7	16	32	40	0 - 2,75	0,25	**032**	**032**

Clamping screw ST

Locking screw

Spare parts for Article no.		62 950 ...		62 950 ...
62 382 025 / 62 386 025	M5x4	**214**	M4x8	**228**
62 382 032 / 62 386 032	M6x5	**215**	M6x10	**229**

A detailed operating manual is available for download in the online shop next to the product.

→ **Page 7**
Here you will find a detailed system overview.

SpinTools – Digital Stick

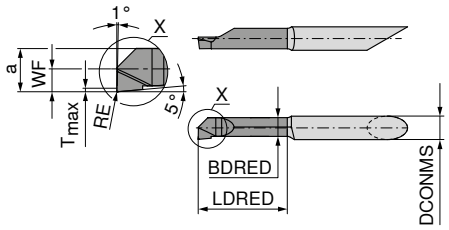
▲ suitable for all SpinTools digital heads as well as for hi.flex Digital
▲ revised software for even more precise adjustment

Scope of supply:
incl. AAA Battery

62 309 ...
00100

A detailed operating manual is available for download in the online shop next to the product.

SpinTools – Solid carbide boring bar



TiN

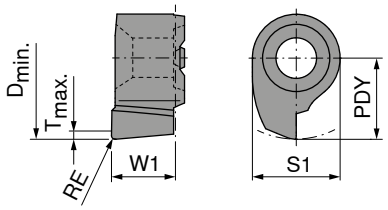
62 383 ...

D_{min} - D_{max} mm	DCONMS mm	LDRED mm	RE mm	a mm	BDRED mm	WF mm	$T_{max.}$ mm	
0,3 - 0,7	4	1,2		0,25	0,15	0,15	0,03	**003**
0,6 - 1,1	4	2,5		0,55	0,46	0,30	0,05	**006**
1,0 - 2,3	4	4,0	0,05	0,95	0,65	0,50	0,10	**010**
2,2 - 3,3	4	6,0	0,05	2,00	1,55	1,10	0,20	**022**
3,2 - 4,3	4	10,2	0,05	3,00	2,55	1,60	0,20	**032**
3,9 - 7,1	4	15,2	0,05	3,70	3,45	1,95	0,30	**039**
5,2 - 6,3	7	20,3	0,05	5,00	4,25	2,60	0,50	**052**
6,2 - 7,3	7	20,3	0,05	6,00	5,25	3,10	0,50	**062**
6,9 - 8,1	7	25,4	0,20	6,70	6,25	3,45	0,50	**069**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c Page 66

SpinTools – Carbide inserts



TiN

62 384 ...

D_{min} - D_{max} mm	RE mm	PDY mm	S1 mm	W1 mm	$T_{max.}$ mm	
6,9 - 8,1	0,2	3,45	4,8	3,5	1	**069**
7,9 - 9,1	0,2	3,95	4,8	3,5	1	**079**
8,9 - 10,1	0,2	4,45	4,8	3,5	1	**089**
9,9 - 12,1	0,2	4,95	7,0	3,9	1	**099**
11,9 - 14,1	0,2	5,95	7,0	3,9	1	**119**
13,9 - 19,1	0,2	6,95	7,0	3,9	1	**139**

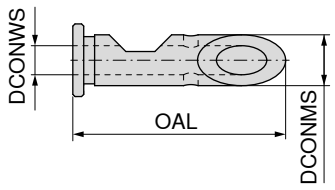
P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c Page 66

SpinTools – Toolholder for carbide inserts

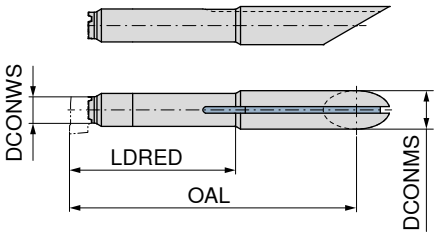
▲ with thro' coolant
▲ appropriate inserts for article no. 62 384 ... can be found in the table above

SpinTools – Adapter



62 335 ...

DCONMS mm	DCONWS mm	OAL mm	
7	4	30	**407**



62 385 ...

DCONMS mm	LDRED mm	DCONWS mm	OAL mm	
7	30	4,8	56	**330**
7	35	7,0	61	**350**

TORX® Screws

62 950 ...

Key D

80 950 ...

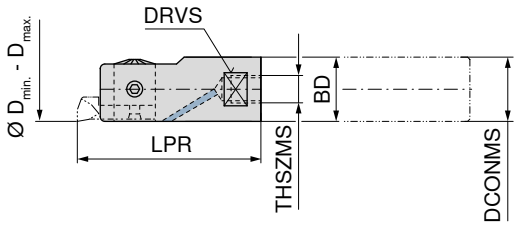
Spare parts for Article no.		
62 385 330	**007**	**124**
62 385 350	**094**	**126**

SpinTools – Precision boring head

▲ with thro' coolant

Scope of supply:

Fine boring head without shank, without insert holder



BD	D_{min} - D_{max}	THSZMS	DCONMS	LPR	DRVS	WT	62 304 ...
mm	mm		mm	mm	mm	kg	
14	14,7 - 17,1	M6	14	39,8	12	0,05	**017**
16	16,7 - 20,1	M10	16	39,8	14	0,07	**020**
19	19,7 - 24,1	M10	18	39,8	16	0,09	**024**

TORX® Screws

Key D

Clamping screw ST

Spare parts for Article no.		62 950 ...		80 950 ...		62 950 ...
62 304 017	M2,5x6	**022**	T07	**109**	M3x2	**017**
62 304 020	M2,5x6	**022**	T07	**109**	M3x2,5	**018**
62 304 024	M2,5x6	**022**	T07	**109**	M3x4	**019**

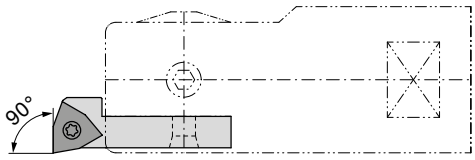
→ **Page 73**
Here you will find information about the working length.

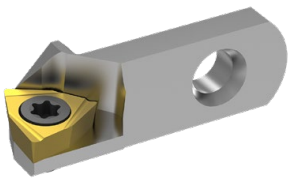
→ **Page 9**
Here you will find a detailed system overview.

SpinTools – Insert holder, 90°

Scope of supply:

without insert





Insert	62 317 ...
WC.. 0201..	**024**

TORX® Screws

Key D

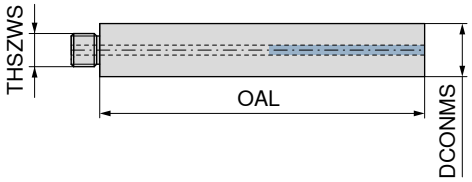
Spare parts Insert		62 950 ...		80 950 ...
WC.. 0201..	M2x3,7	**021**	T06	**108**

→ **Page 62**
Find suitable indexable inserts here.

SpinTools – High-speed carbide boring bars

▲ with threaded mounting stud made of high quality steel
▲ with thro' coolant
▲ Shank clamping length 35 mm
▲ Boring shanks with DCONMS Ø 18 mm are for use in collet chuck or hydraulic chuck

Scope of supply:
boring shank, without boring head

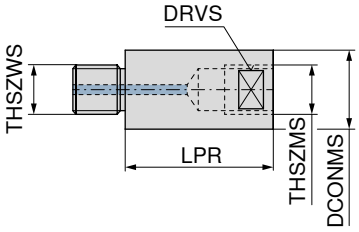


DCONMS mm	OAL mm	THSZWS	62 353 ...	62 353 ...
14	110	M6	**014**	
16	120	M10	**016**	
18	100	M10		**018**
18	140	M10		**118**
18	180	M10		**218**

→ **Page 73**
Here you will find information about the working length.

SpinTools – Shank extensions (tempered steel)

▲ with thro' coolant

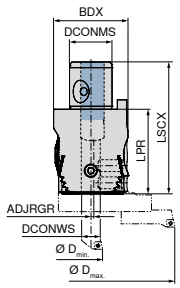


DCONMS mm	LPR mm	THSZWS	THSZMS	DRVS mm	62 349 ...
16	32	M10	M10	14	**732**
16	64	M10	M10	14	**764**

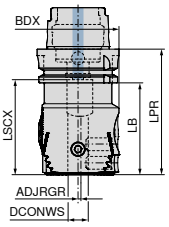
SpinTools – Multi-Head – boring and fine boring head

▲ **For boring bars Ø 16 mm and bridges**
▲ With internal coolant supply
▲ LSCX = Boring depth

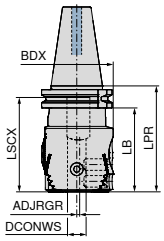
Scope of supply:
without boring bar, bridge and insert holder



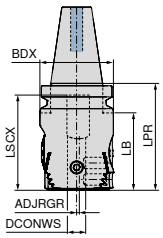
STM Modular



HSK-A 63



SK 40



MAS-BT 40

STM Modular

HSK-A

SK

MAS-BT

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	LPR mm	LB mm	LSCX mm	ADJRGR mm	WT kg	STM Modular 62 372 ...	HSK-A 62 373 ...	SK 62 373 ...	MAS-BT 62 373 ...
3 - 320	STM 36	36	63	71,6		111,6	0 - 2,7	1,69	**653**			
3 - 320	SK 40		63	91,6	72,5	81,6	0 - 2,7	1,90			**153**	
3 - 320	BT 40		63	91,6	69,0	81,6	0 - 2,7	2,20				**453**
3 - 320	HSK-A 63		63	96,6	70,6	73,0	0 - 2,7	1,90		**653**		

Clamping screw

Screw for drivers

Driver

Clamping screw MH

Flange screw

Spare parts D_{min} - D_{max}	Clamping screw 62 950 ...	Screw for drivers 62 950 ...	Driver 62 950 ...	Clamping screw MH 62 950 ...	Flange screw 62 950 ...
3 - 320	**227**	**167**	**040**	**226**	**225**

A detailed operating manual is available for download in the online shop next to the product.

→ **Page 50–56**
Here you will find the suitable base adaptors.

→ **Page 7**
Here you will find a detailed system overview.

SpinTools – Multi-Head – Boring and Fine Boring Head Set

▲ suitable for Ø 3 – Ø 320 mm

Scope of supply:

▲ **1 Tool Kit**
▲ **1 Multi-Head-Boring- and Fine Boring Head (depending on selection)**
▲ **4 Boring bars**
– 62 345 015 Ø 9.75 – Ø 15.1 mm
– 62 345 020 Ø 14.75 – Ø 20.1 mm
– 62 345 024 Ø 19.75 – Ø 25.1 mm
– 62 345 029 Ø 24.75 – Ø 30.1 mm
▲ **2 Boring tools, adjustable**
– 62 375 048 Ø 29.75 – Ø 48.1 mm
– 62 375 088 Ø 47.75 – Ø 88.1 mm
▲ **incl. insert holder**
– 62 377 048 CC.. 0602
– 62 377 088 CC.. 0602

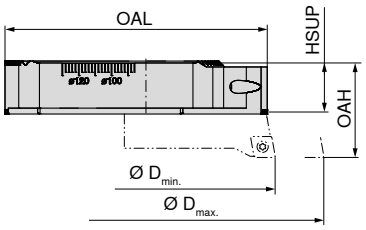
▲ **1 Bridge**
– 62 376 164 Ø 86 – Ø 164 mm
▲ **1 Torx-Key – T7**
▲ **1 6-adjustment key – SW5**

D_{min} - D_{max} mm	Adapter	STM Modular 62 374 ...	HSK-A 62 379 ...	SK 62 379 ...	MAS-BT 62 379 ...
9,75 - 164	HSK-A 63		**996**		
9,75 - 164	BT 40				**993**
9,75 - 164	SK 40			**990**	
9,75 - 164	STM 36	**999**			

SpinTools – Bridge for Multi-Head

▲ Ø adjustable
▲ With internal coolant supply

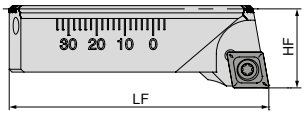
Scope of supply:
without tool holder
including fixation screws

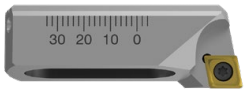


D_{min} - D_{max}	OAL	HSUP	OAH	62 376 ...
mm	mm	mm	mm	
86 - 164	80	15	29	**164**
162 - 320	158	15	29	**320**

SpinTools – Tool holder for boring bar and bridge Multi-Head

Scope of supply:
without inserts
incl. mounting screws

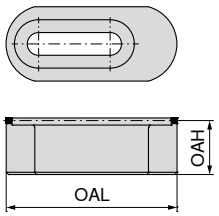




for	LF	HF	Insert	62 377 ...
	mm	mm		
62 375 048	28,2	12	CC.. 0602	**048**
62 375 088 / 62 376 ...	46,0	14	CC.. 0602	**088**
62 375 088 / 62 376 ...	46,0	14	CC.. 09T3	**089**

SpinTools – Counterweight

Scope of supply:
Including fixation screw



for	OAL	OAH	62 378 ...
	mm	mm	
62 376 ...	38	12	**320**

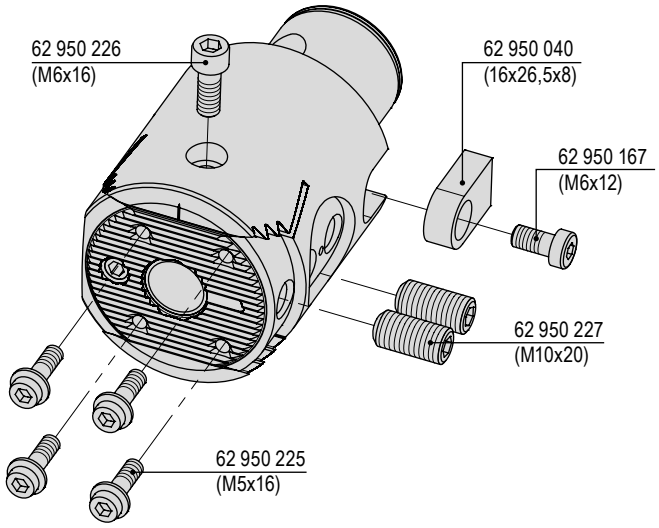
TORX® Screws

Key D

Flange screw

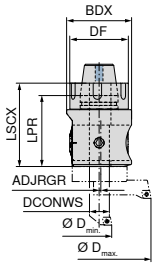
Spare parts for Article no.	62 950 ...	80 950 ...	62 950 ...
62 377 048 / 62 377 088	**022**	**109**	**225**
62 377 089	**023**	**113**	**225**

→ **Page 63**
Find suitable indexable inserts here.

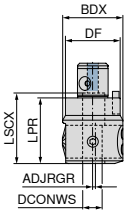


SpinTools – Single point boring heads – Modular system

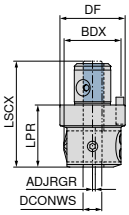
▲ LSCX = Recess depth of boring bar
▲ With thro' coolant supply
▲ Digital variant: please order the digital stick separately



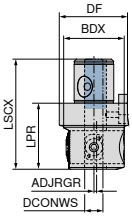
ER 32



without flange



with flange



Digital with collar

ER 32

without flange STM Modular

with flange STM Modular

Digital with collar STM Modular

									62 332 ...		62 332 ...		62 332 ...		62 326 ...	
D_{min} - D_{max} mm	Adapter	BDX mm	DF mm	DCONWS mm	LPR mm	LSCX mm	ADJRGR mm	WT kg								
3,0 - 88,1	ER 32	55	49,5	16	60	86,5	0 - 2,7	0,43		732						
3,0 - 88,1	STM 28	55	50,0	16	60	62,0	0 - 2,7	0,98				553				
3,0 - 88,1	STM 36	55	63,0	16	60	101,0	0 - 2,7	1,26						653		
3,0 - 88,1	STM 36	55	63,0	16	60	106,0	0 - 2,7	0,43								036

Clamping screw

Screw for drivers

Driver

Clamping screw ST

Spare parts for Article no.		62 950 ...		62 950 ...		62 950 ...		62 950 ...
62 332 732	M10x16	047					M10x8	046
62 332 553	M10x16	047	M5x10	166	12x20x6	039	M10x8	046
62 332 653	M10x16	047	M6x12	167	16x26,5x8	040	M10x8	046
62 326 036	M10x16	047	M6x12	167	16x26,5x8	040	M10x8	046

A detailed operating manual is available for download in the online shop next to the product.

→ **Page 50–56**
Here you will find the suitable base adaptors.

→ **Page 7**
Here you will find a detailed system overview.

SpinTools – Digital Stick

▲ suitable for all SpinTools digital heads as well as for hi.flex Digital
▲ revised software for even more precise adjustment

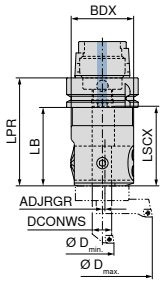
Scope of supply:
incl. AAA Battery

62 309 ...
00100

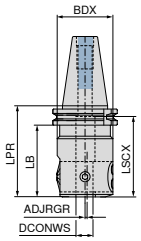
A detailed operating manual is available for download in the online shop next to the product.

SpinTools – Single point boring head – Monoblock analogue

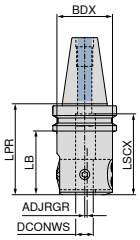
▲ LSCX = Boring depth
▲ With internal coolant supply



HSK-A 63



SK 40



MAS-BT 40

HSK-A

62 333 ...

D_{min} - D_{max} mm	Adapter	BDX mm	DCONWS mm	LPR mm	LB mm	LSCX mm	ADJRGR mm	WT kg	
3,0 - 88,1	HSK-A 63	55	16	95	69	70	0 - 2,7	1,66	**653**
3,0 - 88,1	SK 40	55	16	90	70	80	0 - 2,7	1,83	**153**
3,0 - 88,1	BT 40	55	16	90	63	80	0 - 2,7	1,90	**453**

SK

62 333 ...

MAS-BT

62 333 ...

5

Clamping screw

62 950 ...

Clamping screw ST

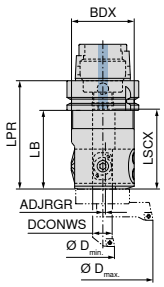
62 950 ...

Spare parts

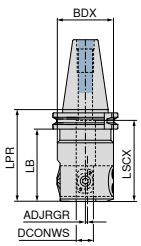
D_{min} - D_{max}					
3,0 - 88,1	M10x16	**047**	M10x8	**046**

SpinTools – Single point boring head – Monoblock digital

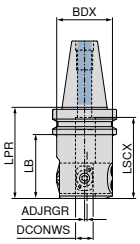
▲ LSCX = Recess depth of boring bar
▲ With thro' coolant supply
▲ Digital variant: please order the digital stick separately



HSK-A 63



SK 40



MAS-BT 40

Digital HSK-A

62 363 ...

D_{min} - D_{max} mm	Adapter	BDX mm	DCONWS mm	LPR mm	LB mm	LSCX mm	ADJRGR mm	WT kg	
3,0 - 88,1	HSK-A 63	55	16	95	70	70	0 - 2,7	1,66	**688**
3,0 - 88,1	SK 40	55	16	90	71	80	0 - 2,7	1,83	**188**
3,0 - 88,1	BT 40	55	16	90	59	80	0 - 2,7	1,90	**488**

Digital SK

62 363 ...

Digital MAS-BT

62 363 ...

Clamping screw

62 950 ...

Clamping screw ST

62 950 ...

Spare parts

D_{min} - D_{max}				
3,0 - 88,1	M10x16	**047**	M10x8	**046**

A detailed operating manual is available for download in the online shop next to the product.

SpinTools – Single point boring heads Set 1

▲ suitable for Ø 3 – Ø 88.1 mm
▲ supplied with Ø 9.75 – Ø 30.1 or Ø 9.75 – Ø 40.1 mm
▲ with thro' coolant

Scope of supply:

▲ 1 Tool Kit
▲ 1 single point boring head (depending on selection)
▲ 4 Boring bars (SK40- and MAS-BT-Set)
– 62 345 015 Ø 9,75 – Ø 15,1 mm
– 62 345 020 Ø 14,75 – Ø 20,1 mm
– 62 345 024 Ø 19,75 – Ø 25,1 mm
– 62 345 029 Ø 24,75 – Ø 30,1 mm
▲ 8 Boring bars (Modular-Set)
– 62 345 015 Ø 9,75 – Ø 15,1 mm
– 62 345 019 Ø 13,75 – Ø 19,1 mm
– 62 345 023 Ø 17,75 – Ø 23,1 mm
– 62 345 027 Ø 21,75 – Ø 27,1 mm
– 62 345 030 Ø 24,75 – Ø 30,1 mm
– 62 345 033 Ø 27,75 – Ø 33,1 mm
– 62 345 037 Ø 31,75 – Ø 37,1 mm
– 62 345 040 Ø 34,75 – Ø 40,1 mm
▲ 1 6-adjustment key – SW5
▲ 1 Torx-Key – T7

D_{min} - D_{max} mm	Adapter	STM Modular 62 334 ...	SK 62 345 ...	MAS-BT 62 345 ...
9,75 - 30,1	SK 40		990	
9,75 - 30,1	BT 40			993
9,75 - 40,1	STM 36	999		

SpinTools – Single point boring heads Set 2

▲ suitable for Ø 3 – Ø 88.1 mm
▲ Supplied with Ø 9.75 – Ø 88.1 mm
▲ with thro' coolant

Scope of supply:

▲ 1 Tool Kit
▲ 1 Fine boring head (depending on selection)
▲ 4 Boring bars
– 62 345 015 Ø 9.75 – Ø 15.1 mm
– 62 345 020 Ø 14.75 – Ø 20.1 mm
– 62 345 024 Ø 19.75 – Ø 25.1 mm
– 62 345 029 Ø 24.75 – Ø 30.1 mm
▲ 2 Boring tools, adjustable
– 62 375 048 Ø 29.75 – Ø 48.1 mm
– 62 375 088 Ø 47.75 – Ø 88.1 mm
▲ incl. insert holder
– 62 377 048 CC.. 0602
– 62 377 088 CC.. 0602
▲ 1 Torx key – T7
▲ 1 6-adjustment key – SW5

D_{min} - D_{max} mm	Adapter	STM Modular 62 334 ...	HSK-A 62 345 ...	SK 62 345 ...	MAS-BT 62 345 ...
9,75 - 88,1	HSK-A 63		997		
9,75 - 88,1	BT 40				999
9,75 - 88,1	SK 40			998	
9,75 - 88,1	STM 36	997			

SpinTools – Single point boring heads ER32 Set

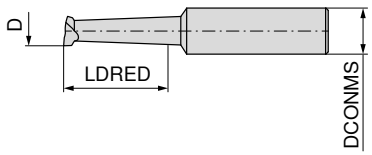
▲ Suitable for Ø 3.0 – Ø 88.1 mm
▲ Scope of supply Ø 9.75 – Ø 30.1 mm
▲ with thro' coolant supply

Scope of supply:

▲ 1 tool kit
▲ 1 single point boring head (62332732)
▲ 4 boring bars
– 62 345 015 Ø 9.75 – Ø 15.1 mm
– 62 345 020 Ø 14.75 – Ø 20.1 mm
– 62 345 024 Ø 19.75 – Ø 25.1 mm
– 62 345 029 Ø 24.75 – Ø 30.1 mm
▲ 1 Torx Key – T7
▲ 1 Allen Key – SW5

D_{min} - D_{max} mm	Adapter	62 332 ...
9,75 - 30,1	ER 32	999

SpinTools – Boring tools with carbide cutting edge



62 346 ...

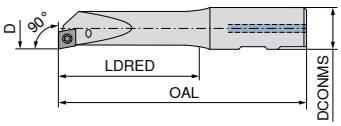
D_{min} - D_{max} mm	LDRED mm	DCONMS h6 mm	
3,0 - 8,0	20	10	008
4,0 - 9,0	23	10	009
5,0 - 10,0	25	10	010
6,0 - 11,0	25	10	011
7,0 - 12,0	31	10	012

P	●
M	○
K	○
N	●
S	
H	
O	

→ v_c Page 66

SpinTools – Steel boring bars

▲ with thro' coolant



62 345 ...

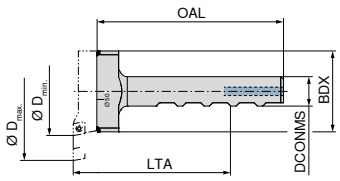
D_{min} - D_{max} mm	OAL mm	LDRED mm	DCONMS h6 mm	Insert	
9,75 - 15,1	75	30	16	CC.. 0602	015
11,75 - 17,1	80	37	16	CC.. 0602	017
13,75 - 19,1	85	43	16	CC.. 0602	019
14,75 - 20,1	90	51	16	CC.. 0602	020
15,75 - 21,1	95	57	16	CC.. 0602	021
17,75 - 23,1	100	67	16	CC.. 0602	023
19,75 - 25,1	105	72	16	CC.. 0602	024
19,75 - 25,1	105	72	16	CC.. 09T3	025
21,75 - 27,1	110	77	16	CC.. 09T3	027
24,75 - 30,1	115	82	16	CC.. 0602	029
24,75 - 30,1	115	82	16	CC.. 09T3	030
27,75 - 33,1	115	82	16	CC.. 09T3	033
31,75 - 37,1	115	82	16	CC.. 09T3	037
34,75 - 40,1	115	82	16	CC.. 09T3	040
38,75 - 44,1	115	82	16	CC.. 09T3	044
42,75 - 48,1	115	82	16	CC.. 09T3	048
47,75 - 53,1	115	82	16	CC.. 09T3	053

→ **Page 63**
Find suitable indexable inserts here.

SpinTools – Adjustable boring bar bridge

▲ with thro' coolant

Scope of supply:
without insert holder

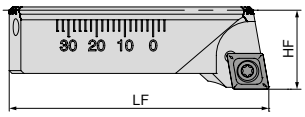


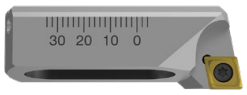
62 375 ...

D_{min} - D_{max} mm	OAL mm	BDX mm	LTA mm	DCONMS mm	
29,75 - 48,1	103	25	85	16	048
47,75 - 88,1	101	44	85	16	088

SpinTools – Tool holder for boring bar and bridge Multi-Head

Scope of supply:
without inserts
incl. mounting screws





62 377 ...

for	LF mm	HF mm	Insert	
62 375 048	28,2	12	CC.. 0602	048
62 375 088 / 62 376 ...	46,0	14	CC.. 0602	088
62 375 088 / 62 376 ...	46,0	14	CC.. 09T3	089

TORX® Screws

Key D

Flange screw

62 950 ... | 80 950 ... | 62 950 ...

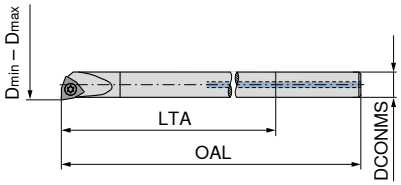
Spare parts for Article no.					
62 377 048	022		109		225
62 377 088	022		109		225
62 377 089	023		113		225

→ **Page 63**
Find suitable indexable inserts here.

5

SpinTools – Boring bars with carbide shank

▲ With internal coolant supply
▲ LTA = max. overhang



62 341 ...

D_{min} - D_{max} mm	DCONMS h6 mm	OAL mm	LTA mm	Insert	
5,8 - 11,2	5	80	45	WC.. 0201..	**011**
7,8 - 13,2	6	100	60	WC.. 0201..	**013**

TORX® Screws

62 950 ...

Key D

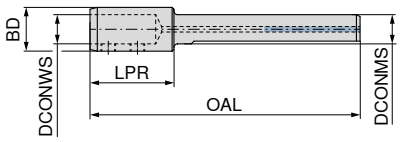
80 950 ...

Spare parts Insert		
WC.. 0201..	**021**	**108**

→ **Page 62**
Find suitable indexable inserts here.

SpinTools – Boring tool extensions

▲ with thro' coolant



62 337 ...

DCONWS mm	DCONMS mm	BD mm	OAL mm	LPR mm	
10	16	16	128		**128**
16	16	24	148	44	**148**

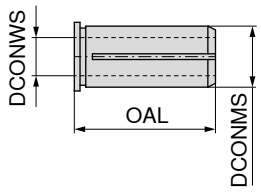
Clamping screw

62 950 ...

Spare parts for Article no.	
62 337 128	**048**
62 337 148	**049**

SpinTools – Reduction sleeves

▲ for boring bars and boring tools



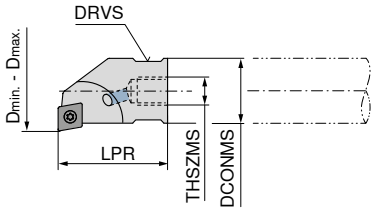
62 335 ...

DCONMS mm	DCONWS mm	OAL mm	
16	4	37	**104**
16	5	37	**105**
16	6	37	**106**
16	8	37	**108**
16	9	37	**109**
16	10	37	**110**
16	11	37	**111**
16	12	37	**112**
16	13	37	**113**
16	14	37	**114**

SpinTools –
High-speed boring head

▲ for overturning holder and high speed carbide shank
▲ With internal coolant supply
▲ $D_{max.}$ = using a head with fine adjustment 0 – 2,7 mm

Scope of supply:
Boring head without boring shank, without inserts



62 361 ...

D_{min} - D_{max} mm	LPR mm	THSZMS	DCONMS $_{h6}$ mm	Insert	
8,75 - 14,1	18	M5	8	CC.. 0602	**014**
9,75 - 15,1	18	M5	9	CC.. 0602	**015**
10,75 - 16,1	23	M6	10	CC.. 0602	**016**
11,75 - 17,1	23	M6	11	CC.. 0602	**017**
12,75 - 18,1	23	M6	12	CC.. 0602	**018**
13,75 - 19,1	23	M6	13	CC.. 0602	**019**
14,75 - 20,1	23	M6	14	CC.. 0602	**020**
15,75 - 21,1	23	M6	14	CC.. 0602	**021**
16,75 - 22,1	27	M10	16	CC.. 0602	**022**
17,75 - 23,1	27	M10	16	CC.. 0602	**023**
19,75 - 25,1	27	M10	16	CC.. 0602	**025**
21,75 - 27,1	27	M10	16	CC.. 0602	**027**
24,75 - 30,1	27	M10	16	CC.. 0602	**030**
27,75 - 33,1	27	M10	16	CC.. 0602	**033**
31,75 - 37,1	27	M10	16	CC.. 0602	**037**
34,75 - 40,1	27	M10	16	CC.. 0602	**040**

TORX® Screws

Key D

62 950 ... | **80 950 ...**

Spare parts Insert		
CC.. 0602	**022**	**109**

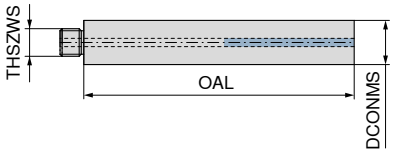
→ **Page 63**
Find suitable indexable inserts here.

A detailed operating manual is available for download in the online shop next to the product.

SpinTools –
High-speed carbide boring bars

▲ with threaded mounting stud made of high quality steel
▲ with thro' coolant
▲ Shank clamping length 35 mm

Scope of supply:
boring shank, without boring head



62 353 ...

DCONMS mm	OAL mm	THSZWS	
8	73	M5	**008**
9	80	M5	**009**
10	82	M6	**010**
11	89	M6	**011**
12	96	M6	**012**
13	103	M6	**013**
14	110	M6	**014**
16	120	M10	**016**

→ **Page 73**
Here you will find information about the working length.

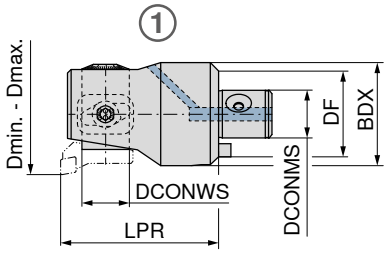
5

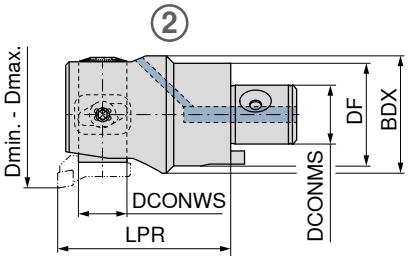
SpinTools – Single point finish boring heads

▲ With thro' coolant supply
▲ Digital variant: please order the digital stick separately

Scope of supply:
without insert holder and inserts

STM





										Analogue	Digital
										62 303 ...	**62 308 ...**
D_{min} - D_{max} mm	D_{min} - D_{max} extended mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	DCONWS mm	WT kg	Fig.		
23,9 - 31,1	29,9 - 37,1	STM 11	11	22,5	20	40	11	0,08	1	**031**	**031**
30,9 - 40,1	37,9 - 47,1	STM 14	14	29,0	25	45	13	0,15	1	**040**	**040**
39,9 - 51,1	47,9 - 59,1	STM 18	18	37,0	32	65	17	0,38	1	**051**	**051**
50,9 - 67,1	64,9 - 81,1	STM 22	22	47,0	40	72	22	0,70	1	**067**	**067**
66,9 - 87,1	84,9 - 105,1	STM 28	28	59,0	50	82	30	1,32	2	**087**	**087**
86,9 - 116,1	104,9 - 134,1 (124,9 - 154,1)	STM 36	36	72,0	63	105	30	3,15	2	**116**	**116**

For optimal stability when fine boring the main insert holder ranges are preferred over the extended range.

Screw for drivers

Driver

Fillister-head screw

Clamping screw ST

		62 950 ...		**62 950 ...**		**62 950 ...**		**62 950 ...**
Spare parts for Article no.								
62 303 031 / 62 308 031	M2x2,5	**162**	5x8,5x3	**035**	M4x6	**287**	M4x3	**213**
62 303 040 / 62 308 040	M2,5x6	**163**	6x10,3x4	**036**	M5x8	**288**	M5x4	**214**
62 303 051 / 62 308 051	M3x8	**164**	8x15x5	**037**	M6x10	**289**	M6x5	**215**
62 303 067 / 62 308 067	M4x10	**165**	10x18,1x6	**038**	M8x12	**290**	M8x6	**216**
62 303 087 / 62 308 087	M5x10	**166**	12x20x6	**039**	M10x16	**291**	M10x10	**217**
62 303 116 / 62 308 116	M6x12	**167**	16x26,5x8	**040**	M10x16	**291**	M10x18	**218**

→ **Page 50–56**
Here you will find the suitable base adaptors.

→ **Page 9**
Here you will find a detailed system overview.

SpinTools – Digital Stick

▲ suitable for all SpinTools digital heads as well as for hi.flex Digital
▲ revised software for even more precise adjustment

Scope of supply:
incl. AAA Battery

62 309 ...

00100

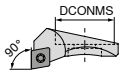
A detailed operating manual is available for download in the online shop next to the product.

SpinTools – Insert holder

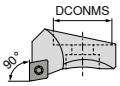
▲ for single point finish boring heads Art. 62 303 ..., 62 308 ...

Scope of supply:

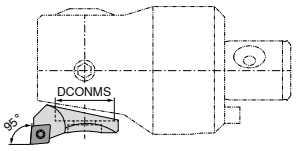
incl. Torx clamping screw for inserts, without fixing bolt for holder



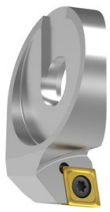
90°



Extended 90°



95°



90°

90° extended

95°

D_{min} - D_{max} mm	D_{min} - D_{max} extended mm	DCONMS mm	Insert	62 318 ...	62 318 ...	62 320 ...
23,9 -31,1	29,9 - 37,1	11	CC.. 0602	**031**	**037**	**031**
30,9 - 40,1	37,9 - 47,1	13	CC.. 0602	**040**	**047**	**040**
39,9 - 51,1	47,9 - 59,1	17	CC.. 0602	**051**	**059**	**051**
50,9 - 67,1	64,9 - 81,1	22	CC.. 0602	**067**	**081**	**067**
66,9 - 87,1	84,9 - 105,1	30	CC.. 0602	**087**	**105**	
66,9 - 87,1		30	CC.. 09T3			**087**
86,9 - 116,1	104,9 - 134,1	30	CC.. 09T3	**116**	**134**	
	124,9 - 154,1	30	CC.. 09T3		**154**	

TORX® Screws

Key D

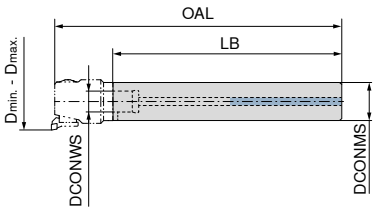
Spare parts		62 950 ...		80 950 ...
Insert				
CC.. 0602	M2,5x6	**022**	T07	**109**
CC.. 09T3	M4x9	**023**	T15	**113**

→ **Page 63**
Find suitable indexable inserts here.

A detailed operating manual is available for download in the online shop next to the product.

SpinTools – High-speed carbide boring tools

▲ Shaft extension for single point finish boring heads Art. No. 62 303 ..., 62 308 ...
▲ with thro' coolant supply



62 354 ...

D_{min} - D_{max} mm	DCONWS mm	DCONMS mm	OAL mm	LB mm	WT kg	
23,9 - 31,1	11	20	250	210	0,81	**020**
30,9 - 40,1	14	25	306	261	1,54	**025**
39,9 - 51,1	18	32	380	315	3,03	**032**

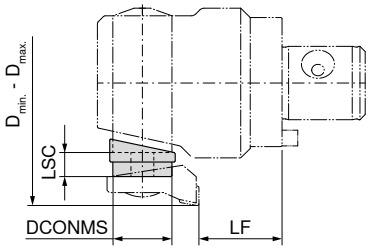
5

SpinTools – Reverse adapter for back boring

▲ For insert holder article nos. 62 318 ... / 62 320 ...

Scope of supply:

Adapter including fixing bolt



LSC	DCONMS	LF	D_{min} - D_{max}	62 321 ...
mm	mm	mm	mm	
6,5	11	13,0	37 - 44	**044**
8,0	11	13,0	40 - 47	**051**
6,5	13	12,6	44 - 53	**053**
10,0	13	12,6	51 - 60	**060**
6,5	17	31,3	53 - 64	**064**
10,0	17	31,3	60 - 71	**071**
6,5	22	31,2	68 - 80	**080**
12,0	22	31,2	75 - 91	**091**
10,0	30	29,0	87 - 107	**107**

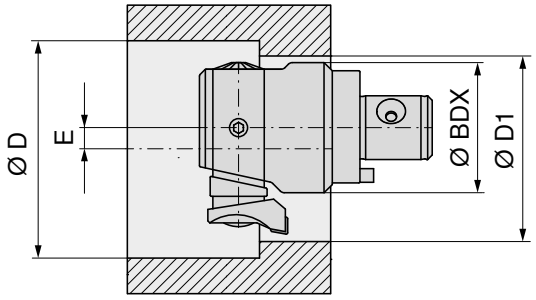
Note left hand direction of spindle rotation when in use

A detailed operating manual is available for download in the online shop next to the product.

Fillister-head screw

Spare parts for Article no.		62 950 ...
62 321 044	M4x12	**278**
62 321 051	M4x13	**279**
62 321 053	M5x14	**280**
62 321 060	M5x16	**281**
62 321 064	M6x15	**282**
62 321 071	M6x20	**283**
62 321 080	M8x20	**284**
62 321 091	M8x25	**285**
62 321 107	M10x30	**286**

Minimum diameter (Ø D1) during retraction for back boring



Minimum diameter (Ø D1) of the entry bore

$$Ø\,D1 = \frac{Ø\,BDX + Ø\,D}{2} + 1^*$$

Minimum offset (E) for starting

$$E = \frac{Ø\,D - Ø\,D1}{2} + 0{,}5^*$$

*Safety margin

Example

Single point finish boring head 62 303 031 (Ø BDX = 22,5 mm)	
Reverse adapter 62 321 044 (Ø D_{min} – Ø D_{max} = 37 – 44 mm)	**Selected** **Ø D = 37 mm**
Insert holder 62 318 031	

$$Ø\,D1 = \frac{Ø\,22{,}5\text{ mm} + Ø\,37\text{ mm}}{2} + 1\text{ mm} = 30{,}75\text{ mm}$$

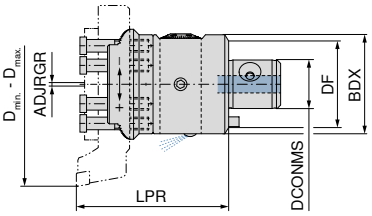
$$E = \frac{Ø\,37\text{ mm} - Ø\,30{,}75\text{ mm}}{2} + 0{,}5\text{ mm} = 3{,}625\text{ mm}$$

SpinTools – Single point finish boring heads

▲ With internal coolant supply
▲ extremely stable connection between insert holder and boring head

Scope of supply:
Boring head, without insert holder, pressure plate and support

STM



62 305 ...

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	ADJRGR mm	WT kg	
86 - 402	STM 36	36	72	63	120	± 1,25	2,94	**302**

Cylindrical screw

62 950 ...

Spare parts for Article no.		
62 305 302	M8x45	**292**

Screw for drivers

62 950 ...

M6x12	**167**

Driver

62 950 ...

16x26,5x8	**040**

Clamping screw ST

62 950 ...

M8x60	**011**

→ **Page 50–56**
Here you will find the suitable base adaptors.

A detailed operating manual is available for download in the online shop next to the product.

→ **Page 9**
Here you will find a detailed system overview.

SpinTools – Boring set

▲ suitable for Ø 86 – Ø 402 mm
▲ supplied with Ø 86 – Ø 302 mm
▲ with thro' coolant

Scope of supply:
▲ 1 Case
▲ 1 single point finish boring head
– 62 305 302
▲ 3 insert holders
– 62 438 138 Ø 86 – Ø 138 mm
– 62 438 220 Ø 136 – Ø 220 mm
– 62 438 302 Ø 188 – Ø 302 mm
▲ 2 pressure plates and 2 supports
– 62 950 149
– 62 950 150
– 62 950 152
– 62 950 153
▲ 1 Allen Key – SW5
▲ 1 Torx Key – T15

STM Modular

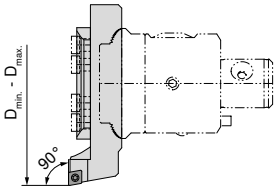
62 439 ...

D_{min} - D_{max} mm	Adapter	
86 - 302	STM 36	**999**

SpinTools – Tool holder

▲ for single point finish boring heads
▲ Approach angle 90°

Scope of supply:
incl. cover plate and support



D_{min} - D_{max} mm	Insert	62 438 ...
86 - 138	CC.. 09T3	**138**
136 - 220	CC.. 09T3	**220**
188 - 302	CC.. 09T3	**302**
242 - 402	CC.. 09T3	**402**

TORX® Screws

Key D

Pressure plate

Support

Spare parts for Article no.		62 950 ...		80 950 ...		62 950 ...		62 950 ...
62 438 138	M4x9	**023**	T15	**113**		**152**		**149**
62 438 220	M4x9	**023**	T15	**113**		**153**		**150**
62 438 302	M4x9	**023**	T15	**113**		**153**		**150**
62 438 402	M4x9	**023**	T15	**113**		**153**		**150**

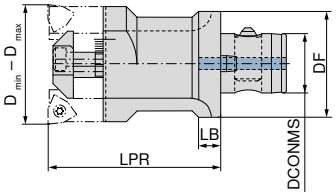
→ **Page 63**
Find suitable indexable inserts here.

TwinKom – Base body

Scope of supply:

Clamping plate incl. adjustment and fixing screws
Order tool holder (+indexable insert) and indexable inserts separately

ABS



								long	short
								62 870 ...	62 870 ...
D_{min} - D_{max} mm	KOMET no.	DCONMS mm	DF mm	Adapter	LPR mm	LB mm	WT kg		
24 - 32	G01 70552	13	25	ABS 25	45	6,0	0,11		**03290**
24 - 32	G01 71072	16	32	ABS 32	70	7,0	0,21	**13289**	
30 - 41	G01 70562	13	25	ABS 25	50		0,12		**04190**
30 - 41	G01 71132	16	32	ABS 32	85	7,5	0,30	**14189**	
39 - 53	G01 71022	16	32	ABS 32	60		0,29		**05389**
39 - 53	G01 71622	20	40	ABS 40	120	8,0	0,68	**15388**	
51 - 71	G01 71522	20	40	ABS 40	60		0,44		**07188**
51 - 71	G01 72122	28	50	ABS 50	135	10,0	1,24	**17197**	
64 - 91	G01 72022	28	50	ABS 50	70		0,82		**09197**
64 - 91	G01 72622	34	63	ABS 63	155	13,0	2,25	**19196**	
83 - 124	G01 72522	34	63	ABS 63	70		1,35		**12496**
83 - 124	G01 73122	46	80	ABS 80	155	16,5	3,80	**12592**	
109 - 167	G01 73032	46	80	ABS 80	90		3,10		**16792**[1)]
109 - 167	G01 73042	46	80	ABS 80	175		6,20	**16892**[1)]	
139 - 215	G01 73562	56	100	ABS 100	125		6,47		**21591**[1)]
139 - 215	G01 73572	56	100	ABS 100	240		13,25	**21691**[1)]	

1) Diameter range can only be achieved with TwinKom basic tool holder (radially + axially adjustable) and corresponding indexable insert!

Adjustment screw

TwinKom clamping plate

Fixing screw

Spare parts D_{min} - D_{max}		10 950 ...		62 950 ...		10 950 ...
24 - 32	M2,5X5.SW1,3	**16500**		**46900**	M2x4,5 - T06	**15800**
30 - 41	M2,5X5.SW1,3	**16500**		**47000**	M2,5x5,3 - T08	**15900**
39 - 53	M4x8 - SW2	**11100**		**47100**	M2,5x7 - T08	**16000**
51 - 71	M4x10 - SW2	**11200**		**47200**	M3,5x9,4 - T10	**16300**
64 - 91	M6X12 SW3	**16100**		**47300**	M4,5x11,5 - T15	**13500**
83 - 124	M6X20 SW3	**16200**		**47400**	M5x12 - SW2,5	**11000**
109 - 167	M8X20.SW4	**16600**		**47500**		
139 - 215	M10X20 DIN 913	**17500**		**47700**	M6x20 Sw5	**17600**

Cylindrical screw TwinKom

Cylindrical screw

Adjustment pin

Spare parts D_{min} - D_{max}		62 950 ...			62 950 ...		62 950 ...
24 - 32	M3X16	**46000**					**46200**
30 - 41	M4X20	**45500**					**46300**
39 - 53	M5X25	**45600**					**46400**
51 - 71	M6X30	**45700**					**46500**
64 - 91	M8X35	**45800**					**46600**
83 - 124	M8X45	**45900**					**46700**
109 - 167	M10X50	**46100**	M5x16		**00000**		**46800**
139 - 215	M12x60	**47600**					**47800**

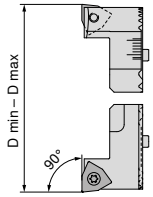
A detailed operating manual is available for download in the online shop next to the product.

→ **Page 10**
Here you will find a detailed system overview.

TwinKom – Tool holder 90°

▲ radially adjustable
▲ Price per piece

Scope of supply:
including clamping screw
Order indexable inserts separately

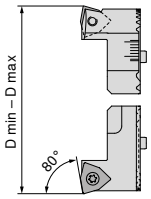


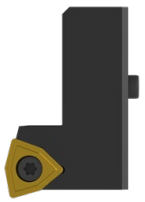
D_{min} - D_{max} mm	KOMET no.	Insert	62 871 ...
24 - 32	G03 70330	WO.X 0403..	**03200**
30 - 41	G03 70141	WO.X 05T3..	**04100**
39 - 53	G03 70230	WO.X 05T3..	**05300**
51 - 71	G03 70240	WO.X 06T3..	**07100**
64 - 91	G03 70250	WO.X 0804..	**09100**
83 - 124	G03 70260	WO.X 1005..	**12400**

TwinKom – Tool holder 80°

▲ radially adjustable
▲ Price per piece

Scope of supply:
including clamping screw
Order indexable inserts separately





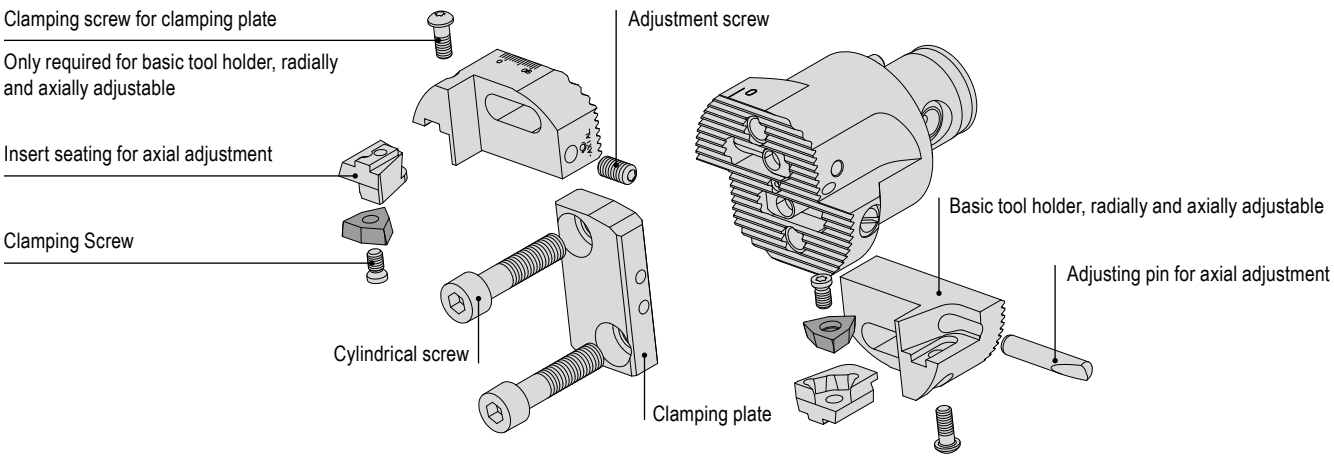
D_{min} - D_{max} mm	KOMET no.	Insert	62 875 ...
24 - 32	G03 80310	WO.X 0403..	**03200**
30 - 41	G03 80021	WO.X 05T3..	**04100**
39 - 53	G03 80090	WO.X 05T3..	**05300**
51 - 71	G03 80100	WO.X 06T3..	**07100**
64 - 91	G03 80110	WO.X 0804..	**09100**
83 - 124	G03 80120	WO.X 1005..	**12400**

Clamping screw

Spare parts D_{min} - D_{max}		10 950 ...
24 - 32	M2,2x5,5 - 06IP	**10700**
30 - 41	M2,5x7,2 - 08IP	**10500**
39 - 53	M2,5x7,2 - 08IP	**10500**
51 - 71	M3,5x7,3 - 10IP	**10600**
64 - 91	M4,5x9 - 15IP	**12700**
83 - 124	M4,5x9 - 15IP	**12700**

→ **Page 60+61**
Find suitable indexable inserts here.

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

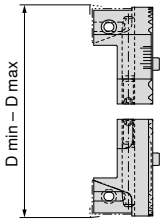


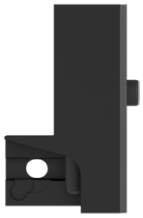
TwinKom – Basic tool holder, radially and axially adjustable

▲ Price per piece

Scope of supply:

Order indexable insert seats and indexable inserts separately





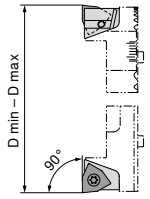
D_{min} - D_{max} mm	KOMET no.	62 872 ...
24 - 32	G03 70011	**03200**
30 - 41	G03 70021	**04100**
39 - 53	G03 70031	**05300**
51 - 71	G03 70041	**07100**
64 - 91	G03 70061	**09100**
83 - 124	G03 70071	**12400**
109 - 167	G03 70081	**16700**
139 - 215	G03 70091	**21500**

TwinKom – Indexable insert, 90°

▲ axially adjustable
▲ Price per piece

Scope of supply:

including clamping screw
Order indexable inserts separately



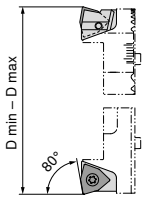
D_{min} - D_{max} mm	KOMET no.	Insert	62 873 ...
24 - 32	D54 60510	WO.X 0302..	**03200**
30 - 41	D54 60520	WO.X 0403..	**04100**
39 - 53	D54 60030	WO.X 05T3..	**05300**
51 - 71	D54 60040	WO.X 06T3..	**07100**
64 - 91	D54 60050	WO.X 0804..	**09100**
83 - 167	D54 60060	WO.X 1005..	**12400**
139 - 215	D54 60070	WO.X 1206..	**21500**

TwinKom – Indexable insert, 80°

▲ axially adjustable
▲ Price per piece

Scope of supply:

including clamping screw
Order indexable inserts separately



D_{min} - D_{max} mm	KOMET no.	Insert	62 874 ...
24 - 32	D54 60610	WO.X 0302..	**03200**
30 - 41	D54 60620	WO.X 0403..	**04100**
39 - 53	D54 60130	WO.X 05T3..	**05300**
51 - 71	D54 60140	WO.X 06T3..	**07100**
64 - 91	D54 60150	WO.X 0804..	**09100**
83 - 167	D54 60160	WO.X 1005..	**16700**
139 - 215	D54 60170	WO.X 1206..	**21500**

Clamping screw

Spare parts D_{min} - D_{max}		10 950 ...
24 - 32	M2,0x4,3 - 06IP	**10000**
30 - 41	M2,2x5,5 - 06IP	**10700**
39 - 53	M2,5x6,3 - 08IP	**10800**
51 - 71	M3,5x6,6 - 10IP	**16400**
64 - 91	M4,5x9 - 15IP	**12700**
83 - 167	M4,5x9 - 15IP	**12700**
139 - 215	M5,5x11 - 20IP	**17400**

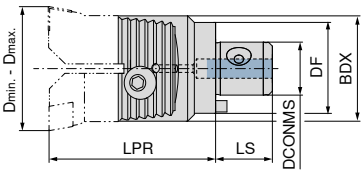
SpinTools – Boring heads for roughing with 2 cutting edges

▲ with thro' coolant

Scope of supply:

Boring head incl. drive dog, fixing screws, spring rings, drive dog screw and stop pin

STM



D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	LS mm	WT kg	62 295 ...
23,5 - 30,5	STM 11	11	20	20	40	13	0,05	**030**
29,5 - 40,1	STM 14	14	25	25	45	16	0,09	**040**
39,5 - 50,5	STM 18	18	32	32	65	20	0,25	**050**
49,5 - 66,5	STM 22	22	42	40	72	24	0,38	**066**
65,5 - 87,5	STM 28	28	55	50	82	30	0,59	**087**

Fillister-head screw

Spring ring

Location Pin

Spare parts for Article no.		62 950 ...		62 950 ...		62 950 ...
62 295 030	M4x8	**298**	Ø 4,3/7,3	**311**		**231**
62 295 040	M5x12	**293**	Ø 5,3/9,3	**312**		**231**
62 295 050	M6x16	**294**	Ø 6.4/10,2	**313**		**231**
62 295 066	M8x20	**295**	Ø 8,4/14,0	**314**		**234**
62 295 087	M10x25	**296**	Ø 10,5/17,0	**315**		**234**

Screw for drivers

Driver

Spare parts for Article no.		62 950 ...		62 950 ...
62 295 030	M2x2,5	**162**	5x8,5x3	**035**
62 295 040	M2,5x6	**163**	6x10,3x4	**036**
62 295 050	M3x8	**164**	8x15x5	**037**
62 295 066	M4x10	**165**	10x18,1x6	**038**
62 295 087	M5x10	**166**	12x20x6	**039**

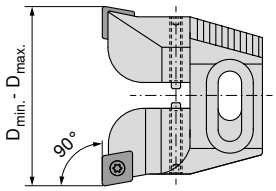
→ **Page 50–56**
Here you will find the suitable base adaptors.

A detailed operating manual is available for download in the online shop next to the product.

→ **Page 10**
Here you will find a detailed system overview.

SpinTools – Pair of tool holders, standard, 90°

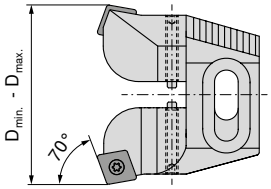
Scope of supply:
Adjustment screws, positioning pin, insert clamping screws



		62 296 ...
D_{min} - D_{max} mm	Insert	
23,5 - 30,5	CC.. 0602	**030**
29,5 - 40,1	CC.. 0602	**040**
39,5 - 50,5	CC.. 09T3	**050**
49,5 - 66,5	CC.. 09T3	**066**
65,5 - 87,5	CN.. 1204	**088**
65,5 - 87,5	CC.. 1204	**087**

SpinTools – Pair of tool holders, standard, 70°

Scope of supply:
Adjustment screws, positioning pin, insert clamping screws



		62 299 ...
D_{min} - D_{max} mm	Insert	
23,5 - 30,5	CC.. 0602	**030**
29,5 - 40,1	CC.. 0602	**040**
39,5 - 50,5	CC.. 09T3	**050**
49,5 - 66,5	CC.. 09T3	**066**
65,5 - 87,5	CN.. 1204	**088**
65,5 - 87,5	CC.. 1204	**087**

TORX® Screws

Key D

Adjustment screw

Spare parts			62 950 ...		80 950 ...		62 950 ...
D_{min} - D_{max}	Insert						
23,5 - 30,5	CC.. 0602	M2,5x6	**022**	T07	**109**	M4x0,5x7	**238**
29,5 - 40,1	CC.. 0602	M2,5x6	**022**	T07	**109**	M4x0,5x9,5	**239**
39,5 - 50,5	CC.. 09T3	M4x9	**023**	T15	**113**	M4x0,5x13	**240**
49,5 - 66,5	CC.. 09T3	M4x9	**023**	T15	**113**	M6x14	**241**
65,5 - 87,5	CC.. 1204	M5x10	**232**	T20	**114**	M6x20	**242**

Shim

Elbow lever screw

Lever

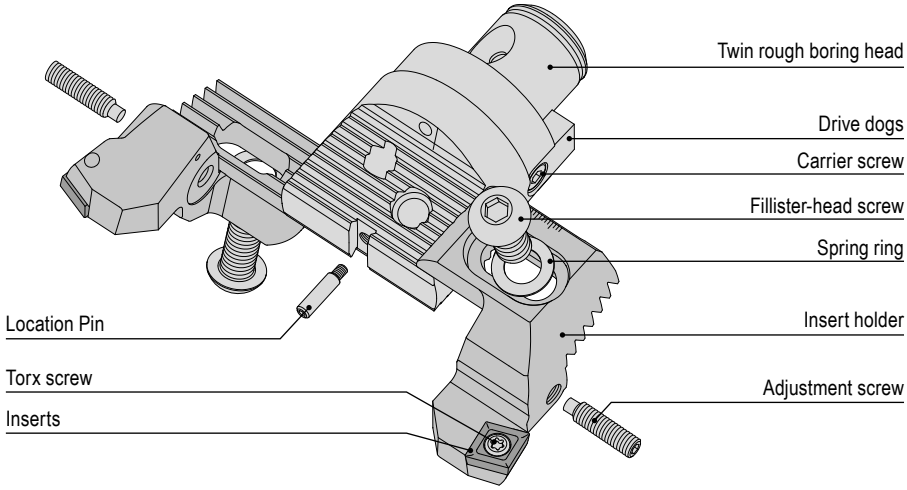
Carbide type C

Adjustment screw

Spare parts		62 950 ...	62 950 ...	62 950 ...	62 950 ...	62 950 ...
D_{min} - D_{max}	Insert					
65,5 - 87,5	CN.. 1204	**096**	**136**	**125**	**117**	M6x20 **242**

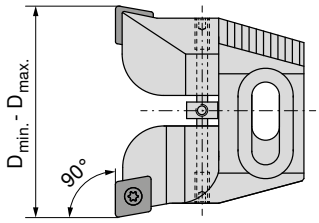
→ **Page 63**
Find suitable indexable inserts here.

A detailed operating manual is available for download in the online shop next to the product.



SpinTools – Pair of tool holders, ‘Synchro’, 90°

Scope of supply:
Insert clamping screws, synchronization screw



D_{min} - D_{max} mm	Insert	62 297 ...
23,5 - 30,5	CC.. 0602	**030**
29,5 - 40,1	CC.. 0602	**040**
39,5 - 50,5	CC.. 09T3	**050**
49,5 - 66,5	CC.. 09T3	**066**
65,5 - 87,5	CC.. 1204	**087**

TORX® Screws

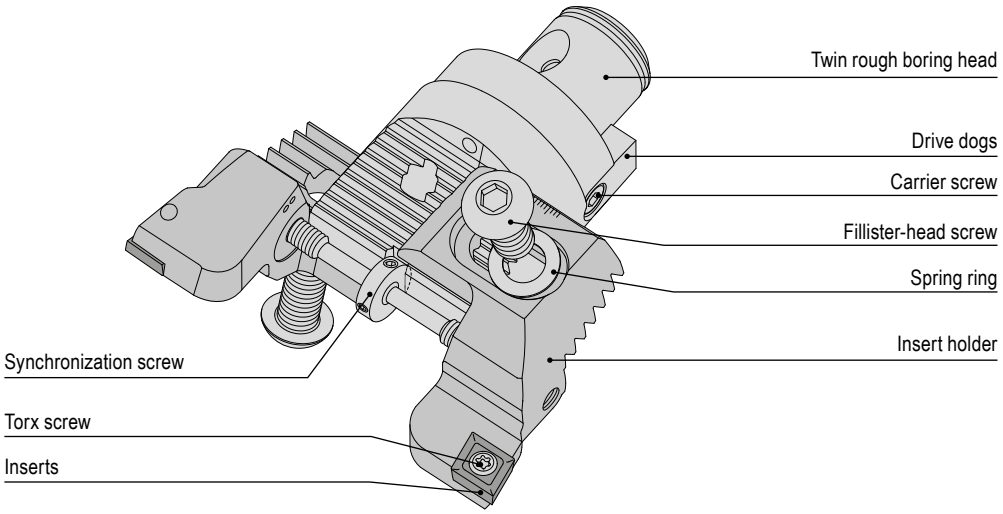
Synchronization screw

Key D

Spare parts for Article no.		62 950 ...		62 950 ...		80 950 ...
62 297 030	M2,5x6	**022**	M4x0,5x18	**207**	T07	**109**
62 297 040	M2,5x6	**022**	M4x0,5x23	**208**	T07	**109**
62 297 050	M4x9	**023**	M4x0,5x30	**209**	T15	**113**
62 297 066	M4x9	**023**	M6x40	**210**	T15	**113**
62 297 087	M5x10	**232**	M6x52	**211**	T20	**114**

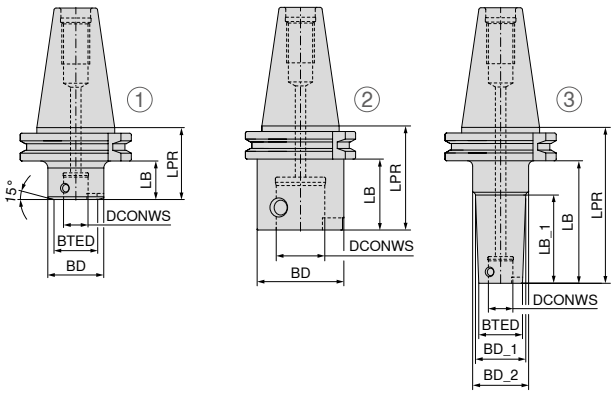
→ **Page 63**
Find suitable indexable inserts here.

A detailed operating manual is available for download in the online shop next to the product.



SpinTools – Base adapters ISO 7388-1 (DIN 69871)

STM



SK

62 107 ...

	Adapter	Fig.	SZID	DCONWS mm	BTED mm	BD mm	BD_1 mm	BD_2 mm	LPR mm	LB mm	LB_1 mm	WT kg	
short	SK 40	1	STM 11	11	20	32			40	20,9		0,91	**111** [1]
	SK 40	1	STM 14	14	25	32			40	20,9		0,93	**114** [1]
	SK 40	2	STM 18	18		32			40	20,9		0,89	**118**
	SK 40	2	STM 22	22		40			50	30,9		1,02	**122**
	SK 40	2	STM 28	28		50			50	30,9		1,11	**128**
	SK 40	2	STM 36	36		63			60	40,9		1,27	**136**
	SK 50	2	STM 28	28		50			50	30,9		2,92	**428**
	SK 50	2	STM 36	36		63			63	43,9		3,27	**436**
long	SK 40	3	STM 11	11	20		23	32	80	60,9	40,9	1,04	**211** [1]
	SK 40	3	STM 14	14	25		28	32	80	60,9	40,9	1,07	**214** [1]
	SK 40	2	STM 18	18		32			80	60,9		1,13	**218**
	SK 40	2	STM 22	22		40			100	80,9		1,47	**222**
	SK 40	2	STM 28	28		50			100	80,9		1,84	**228**
	SK 40	2	STM 36	36		63			120	100,9		2,68	**236**
	SK 50	2	STM 36	36		63			120	100,9		4,60	**536**

1) Note! BD/BD_1 is larger than BTED, which may lead to a limited bore depth!

O-Ring

Clamping screw ST

Spare parts DCONWS		**62 950 ...**		**62 950 ...**
11	9x1,5	**254**	M4x0,5x6	**026**
14	12x1,5	**255**	M5x0,5x7,5	**027**
18	16x1,5	**256**	M6x0,75x9,5	**028**
22	19x2	**257**	M8x0,75x12	**029**
28	25x2	**258**	M10x1x14,2	**030**
36	33x2	**259**	M12x1x18	**031**

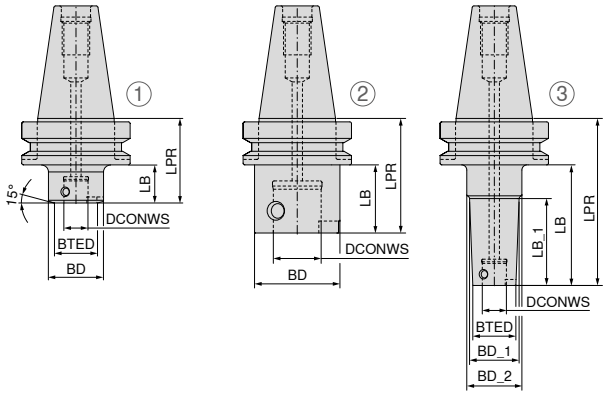
Suitable pull studs can be found in → **Clamping technology catalogue, Chapter 16, Adapters and accessories.**

ABS base adapters can be found in → **Clamping technology catalogue, Chapter 16, Adapters and accessories.**

SpinTools – Base adapters ISO 7388-2 (JIS B 6339 / MAS-BT)

▲ form B available upon request

STM



MAS-BT

62 112 ...

	Adapter	Fig.	SZID	DCONWS mm	BTED mm	BD mm	BD_1 mm	BD_2 mm	LPR mm	LB mm	LB_1 mm	WT kg	
short	BT 30	2	STM 28	28		50			55			0,64	**328**
	BT 40	1	STM 11	11	20	32			50	23		1,09	**111** 1)
	BT 40	1	STM 14	14	25	32			50	23		1,08	**114** 1)
	BT 40	2	STM 18	18		32			50	23		1,06	**118**
	BT 40	2	STM 22	22		40			50	23		1,10	**122**
	BT 40	2	STM 28	28		50			50	23		1,14	**128**
	BT 40	2	STM 36	36		63			60	33		1,38	**136**
	BT 50	2	STM 28	28		50			63	25		3,75	**428**
	BT 50	2	STM 36	36		63			63	25		3,78	**436**
long	BT 40	3	STM 11	11	20		23	32	90	63	43	1,20	**211** 1)
	BT 40	3	STM 14	14	25		28	32	90	63	43	1,24	**214** 1)
	BT 40	2	STM 18	18		32			90	63		1,30	**218**
	BT 40	2	STM 22	22		40			100	73		1,57	**222**
	BT 40	2	STM 28	28		50			100	73		1,87	**228**
	BT 40	2	STM 36	36		63			120	93		2,78	**236**
	BT 50	2	STM 36	36		63			120	82		5,18	**536**

1) Note! BD/BD_1 is larger than BTED, which may lead to a limited bore depth!

O-Ring

Clamping screw ST

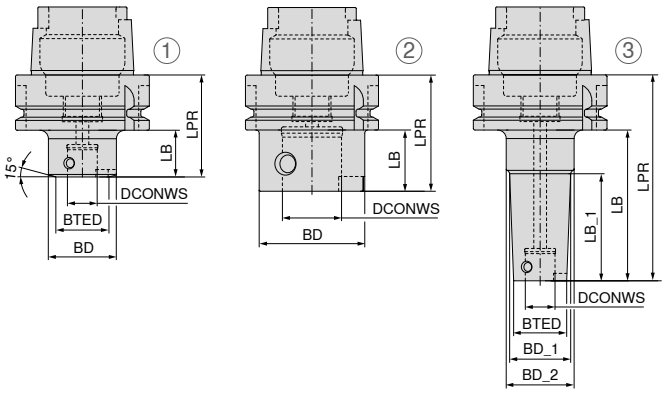
Spare parts DCONWS		O-Ring 62 950 ...		Clamping screw ST 62 950 ...	
11	9x1,5	**254**	M4x0,5x6	**026**
14	12x1,5	**255**	M5x0,5x7,5	**027**
18	16x1,5	**256**	M6x0,75x9,5	**028**
22	19x2	**257**	M8x0,75x12	**029**
28	25x2	**258**	M10x1x14,2	**030**
36	33x2	**259**	M12x1x18	**031**

Suitable pull studs can be found in → **Clamping technology catalogue, Chapter 16, Adapters and accessories.**

ABS base adapters can be found in → **Clamping technology catalogue, Chapter 16, Adapters and accessories.**

SpinTools – Base adapters HSK-A ISO 12164-1 (DIN 69893-1)

STM



HSK-A

	Adapter	Fig.	SZID	DCONWS mm	BTED mm	BD mm	BD_1 mm	BD_2 mm	LPR mm	LB mm	LB_1 mm	WT kg	**62 122 ...**
short	HSK-A 63	1	STM 11	11	20	32			50	24		0,77	**111** [1]
	HSK-A 63	1	STM 14	14	25	32			50	24		0,76	**114** [1]
	HSK-A 63	2	STM 18	18		32			50	24		0,74	**118**
	HSK-A 63	2	STM 22	22		40			50	24		0,79	**122**
	HSK-A 63	2	STM 28	28		50			55	24		0,91	**128**
	HSK-A 63	2	STM 36	36		63			65	34		1,10	**136**
	HSK-A 100	2	STM 28	28		50			63	34		2,32	**428**
	HSK-A 100	2	STM 36	36		63			70	34		2,61	**436**
long	HSK-A 63	3	STM 11	11	20		23	32	90	64	44	0,87	**211** [1]
	HSK-A 63	3	STM 14	14	25		28	32	90	64	44	0,93	**214** [1]
	HSK-A 63	2	STM 18	18		32			90	64		0,98	**218**
	HSK-A 63	2	STM 22	22		40			100	74		1,26	**222**
	HSK-A 63	2	STM 28	28		50			100	74		1,58	**228**
	HSK-A 63	2	STM 36	36		63			120	94		2,41	**236**

1) Note! BD/BD_1 is larger than BTED, which may lead to a limited bore depth!

O-Ring

Clamping screw ST

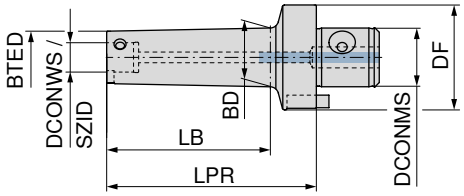
Spare parts DCONWS		**62 950 ...**		**62 950 ...**
11	9x1,5	**254**	M4x0,5x6	**026**
14	12x1,5	**255**	M5x0,5x7,5	**027**
18	16x1,5	**256**	M6x0,75x9,5	**028**
22	19x2	**257**	M8x0,75x12	**029**
28	25x2	**258**	M10x1x14,2	**030**
36	33x2	**259**	M12x1x18	**031**

ABS base adapters can be found in → **Clamping technology catalogue, Chapter 16, Adapters and accessories.**

SpinTools – Reductions

▲ with thro' coolant

STM



62 357 ...

5

Adapter	LPR mm	SZID	DCONMS mm	DCONWS mm	DF mm	BTED mm	BD mm	LB mm	WT kg	
STM 14	30	STM 11	14	11	25	20	23	15	0,04	**111**
STM 18	30	STM 11	18	11	32	20	23	17	0,14	**211**
STM 18	30	STM 14	18	14	32	25	28	17	0,16	**214**
STM 22	30	STM 11	22	11	40	20	23	15	0,21	**311**
STM 22	30	STM 14	22	14	40	25	28	15	0,22	**314**
STM 22	30	STM 18	22	18	40	32	37	15	0,25	**318**
STM 28	40	STM 11	28	11	50	20	23	20	0,44	**411**
STM 28	40	STM 14	28	14	50	25	28	20	0,49	**414**
STM 28	40	STM 18	28	18	50	32	37	20	0,45	**418**
STM 28	40	STM 22	28	22	50	40	46	20	0,55	**422**
STM 36	40	STM 11	36	11	63	20	22	16	0,82	**511**
STM 36	70	STM 11	36	11	63	20	23	42	0,90	**811**
STM 36	95	STM 11	36	11	63	20	23	71	0,98	**611**
STM 36	115	STM 11	36	11	63	20	23	87	1,02	**911**
STM 36	135	STM 11	36	11	63	20	23	111	1,08	**711**
STM 36	40	STM 14	36	14	63	25	27	16	0,84	**514**
STM 36	80	STM 14	36	14	63	25	28	52	1,00	**814**
STM 36	120	STM 14	36	14	63	25	28	96	1,16	**614**
STM 36	145	STM 14	36	14	63	25	28	117	1,27	**914**
STM 36	170	STM 14	36	14	63	25	28	146	1,38	**714**
STM 36	40	STM 18	36	18	63	32	37	16	0,85	**518**
STM 36	100	STM 18	36	18	63	32	38	74	1,24	**818**
STM 36	150	STM 18	36	18	63	32	38	126	1,66	**918**
STM 36	207	STM 18	36	18	63	32	38	183	2,07	**618**
STM 36	40	STM 22	36	22	63	40	46	16	0,89	**522**
STM 36	120	STM 22	36	22	63	40	48	95	1,76	**822**
STM 36	183	STM 22	36	22	63	40	48	159	2,52	**622**
STM 36	263	STM 22	36	22	63	40	48	239	3,44	**722**
STM 36	40	STM 28	36	28	63	50	58	21	1,03	**528**
STM 36	140	STM 28	36	28	63	50	60	117	2,70	**828**
STM 36	233	STM 28	36	28	63	50	60	209	4,41	**628**
STM 36	333	STM 28	36	28	63	50	60	309	6,25	**728**

ABS reductions can be found in → **Clamping technology catalogue, Chapter 16, Adapters and accessories.**

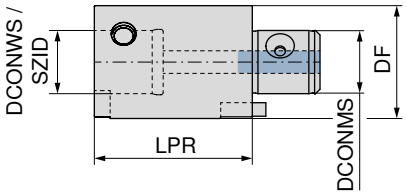
Reductions – Spare Parts

		O-Ring		Screw for drivers		Driver		Clamping screw ST	
		62 950 ...		**62 950 ...**		**62 950 ...**		**62 950 ...**	
Spare parts for Article no.									
62 357 111	9x1,5	**254**	M2,5x6	**163**	6x10,3x4	**036**	M4x0,5x6	**026**
62 357 211	9x1,5	**254**	M3x8	**164**	8x15x5	**037**	M4x0,5x6	**026**
62 357 214	12x1,5	**255**	M3x8	**164**	8x15x5	**037**	M5x0,5x7,5	**027**
62 357 311	9x1,5	**254**	M4x10	**165**	10x18,1x6	**038**	M4x0,5x6	**026**
62 357 314	12x1,5	**255**	M4x10	**165**	10x18,1x6	**038**	M5x0,5x7,5	**027**
62 357 318	16x1,5	**256**	M4x10	**165**	10x18,1x6	**038**	M6x0,75x9,5	**028**
62 357 411	9x1,5	**254**	M5x10	**166**	12x20x6	**039**	M4x0,5x6	**026**
62 357 414	12x1,5	**255**	M5x10	**166**	12x20x6	**039**	M5x0,5x7,5	**027**
62 357 418	16x1,5	**256**	M5x10	**166**	12x20x6	**039**	M6x0,75x9,5	**028**
62 357 422	19x2	**257**	M5x10	**166**	12x20x6	**039**	M8x0,75x12	**029**
62 357 511	9x1,5	**254**	M6x12	**167**	16x26,5x8	**040**	M4x0,5x6	**026**
62 357 811	9x1,5	**254**	M6x12	**167**	16x26,5x8	**040**	M4x0,5x6	**026**
62 357 611	9x1,5	**254**	M6x12	**167**	16x26,5x8	**040**	M4x0,5x6	**026**
62 357 911	9x1,5	**254**	M6x12	**167**	16x26,5x8	**040**	M4x0,5x6	**026**
62 357 711	9x1,5	**254**	M6x12	**167**	16x26,5x8	**040**	M4x0,5x6	**026**
62 357 514	12x1,5	**255**	M6x12	**167**	16x26,5x8	**040**	M5x0,5x7,5	**027**
62 357 814	12x1,5	**255**	M6x12	**167**	16x26,5x8	**040**	M5x0,5x7,5	**027**
62 357 614	12x1,5	**255**	M6x12	**167**	16x26,5x8	**040**	M5x0,5x7,5	**027**
62 357 914	12x1,5	**255**	M6x12	**167**	16x26,5x8	**040**	M5x0,5x7,5	**027**
62 357 714	12x1,5	**255**	M6x12	**167**	16x26,5x8	**040**	M5x0,5x7,5	**027**
62 357 518	16x1,5	**256**	M6x12	**167**	16x26,5x8	**040**	M6x0,75x9,5	**028**
62 357 818	16x1,5	**256**	M6x12	**167**	16x26,5x8	**040**	M6x0,75x9,5	**028**
62 357 918	16x1,5	**256**	M6x12	**167**	16x26,5x8	**040**	M6x0,75x9,5	**028**
62 357 618	16x1,5	**256**	M6x12	**167**	16x26,5x8	**040**	M6x0,75x9,5	**028**
62 357 522	19x2	**257**	M6x12	**167**	16x26,5x8	**040**	M8x0,75x12	**029**
62 357 822	19x2	**257**	M6x12	**167**	16x26,5x8	**040**	M8x0,75x12	**029**
62 357 622	19x2	**257**	M6x12	**167**	16x26,5x8	**040**	M8x0,75x12	**029**
62 357 722	19x2	**257**	M6x12	**167**	16x26,5x8	**040**	M8x0,75x12	**029**
62 357 528	25x2	**258**	M6x12	**167**	16x26,5x8	**040**	M10x1x14,2	**030**
62 357 828	25x2	**258**	M6x12	**167**	16x26,5x8	**040**	M10x1x14,2	**030**
62 357 628	25x2	**258**	M6x12	**167**	16x26,5x8	**040**	M10x1x14,2	**030**
62 357 728	25x2	**258**	M6x12	**167**	16x26,5x8	**040**	M10x1x14,2	**030**

SpinTools – Extensions

▲ with thro' coolant

STM



Adapter	LPR mm	SZID	DCONWS mm	DF mm	DCONMS mm	WT kg	62 351 ...
STM 11	25	STM 11	11	20	11	0,06	**111**
STM 11	35	STM 11	11	20	11	0,09	**211**
STM 14	30	STM 14	14	25	14	0,11	**114**
STM 14	45	STM 14	14	25	14	0,17	**214**
STM 18	40	STM 18	18	32	18	0,23	**118**
STM 18	60	STM 18	18	32	18	0,35	**218**
STM 22	50	STM 22	22	40	22	0,45	**122**
STM 22	80	STM 22	22	40	22	0,73	**222**
STM 28	50	STM 28	28	50	28	0,71	**128**
STM 28	75	STM 28	28	50	28	1,07	**228**
STM 28	100	STM 28	28	50	28	1,44	**328**
STM 36	60	STM 36	36	63	36	1,33	**136**
STM 36	90	STM 36	36	63	36	2,02	**236**
STM 36	120	STM 36	36	63	36	2,72	**336**

O-Ring

Screw for drivers

Driver

Clamping screw ST

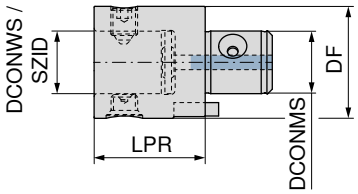
Spare parts DCONWS		62 950 ...		62 950 ...		62 950 ...		62 950 ...
11	9x1,5	**254**	M2x2,5	**162**	5x8,5x3	**035**	M4x0,5x6	**026**
14	12x1,5	**255**	M2,5x6	**163**	6x10,3x4	**036**	M5x0,5x7,5	**027**
18	16x1,5	**256**	M3x8	**164**	8x15x5	**037**	M6x0,75x9,5	**028**
22	19x2	**257**	M4x10	**165**	10x18,1x6	**038**	M8x0,75x12	**029**
28	25x2	**258**	M5x10	**166**	12x20x6	**039**	M10x1x14,2	**030**
36	33x2	**259**	M6x12	**167**	16x26,5x8	**040**	M12x1x18	**031**

ABS extensions can be found in → **Clamping technology catalogue, Chapter 16, Adapters and accessories.**

SpinTools – ABS/STM adapters

▲ using this adapter, ABS core drilling and precision spindle systems can be accommodated reliably and precisely in STM base adapters
▲ with thro' coolant supply

STM



NEW

Adapter	LPR mm	SZID	DCONWS mm	DF mm	DCONMS mm	62 359 ...
STM 14	35	ABS 25	13	25	14	**02519**
STM 18	40	ABS 32	16	32	18	**03218**
STM 22	45	ABS 40	20	40	22	**04017**
STM 28	50	ABS 50	28	50	28	**05016**
STM 36	60	ABS 63	34	63	36	**06315**

Clamping screw

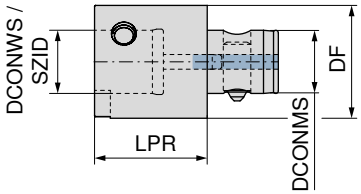
Driver

Spare parts DCONWS	62 950 ...	62 950 ...
13		**036**
16	**13989**	**037**
20		**038**
28		**039**
34		**040**

MicroKom – STM/ABS adapters

▲ using this adapter, STM core drilling and precision spindle systems can be accommodated reliably and precisely in ABS base adapters
▲ with thro' coolant supply

ABS



NEW

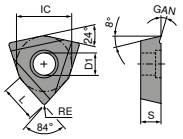
Adapter	LPR mm	SZID	DCONWS mm	DF mm	DCONMS mm	62 359 ...
ABS 25	30	STM 14	14	25	13	**02590**
ABS 32	40	STM 18	18	32	16	**03289**
ABS 40	40	STM 22	22	40	20	**04088**
ABS 50	50	STM 28	28	50	28	**05097**
ABS 63	60	STM 36	36	63	34	**06396**

Clamping screw ST

Spare parts DCONWS	62 950 ...
14	**027**
18	**028**
22	**029**
28	**030**
36	**031**

WOHX

Designation	L mm	S mm	D1 mm	IC mm
WOHX 02T0..	2,6	1,20	2	4



WOHX

ISO	KOMET no.	RE mm	-G12 BK2710	-G12 BK8440	-G12 K10
			F WOHX 62 600 ...	F WOHX 62 600 ...	F WOHX 62 600 ...
02T001EL	W00 04120.018440	0,1		**00102**	
02T001EL	W00 04120.012710	0,1	**10102**		
02T001FL	W00 04120.0121	0,1			**20102**
P			●	●	
M			●	●	
K			●	●	
N					●
S			●		●
H				●	
O					●

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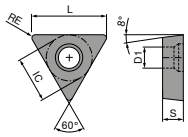
Material group	Guideline recommendation Grade	Chip groove
P	BK8440	-G12
M	BK8440	-G12
K	BK2710	-G12
N	K10	-G12
S	K10	-G12
H1.1	BK8440	-G12
O	K10	-G12

The guideline recommendation shown here is based on experience and serves only to make it easy to find the correct indexable insert for your application.

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

TOGX

Designation	L mm	S mm	D1 mm	IC mm
TOGX 06T1..	6,64	1,80	2,2	4,0
TOGX 0902..	9,12	2,50	2,8	5,6
TOGX 1403..	13,62	3,00	3,8	8,2



TOGX

			-18 CK32	-14 CK3230	-14 BK60	-14 BK8430	-12 BK7710	-12 K10
			F	F	F	F	F	F
			CERMET TOGX	CERMET TOGX	TOGX	TOGX	TOGX	TOGX
			62 607 ...	62 606 ...	62 601 ...	62 601 ...	62 601 ...	62 601 ...
ISO	KOMET no.	RE mm						
06T102EN	W57 04140.0260	0,2			90206			
06T102EN	W57 04140.028430	0,2				30201		
06T102EN	W57 04140.023230	0,2		10201				
06T102EN	W57 04180.0432	0,4	20401					
06T102FN	W57 04120.027710	0,2					70201	
06T102FN	W57 04120.0223	0,2						50206
090202EN	W57 14140.028430	0,2				33801		
090204EN	W57 14140.0460	0,4			70409			
090204EN	W57 14140.043230	0,4		11401				
090204EN	W57 14180.0432	0,4	21401					
090204FN	W57 14120.047710	0,4					70401	
090204FN	W57 14120.0423	0,4						50409
140302EN	W57 26140.028430	0,2				34401		
140304EN	W57 26140.0460	0,4			70414			
140304EN	W57 26140.043230	0,4		12601				
140304EN	W57 26180.0432	0,4	22601					
140304FN	W57 26120.047710	0,4					71401	
140304FN	W57 26120.0423	0,4						50414
P			●	●	●	○		
M			●	●	●	○		
K					●	○		
N							●	●
S						●	○	●
H						●	○	
O							○	●

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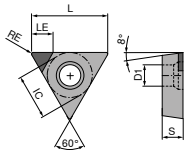
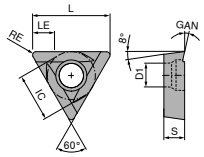
TOGX / TOEX / TOHX

Designation	L	S	D1	IC	LE
	mm	mm	mm	mm	mm
TO.X 06T1..	6,64	1,80	2,2	4,0	1,8
TO.X 0902..	9,12	2,50	2,8	5,6	2,7
TO.X 1403..	13,62	3,00	3,8	8,2	2,7
TOHX 06T1..	6,50	1,80	2,2	4,0	1,0
TOHX 0902..	9,12	2,50	2,8	5,6	2,5
TOHX 1403..	13,62	3,00	3,8	8,2	4,5





TOGX / TOEX / TOHX

	CBN40	CTDPU20	-G12 BK8425	-G06 BK2710	-G06 BK6110	-G06 BK7615
	F	F	F	F	F	F
	TOGX	DIAMOND TOEX	TOHX	TOHX	TOHX	TOHX
	62 601 ...	62 605 ...	62 603 ...	62 602 ...	62 602 ...	62 602 ...

ISO	KOMET no.	RE mm											
06T102FN	W30 04990.025510	0,2				00201							
06T102TN	W30 04990.0240	0,2	60206										
06T103EL	W30 04120.038425	0,3						30200					
06T103EL	W30 04060.037615	0,3											80606
06T103EL	W30 04060.036110	0,3									40606		
06T103EL	W30 04060.032710	0,3							10606				
090204EL	W30 14120.048425	0,4						31800					
090204EL	W30 14060.047615	0,4											80409
090204EL	W30 14060.046110	0,4									40409		
090204EL	W30 14060.042710	0,4							10409				
090204FN	W30 14990.045510	0,4				01401							
090204TN	W30 14990.0440	0,4	60409										
140304EL	W30 26120.048425	0,4						32600					
140304EL	W30 26060.047615	0,4											82600
140304EL	W30 26060.046110	0,4									40414		
140304EL	W30 26060.042710	0,4							12600				
140304FN	W30 26990.045510	0,4				02601							
140304TN	W30 26990.0440	0,4	62600										

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

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Material group	Guideline recommendation	
	Grade	Chip groove
P	BK60	-14
M	BK2710	-G06
K	BK7615	-G06
N	BK7710	-12
S1.1 – S2.3	BK2710	-G06
S3.1 – S3.3	BK7710	-12
H	CBN40	
O	BK7710	-12

The guideline recommendation shown here is based on experience and serves only to make it easy to find the correct indexable insert for your application.

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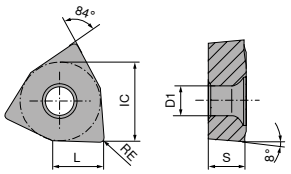
WOEX / WOGX

Designation	L	S	D1	IC
	mm	mm	mm	mm
WO.X 0302..	3,2	2,30	2,30	5,00
WO.X 0403..	4,1	3,18	2,55	6,35
WO.X 05T3..	5,3	3,80	2,85	8,00
WO.X 06T3..	6,6	3,80	4,05	10,00
WO.X 0804..	7,9	4,80	4,90	12,00
WOEX 1005..	9,9	5,30	4,90	15,00
WOEX 1206..	11,6	6,00	5,95	17,60



WOEX

	-01 BK8425	-01 BK7935	-01 BK7615	-11 BK77
	WOEX	WOEX	WOEX	WOEX
	10 821 ...	10 821 ...	10 821 ...	10 821 ...

ISO	KOMET no.	RE							
		mm							
030204	W29 10010.047935	0,4			50301				
030204	W29 10110.0477	0,4							80311
030204	W29 10010.047615	0,4					05301		
030204	W29 10010.048425	0,4	30301						
040304	W29 18010.047935	0,4			50401				
040304	W29 18110.0477	0,4							80411
040304	W29 18010.047615	0,4					05401		
040304	W29 18010.048425	0,4	30401						
05T304	W29 24010.047935	0,4			50501				
05T304	W29 24110.0477	0,4							80511
05T304	W29 24010.047615	0,4					05501		
05T304	W29 24010.048425	0,4	30501						
06T304	W29 34010.047935	0,4			50601				
06T304	W29 34110.0477	0,4							80611
06T304	W29 34010.047615	0,4					05601		
06T304	W29 34010.048425	0,4	30601						
080404	W29 42010.047935	0,4			50801				
080404	W29 42110.0477	0,4							80811
080404	W29 42010.047615	0,4					05801		
080404	W29 42010.048425	0,4	30801						
100504	W29 50010.047935	0,4			51001				
100504	W29 50110.0477	0,4							81011
100504	W29 50010.047615	0,4					06001		
100504	W29 50010.048425	0,4	31001						
120608	W29 58010.087935	0,8			53201				
120608	W29 58010.087615	0,8					08201		
120608	W29 58010.088425	0,8	31201						

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

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WOEX / WOGX

			-01 BK6115	-02 BK6440	-15 BK8430	-11 BK7710
			WOEX	WOEX	WOGX	WOEX
			10 821 ...	10 821 ...	10 821 ...	10 821 ...
ISO	KOMET no.	RE mm				
030204	W29 10150.048430	0,4			00315	
030204	W29 10110.047710	0,4				90311
030204	W29 10010.046115	0,4	40301			
040304	W29 18150.048430	0,4			00415	
040304	W29 18110.047710	0,4				90411
040304	W29 18010.046115	0,4	40401			
05T304	W29 24020.046440	0,4		25502		
05T304	W29 24110.047710	0,4				90511
05T304	W29 24150.048430	0,4			00515	
05T304	W29 24010.046115	0,4	40501			
06T304	W29 34020.046440	0,4		25602		
06T304	W29 34110.047710	0,4				90611
06T304	W29 34150.048430	0,4			00615	
06T304	W29 34010.046115	0,4	40601			
080404	W29 42020.046440	0,4		25802		
080404	W29 42110.047710	0,4				90811
080404	W29 42150.048430	0,4			00815	
080404	W29 42010.046115	0,4	40801			
100504	W29 50020.046440	0,4		26002		
100504	W29 50110.047710	0,4				91011
100504	W29 50010.046115	0,4	41001			
120608	W29 58020.086440	0,8		21202		
120608	W29 58010.086115	0,8	41201			
P			●	●	○	
M			●	●	○	
K			●		○	
N						●
S					●	○
H			○		●	○
O						○

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Material group	Guideline recommendation Grade / chip breaker
P	BK8425 / -01
M	BK7935 / -01
K	BK7615 / -01
N	BK7710 / -11
S1.1 – S2.3	BK7935 / -01
S3.1 – S3.3	BK7710 / -11
O	BK7710 / -11

Material group	Maximum feed values						
	WO.X 0302	WO.X 0403	WO.X 05T3	WO.X 06T3	WO.X 0804	WO.X 1005	WO.X 1206
	a_p max.						
P	1,5	2,5	4,5	6,0	7,5	9,0	9,0
M	1,0	1,5	3,5	4,0	6,0	9,0	9,0
K	1,5	3,0	5,0	6,0	7,5	9,0	9,0
N	2,0	3,0	5,0	6,0	7,5	9,0	9,0
S	1,0	1,5	3,5	4,0	6,0	9,0	9,0
O	1,0	1,5	3,5	4,0	7,5	9,0	9.0

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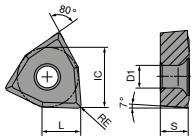
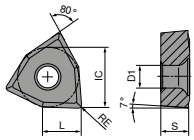
WCMT / WCGT

Designation	L	S	D1	IC
	mm	mm	mm	mm
WC.T 0201..	2,71	1,59	2,1	3,97

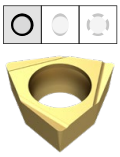


WCMT



WCGT

WCMT / WCGT

	-SF30	-SF20	-SF16
	CWC06	CWN10	CWP25
			
	F	F	F
	CERMET		
	WCMT	WCGT	WCGT
	70 294 ...	70 295 ...	70 295 ...

ISO	RE mm					
020102	0,2	850		850		500
020104	0,4			852		
P		●		●		●
M		○		●		●
K		●		●		○
N		●		●		●
S				●		
H				●		
O						

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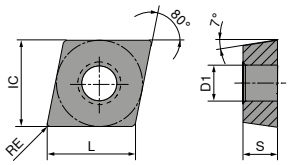
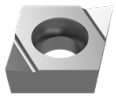
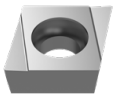
Additional indexable inserts can be found in → **Chapter 9, Indexable insert turning tools**
or in our online shop at cuttingtools.ceratizit.com

CCGT

Designation	L	S	D1	IC
	mm	mm	mm	mm
CCGT 06..	6,4	2,38	2,8	6,35
CCGT 09..	9,7	3,97	4,4	9,52



CCGT

	-SF20	-SF15	-SF14
	CWN10	CWC06	CWC10
			
	F	F	F
		CERMET	CERMET
	CCGT	CCGT	CCGT
	70 296 ...	70 296 ...	70 300 ...
ISO / RE mm			
060202L 0,2	300	850	903
060204L 0,4	302	852	905
09T302L 0,2	304	854	911
09T304L 0,4	306	856	913
P	●	●	●
M	●	○	●
K	●	●	●
N	●	●	
S	●		
H	●		
O			

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Additional indexable inserts can be found in → **Chapter 9, Indexable insert turning tools**
or in our online shop at cuttingtools.ceratizit.com

Material examples for cutting data tables

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

* Tensile strength

Cutting data standard values for indexable inserts – MicroKom tools

Index	Indexable inserts for ...																			
	MicroKom													TwinKom						
	62 800 ..., 62 810 ..., 62 815 ..., 62 820 ..., 62 840 ...													62 870 ...						
	K10	BK 2710	BK 60	BK 6110	BK 7615	BK 7710	BK 8425	BK 8430	BK 8440	CBN 40	CTDPU 20	CK 3230	CK 32	BK 6115	BK 6440	BK 7615	BK 77	BK 7710	BK 7935	BK 8425	BK 8430
	v_c (m/min)													v_c (m/min)							
P.1.1		230	270	300			260	200	170			350	350	300	240				250	260	200
P.1.2		230	270	300			260	200	170			350	350	300	240				220	260	200
P.1.3		230	270	300			270	200	170			350	350	270	220				270	270	200
P.1.4		210	250	300			240	180	150			320	320	250	220				240	240	180
P.1.5		210	250	300			230	180	150			320	320	270	220				200	230	180
P.2.1		180	210	270			270	160	140			280	280	270	200				270	270	160
P.2.2		180	210	270			260	160	140			280	280	260	200				260	260	160
P.2.3		180	210	270			180	160	140			280	280	240	200				160	180	160
P.2.4		180	210	270			150	160	140			280	280	190	200				130	150	160
P.3.1		160	190	250			160	140	120			250	250	200	180				140	160	140
P.3.2		160	190	250			130	140	120			250	250	160	160				110	130	140
P.3.3		160	190	250			120	140	120			250	250	140	160				100	120	140
P.4.1		140	160	220			180	120	100			210	210	220	140				160	180	120
P.4.2		140	160	220			130	120	100			210	210	160	140				110	130	120
M.1.1		180	280	220			150	160	140			280	280	220	200				160	150	160
M.2.1		160	250	220			150	140	120			250	250	220	180				160	150	140
M.3.1		120	180	200			130	100	90			180	180	200	160				150	130	100
K.1.1		210	210	290	290		160	180	150					240		290			150	160	180
K.1.2		180	180	290	290		120	160	140					140		290			110	120	160
K.2.1		160	160	270	270		160	140	120					160		270			150	160	140
K.2.2		160	160	250	250		100	140	120					100		250			90	100	140
K.3.1		140	140	220	220		120	120	100					120		220			110	120	120
K.3.2		140	140	220	220		100	120	100					100		220			90	100	120
N.1.1	250					600	400				500							600	400	400	
N.1.2	250					500	400				500							500	400	400	
N.2.1	250					400	250				500							400	250	250	
N.2.2	250					300	250				500							300	250	250	
N.2.3	250					250	230				500							250	230	230	
N.3.1	230					400	200				450							400	200	200	
N.3.2	230					300	220				450							300	220	220	
N.3.3	230					300	330				450							300	330	330	
N.4.1	230					300	200				450							300	200	200	
S.1.1	20	60				60	60	60									50	60	50	60	60
S.1.2	20	50				60	50	50									40	60	40	50	50
S.2.1	20	60				60	60	60									50	60	50	60	60
S.2.2	20	50				60	50	50									40	60	40	50	50
S.2.3	20	30				60	30	30									30	60	30	30	30
S.3.1	60	100				80	100	100									70	80	70	100	100
S.3.2	30	80				80	80	80									60	80	60	80	80
S.3.3	30	50				80	50	50									40	80	40	50	50
H.1.1				100		80	100	100	90	160				100			40	80		100	100
H.1.2				80		40	80	80	70	185				80			30	40		80	80
H.1.3				50		40	50	50	40	215				50			20	40		50	50
H.1.4						40				240								40			
H.2.1				100		80	100	100	90					100			40	80		100	100
H.3.1				80		80	80	80	70					80			30	80		80	80
O.1.1	100					100					500						100	100			
O.1.2	100					100					500						100	100			
O.2.1											500										
O.2.2	100					100					300						100	100			
O.3.1	100					100					300						100	100			

→ v_c Page 65+66 → $n_{max.}$ Page 72+74 → LTA Page 72+74

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length (LTA).

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Cutting data standard values for indexable inserts – SpinTools tools

Index	Indexable inserts for ...									Boring steel	Inserts Cutting insert
	62 295 ...					62 303 ..., 62 304 ..., 62 305 ..., 62 308 ..., 62 326 ..., 62 332 ..., 62 333 ..., 62 363 ..., 62 372 ..., 62 373 ...				62 346 ...	62 383 ..., 62 384 ...
	CTCP125 (HCX1125)	CTCP115 (HCX1115)	CTCP135 (HCR1135)	CTC2135 (CWN2135)	H10T (CWK15)	CWN10	CWP25	CWC06	CWC10	HM uncoated	Solid carbide TiN
	v_c (m/min)					v_c (m/min)				v_c (m/min)	v_c (m/min)
P.1.1	295	370	210	360		185	185	250	175	175	190
P.1.2	250	315	175	360		185	185	250	140	175	200
P.1.3	210	270	145	360		185	185	250	140	175	170
P.1.4	200	250	135	375		185	185	250	140	175	170
P.1.5	180	230	120	375		185	185	250	140	175	160
P.2.1	260	325	180	385		185	185	250	140	175	180
P.2.2	195	250	130	385		185	185	250	175	175	150
P.2.3	180	230	120	385		185	185	250	140	175	160
P.2.4	130	170	85	385		185	185	250	140	175	160
P.3.1	170	200	150	310		185	185	250	175	175	120
P.3.2	105	140	95	310		135	135	165	140	65	100
P.3.3	40	85	35	310		135	135	165	140	65	100
P.4.1	170	200	155	320		125	125	120	120	100	80
P.4.2	135	170	125	320		125	125	120	120	100	80
M.1.1			155	300		120	120	120	120	100	80
M.2.1			95	310		100	100	100	110	70	80
M.3.1			135	325		120	120	120	120	100	80
K.1.1	170	255			140	160	160	160	225	135	200
K.1.2	160	235			115	160	160	160	225	135	150
K.2.1	180	270			150	160	160	160	125	135	120
K.2.2	160	205			110	140	140	140	125	115	110
K.3.1	200	250			170	140	140	140	125	115	180
K.3.2	160	210			140	140	140	140	125	115	150
N.1.1					1400	400	400	400		250	300
N.1.2					1100	400	400	400		250	240
N.2.1					950	400	400	400		250	240
N.2.2					950	400	400	400		250	240
N.2.3					500	400	400	400		250	240
N.3.1					425	400	400	400		250	290
N.3.2					400	400	400	400		250	290
N.3.3					275	400	400	400		250	290
N.4.1					225						220
S.1.1				30		55					60
S.1.2				25		55					40
S.2.1				15		55					30
S.2.2				10		55					30
S.2.3				10		55					30
S.3.1				105		55					30
S.3.2				25		55					25
S.3.3						55					25
H.1.1						125					110
H.1.2						100					80
H.1.3						80					70
H.1.4											
H.2.1						170					70
H.3.1						125					70
O.1.1					130						240
O.1.2											240
O.2.1					105						180
O.2.2											180
O.3.1											180

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The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length (LTA).

Cutting data standard values for precision adjustment heads – MicroKom

Index	62 820 …, 62 840 …, 62 800 … BluFlex 2, hi.flex Fine machining with depth of cut a_p = 0.1 – 0.2 mm				62 800 06089 hi.flex micro Fine machining with depth of cut a_p = 0.1 – 0.2 mm			● 1st choice ○ suitable		
	Ø 0,5 – 5,6	Ø 5,6 – 8	Ø 8 – 12	Ø 12 – 365	Ø 0,5 – 8	Ø 8 – 12	Ø 12 – 60	Emulsion	Compressed air	MMS
	f (mm/rev)				f (mm/rev)					
P.1.1	0,02–0,05	0,03–0,04	0,05–0,07	0,07–0,10	0,02–0,05	0,05–0,07	0,07–0,10	●	○	
P.1.2	0,02–0,05	0,03–0,04	0,05–0,07	0,08–0,12	0,02–0,05	0,05–0,07	0,08–0,12	●	○	
P.1.3	0,02–0,05	0,03–0,04	0,04–0,06	0,08–0,12	0,02–0,05	0,04–0,06	0,08–0,12	●	○	
P.1.4	0,02–0,05	0,03–0,04	0,04–0,06	0,07–0,10	0,02–0,05	0,04–0,06	0,07–0,10	●	○	
P.1.5	0,02–0,05	0,03–0,04	0,05–0,07	0,08–0,12	0,02–0,05	0,05–0,07	0,08–0,12	●	○	
P.2.1	0,02–0,05	0,03–0,04	0,04–0,06	0,08–0,12	0,02–0,05	0,04–0,06	0,08–0,12	●	○	
P.2.2	0,02–0,05	0,03–0,04	0,04–0,06	0,07–0,10	0,02–0,05	0,04–0,06	0,07–0,10	●	○	
P.2.3	0,02–0,05	0,02–0,03	0,04–0,06	0,07–0,10	0,02–0,05	0,04–0,06	0,07–0,10	●	○	
P.2.4	0,02–0,05	0,02–0,03	0,03–0,04	0,06–0,08	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
P.3.1	0,02–0,05	0,02–0,03	0,04–0,06	0,06–0,08	0,02–0,05	0,04–0,06	0,06–0,08	●	○	
P.3.2	0,02–0,05	0,02–0,03	0,03–0,04	0,06–0,08	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
P.3.3	0,02–0,05	0,02–0,03	0,03–0,04	0,06–0,08	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
P.4.1	0,02–0,05	0,02–0,03	0,04–0,05	0,07–0,10	0,02–0,05	0,04–0,05	0,07–0,10	●	○	
P.4.2	0,02–0,05	0,02–0,03	0,03–0,04	0,06–0,08	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
M.1.1	0,02–0,05	0,01–0,015	0,04–0,05	0,07–0,10	0,02–0,05	0,04–0,05	0,07–0,10	●	○	
M.2.1	0,02–0,05	0,01–0,015	0,03–0,04	0,06–0,08	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
M.3.1	0,02–0,05	0,01–0,015	0,03–0,04	0,06–0,08	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
K.1.1	0,02–0,05	0,04–0,05	0,06–0,08	0,11–0,15	0,02–0,05	0,06–0,08	0,11–0,15	○	●	
K.1.2	0,02–0,05	0,04–0,05	0,06–0,08	0,11–0,15	0,02–0,05	0,06–0,08	0,11–0,15	○	●	
K.2.1	0,02–0,05	0,03–0,04	0,06–0,08	0,11–0,15	0,02–0,05	0,06–0,08	0,11–0,15	○	●	
K.2.2	0,02–0,05	0,02–0,03	0,05–0,07	0,08–0,12	0,02–0,05	0,05–0,07	0,08–0,12	○	●	
K.3.1	0,02–0,05	0,03–0,04	0,06–0,08	0,11–0,15	0,02–0,05	0,06–0,08	0,11–0,15	○	●	
K.3.2	0,02–0,05	0,02–0,03	0,05–0,07	0,08–0,12	0,02–0,05	0,05–0,07	0,08–0,12	○	●	
N.1.1	0,02–0,05	0,01–0,02	0,04–0,06	0,07–0,10	0,02–0,05	0,04–0,06	0,07–0,10	●	○	
N.1.2	0,02–0,05	0,01–0,02	0,04–0,06	0,07–0,10	0,02–0,05	0,04–0,06	0,07–0,10	●	○	
N.2.1	0,02–0,05	0,04–0,05	0,06–0,08	0,08–0,12	0,02–0,05	0,06–0,08	0,08–0,12	●	○	
N.2.2	0,02–0,05	0,04–0,05	0,06–0,08	0,08–0,12	0,02–0,05	0,06–0,08	0,08–0,12	●	○	
N.2.3	0,02–0,05	0,04–0,05	0,06–0,08	0,08–0,12	0,02–0,05	0,06–0,08	0,08–0,12	●	○	
N.3.1	0,02–0,05	0,01–0,02	0,03–0,04	0,06–0,08	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
N.3.2	0,02–0,05	0,01–0,02	0,03–0,04	0,06–0,08	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
N.3.3	0,02–0,05	0,04–0,05	0,06–0,08	0,11–0,15	0,02–0,05	0,06–0,08	0,11–0,15	●	○	
N.4.1	0,02–0,05	0,01–0,02	0,03–0,04	0,06–0,08	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
S.1.1	0,02–0,08	0,01–0,015	0,03–0,04	0,06–0,08	0,02–0,08	0,03–0,04	0,06–0,08	●	○	
S.1.2	0,02–0,08	0,01–0,015	0,02–0,03	0,04–0,06	0,02–0,08	0,02–0,03	0,04–0,06	●	○	
S.2.1	0,02–0,08	0,01–0,015	0,03–0,04	0,06–0,08	0,02–0,08	0,03–0,04	0,06–0,08	●	○	
S.2.2	0,02–0,08	0,01–0,015	0,02–0,03	0,04–0,06	0,02–0,08	0,02–0,03	0,04–0,06	●	○	
S.2.3	0,02–0,08	0,01–0,015	0,06–0,08	0,04–0,06	0,02–0,08	0,06–0,08	0,04–0,06	●	○	
S.3.1	0,02–0,08	0,01–0,015	0,03–0,04	0,06–0,08	0,02–0,08	0,03–0,04	0,06–0,08	●	○	
S.3.2	0,02–0,08	0,01–0,015	0,03–0,04	0,06–0,08	0,02–0,08	0,03–0,04	0,06–0,08	●	○	
S.3.3	0,02–0,08	0,01–0,015	0,01–0,02	0,03–0,04	0,02–0,08	0,01–0,02	0,03–0,04	●	○	
H.1.1	0,02–0,05		0,04–0,05	0,06–0,08	0,02–0,05	0,04–0,05	0,06–0,08		●	
H.1.2	0,02–0,05		0,04–0,05	0,06–0,08	0,02–0,05	0,04–0,05	0,06–0,08		●	
H.1.3	0,02–0,05		0,02–0,03	0,03–0,04	0,02–0,05	0,02–0,03	0,03–0,04		●	
H.1.4										
H.2.1	0,02–0,05		0,04–0,05	0,06–0,08	0,02–0,05	0,04–0,05	0,06–0,08		●	
H.3.1	0,02–0,05		0,04–0,05	0,06–0,08	0,02–0,05	0,04–0,05	0,06–0,08		●	
O.1.1	0,02–0,05		0,06–0,08	0,06–0,08	0,02–0,05	0,06–0,08	0,06–0,08	○	●	
O.1.2	0,02–0,05		0,06–0,08	0,06–0,08	0,02–0,05	0,06–0,08	0,06–0,08	○	●	
O.2.1										
O.2.2	0,02–0,05		0,06–0,08	0,07–0,10	0,02–0,05	0,06–0,08	0,07–0,10		●	
O.3.1	0,02–0,05		0,06–0,08	0,07–0,10	0,02–0,05	0,06–0,08	0,07–0,10		●	

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The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The specified values represent guideline cutting data that can be adjusted within the range according to the usage conditions! It is essential to observe the v_c values of the type used, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length (LTA).

5

Cutting data standard values for precision adjustment heads – MicroKom

Index	62 815 … M03 Speed, Fine machining with depth of cut a_p = 0.1 – 0.2 mm		62 810 … FF precision adjustment head, Fine machining with depth of cut a_p = 0.1 – 0.2 mm			● 1st choice ○ suitable		
	Ø 24,8 – 63	Ø 63 – 206	Ø 29,5 – 50	Ø 47 – 83	Ø 79 – 199	Emulsion	Compressed air	MMS
	f (mm/rev)		f (mm/rev)					
P.1.1	0,06–0,08	0,07–0,10	0,06–0,08	0,07–0,10	0,11–0,15	●	○	○
P.1.2	0,07–0,10	0,11–0,15	0,07–0,10	0,11–0,15	0,14–0,20	●	○	○
P.1.3	0,06–0,08	0,08–0,12	0,06–0,08	0,08–0,12	0,14–0,20	●	○	○
P.1.4	0,05–0,07	0,07–0,10	0,05–0,07	0,07–0,10	0,13–0,18	●	○	○
P.1.5	0,06–0,09	0,09–0,13	0,06–0,09	0,09–0,13	0,13–0,18	●	○	○
P.2.1	0,06–0,08	0,08–0,12	0,06–0,08	0,08–0,12	0,14–0,20	●	○	○
P.2.2	0,05–0,07	0,07–0,10	0,05–0,07	0,07–0,10	0,13–0,18	●	○	○
P.2.3	0,06–0,08	0,07–0,10	0,06–0,08	0,07–0,10	0,14–0,20	●	○	○
P.2.4	0,04–0,06	0,06–0,08	0,04–0,06	0,06–0,08	0,07–0,10	●	○	○
P.3.1	0,04–0,06	0,07–0,10	0,04–0,06	0,07–0,10	0,11–0,15	●	○	○
P.3.2	0,03–0,04	0,06–0,08	0,03–0,04	0,06–0,08	0,08–0,12	●	○	○
P.3.3	0,03–0,04	0,05–0,07	0,03–0,04	0,05–0,07	0,07–0,10	●	○	○
P.4.1	0,04–0,06	0,07–0,10	0,04–0,06	0,07–0,10	0,11–0,15	●	○	○
P.4.2	0,03–0,04	0,06–0,08	0,03–0,04	0,06–0,08	0,08–0,12	●	○	○
M.1.1	0,04–0,06	0,07–0,10	0,04–0,06	0,07–0,10	0,11–0,15	●	○	○
M.2.1	0,04–0,06	0,07–0,10	0,04–0,06	0,07–0,10	0,11–0,15	●	○	○
M.3.1	0,04–0,05	0,06–0,09	0,04–0,05	0,06–0,09	0,08–0,12	●	○	○
K.1.1	0,11–0,15	0,14–0,20	0,11–0,15	0,14–0,20	0,21–0,30	○	●	○
K.1.2	0,11–0,15	0,14–0,20	0,11–0,15	0,14–0,20	0,21–0,30	○	●	○
K.2.1	0,07–0,10	0,11–0,15	0,07–0,10	0,11–0,15	0,18–0,25	○	●	○
K.2.2	0,06–0,08	0,08–0,12	0,06–0,08	0,08–0,12	0,14–0,20	○	●	○
K.3.1	0,07–0,10	0,11–0,15	0,07–0,10	0,11–0,15	0,18–0,25	○	●	○
K.3.2	0,06–0,08	0,08–0,12	0,06–0,08	0,08–0,12	0,14–0,20	○	●	○
N.1.1	0,06–0,08	0,08–0,12	0,06–0,08	0,08–0,12	0,11–0,15	●	○	○
N.1.2	0,06–0,08	0,08–0,12	0,06–0,08	0,08–0,12	0,11–0,15	●	○	○
N.2.1	0,07–0,10	0,11–0,15	0,07–0,10	0,11–0,15	0,14–0,20	●	○	○
N.2.2	0,07–0,10	0,11–0,15	0,07–0,10	0,11–0,15	0,14–0,20	●	○	○
N.2.3	0,06–0,09	0,08–0,12	0,06–0,09	0,08–0,12	0,13–0,18	●	○	○
N.3.1	0,07–0,10	0,11–0,15	0,07–0,10	0,11–0,15	0,14–0,20	●	○	○
N.3.2	0,07–0,10	0,11–0,15	0,07–0,10	0,11–0,15	0,15–0,22	●	○	○
N.3.3	0,07–0,10	0,11–0,15	0,07–0,10	0,11–0,15	0,14–0,20	●	○	○
N.4.1	0,07–0,10	0,11–0,15	0,07–0,10	0,11–0,15	0,14–0,20	●	○	○
S.1.1	0,04–0,06	0,06–0,08	0,04–0,06	0,06–0,08	0,07–0,10	●	○	○
S.1.2	0,03–0,04	0,04–0,06	0,03–0,04	0,04–0,06	0,06–0,08	●	○	○
S.2.1	0,04–0,06	0,06–0,08	0,04–0,06	0,06–0,08	0,07–0,10	●	○	○
S.2.2	0,03–0,04	0,04–0,06	0,03–0,04	0,04–0,06	0,06–0,08	●	○	○
S.2.3	0,03–0,04	0,04–0,06	0,03–0,04	0,04–0,06	0,04–0,06	●	○	○
S.3.1	0,04–0,06	0,06–0,08	0,04–0,06	0,06–0,08	0,08–0,11	●	○	○
S.3.2	0,04–0,06	0,06–0,08	0,04–0,06	0,06–0,08	0,07–0,10	●	○	○
S.3.3	0,03–0,04	0,04–0,06	0,03–0,04	0,04–0,06	0,07–0,10	●	○	○
H.1.1	0,06–0,08	0,06–0,08	0,06–0,08	0,06–0,08	0,07–0,10		●	○
H.1.2	0,04–0,06	0,04–0,06	0,04–0,06	0,04–0,06	0,06–0,08		●	○
H.1.3	0,03–0,04	0,03–0,04	0,03–0,04	0,03–0,04	0,03–0,04		●	○
H.1.4								
H.2.1	0,04–0,05	0,04–0,06	0,04–0,05	0,04–0,06	0,07–0,10		●	○
H.3.1	0,04–0,05	0,04–0,06	0,04–0,05	0,04–0,06	0,06–0,08		●	○
O.1.1	0,06–0,08	0,06–0,08	0,06–0,08	0,06–0,08	0,06–0,08	○	●	○
O.1.2	0,06–0,08	0,06–0,08	0,06–0,08	0,06–0,08	0,06–0,08	○	●	○
O.2.1								
O.2.2	0,06–0,08	0,06–0,08	0,06–0,08	0,06–0,08	0,06–0,08		●	
O.3.1	0,06–0,08	0,06–0,08	0,06–0,08	0,06–0,08	0,06–0,08		●	

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The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The specified values represent guideline cutting data that can be adjusted within the range according to the usage conditions! It is essential to observe the v_c values of the type used, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length (LTA).

Cutting data standard values for finish boring heads – SpinTools

Index	62 303 ..., 62 308 ...	62 305 ...	● 1st choice ○ suitable			62 382 ..., 62 386 ...	62 372 ..., 62 373 ...	62 326 ..., 62 332 ..., 62 333 ..., 62 363 ...	62 304 ...	● 1st choice ○ suitable		
	Single point finish boring head		Emulsion	Compressed air	MMS	Micro Boring Head	Multi-Head boring and fine boring head	Single point boring head	Fine boring head	Emulsion	Compressed air	MMS
	a_p = 0,1 – 0,4					a_p = 0,1 – 0,2	a_p = 0,1 – 0,4	a_p = 0,1 – 0,4	a_p = 0,1 – 0,4			
	Ø 23,9–116,1	Ø 86–402				Ø 0,3–19,1	Ø 2–320	Ø 3–88	Ø 14,7–24,1			
	f (mm/rev)					f (mm/rev)						
P.1.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.1.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.1.3	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.1.4	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.1.5	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.2.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.2.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.2.3	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.2.4	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.3.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.3.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.3.3	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.4.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.4.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
M.1.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
M.2.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
M.3.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
K.1.1	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
K.1.2	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
K.2.1	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
K.2.2	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
K.3.1	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
K.3.2	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
N.1.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
N.1.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
N.2.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
N.2.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
N.2.3	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
N.3.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
N.3.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
N.3.3	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
N.4.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
S.1.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
S.1.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
S.2.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
S.2.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
S.2.3	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
S.3.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
S.3.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
S.3.3	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
H.1.1	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
H.1.2	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
H.1.3	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
H.1.4												
H.2.1	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
H.3.1	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
O.1.1	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
O.1.2	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
O.2.1	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	
O.2.2	0,03–0,12	0,03–0,12		●		0,02	0,03–0,12	0,03–0,12	0,03–0,10		●	
O.3.1	0,03–0,12	0,03–0,12		●		0,02	0,03–0,12	0,03–0,12	0,03–0,10		●	

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The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The specified values represent guideline cutting data that can be adjusted within the range (i.e. by ± 20%) according to the usage conditions! It is essential to observe the v_c values of the type used, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length (LTA).

5

Cutting data standard values for boring heads for roughing – TwinKom

Index	62 870 … Twin cutters, Cutting depth a_p = 1 – 9 mm							● 1st choice ○ suitable		
	Ø 24–32	Ø 30– 41	Ø 39– 53	Ø 51–71	Ø 64–91	Ø 83–124	Ø 109–215	Emulsion	Compressed air	MMS
	f (mm/rev)									
P.1.1	0,14–0,20	0,17–0,24	0,22–0,30	0,28–0,40	0,32–0,45	0,35–0,50	0,35–0,50	●	○	○
P.1.2	0,14–0,20	0,17–0,24	0,22–0,30	0,28–0,40	0,32–0,45	0,35–0,50	0,35–0,50	●	○	○
P.1.3	0,14–0,20	0,17–0,24	0,22–0,30	0,28–0,40	0,32–0,45	0,35–0,50	0,35–0,50	●	○	○
P.1.4	0,14–0,20	0,17–0,24	0,22–0,30	0,28–0,40	0,32–0,45	0,35–0,50	0,35–0,50	●	○	○
P.1.5	0,14–0,20	0,17–0,24	0,22–0,30	0,28–0,40	0,32–0,45	0,35–0,50	0,35–0,50	●	○	○
P.2.1	0,14–0,20	0,17–0,24	0,22–0,30	0,28–0,40	0,32–0,45	0,35–0,50	0,35–0,50	●	○	○
P.2.2	0,14–0,20	0,17–0,24	0,22–0,30	0,28–0,40	0,32–0,45	0,35–0,50	0,35–0,50	●	○	○
P.2.3	0,14–0,20	0,17–0,24	0,22–0,30	0,28–0,40	0,32–0,45	0,35–0,50	0,35–0,50	●	○	○
P.2.4	0,14–0,20	0,17–0,24	0,22–0,30	0,28–0,40	0,32–0,45	0,35–0,50	0,35–0,50	●	○	○
P.3.1	0,11–0,15	0,14–0,20	0,18–0,25	0,22–0,32	0,27–0,38	0,29–0,42	0,29–0,42	●	○	○
P.3.2	0,11–0,15	0,14–0,20	0,18–0,25	0,22–0,32	0,27–0,38	0,29–0,42	0,29–0,42	●	○	○
P.3.3	0,11–0,15	0,14–0,20	0,18–0,25	0,22–0,32	0,27–0,38	0,29–0,42	0,29–0,42	●	○	○
P.4.1	0,08–0,12	0,11–0,15	0,14–0,20	0,18–0,25	0,20–0,28	0,25–0,35	0,25–0,35	●	○	○
P.4.2	0,08–0,12	0,11–0,15	0,14–0,20	0,18–0,25	0,20–0,28	0,25–0,35	0,25–0,35	●	○	○
M.1.1	0,10–0,14	0,13–0,18	0,17–0,24	0,17–0,24	0,21–0,30	0,28–0,40	0,32–0,45	●	○	○
M.2.1	0,10–0,14	0,13–0,18	0,17–0,24	0,28–0,40	0,21–0,30	0,28–0,40	0,32–0,45	●	○	○
M.3.1	0,08–0,12	0,10–0,14	0,14–0,20	0,14–0,20	0,18–0,25	0,21–0,30	0,25–0,35	●	○	○
K.1.1	0,18–0,25	0,21–0,30	0,28–0,40	0,35–0,50	0,39–0,55	0,42–0,60	0,42–0,60	○	●	○
K.1.2	0,18–0,25	0,21–0,30	0,28–0,40	0,35–0,50	0,39–0,55	0,42–0,60	0,42–0,60	○	●	○
K.2.1	0,18–0,25	0,21–0,30	0,28–0,40	0,35–0,50	0,39–0,55	0,42–0,60	0,42–0,60	○	●	○
K.2.2	0,15–0,22	0,20–0,28	0,21–0,30	0,32–0,45	0,32–0,45	0,35–0,50	0,35–0,50	○	●	○
K.3.1	0,14–0,20	0,17–0,24	0,20–0,28	0,25–0,35	0,28–0,40	0,32–0,45	0,32–0,45	○	●	○
K.3.2	0,14–0,20	0,17–0,24	0,20–0,28	0,25–0,35	0,28–0,40	0,32–0,45	0,32–0,45	○	●	○
N.1.1	0,18–0,25	0,21–0,30	0,35–0,50	0,35–0,50	0,42–0,60	0,49–0,70	0,49–0,70	●	○	○
N.1.2	0,18–0,25	0,21–0,30	0,35–0,50	0,35–0,50	0,42–0,60	0,49–0,70	0,49–0,70	●	○	○
N.2.1	0,18–0,25	0,21–0,30	0,35–0,50	0,35–0,50	0,42–0,60	0,49–0,70	0,49–0,70	●	○	○
N.2.2	0,18–0,25	0,21–0,30	0,35–0,50	0,35–0,50	0,42–0,60	0,49–0,70	0,49–0,70	●	○	○
N.2.3	0,18–0,25	0,21–0,30	0,35–0,50	0,35–0,50	0,42–0,60	0,49–0,70	0,49–0,70	●	○	○
N.3.1	0,18–0,25	0,21–0,30	0,35–0,50	0,35–0,50	0,42–0,60	0,49–0,70	0,49–0,70	●	○	○
N.3.2	0,18–0,25	0,21–0,30	0,35–0,50	0,35–0,50	0,42–0,60	0,49–0,70	0,49–0,70	●	○	○
N.3.3	0,18–0,25	0,21–0,30	0,35–0,50	0,35–0,50	0,42–0,60	0,49–0,70	0,49–0,70	●	○	○
N.4.1	0,18–0,25	0,21–0,30	0,35–0,50	0,35–0,50	0,42–0,60	0,49–0,70	0,49–0,70	●	○	○
S.1.1	0,08–0,12	0,08–0,12	0,08–0,12	0,10–0,14	0,13–0,18	0,14–0,20	0,14–0,20	●	○	○
S.1.2	0,07–0,10	0,07–0,10	0,07–0,10	0,08–0,11	0,10–0,14	0,11–0,16	0,11–0,16	●	○	○
S.2.1	0,08–0,12	0,08–0,12	0,08–0,12	0,10–0,14	0,13–0,18	0,14–0,20	0,14–0,20	●	○	○
S.2.2	0,07–0,10	0,07–0,10	0,07–0,10	0,08–0,11	0,13–0,18	0,11–0,16	0,11–0,16	●	○	○
S.2.3	0,07–0,10	0,07–0,10	0,07–0,10	0,08–0,11	0,10–0,14	0,11–0,16	0,11–0,16	●	○	○
S.3.1	0,08–0,12	0,08–0,12	0,08–0,12	0,10–0,14	0,13–0,18	0,14–0,20	0,14–0,20	●	○	○
S.3.2	0,08–0,12	0,08–0,12	0,08–0,12	0,10–0,14	0,13–0,18	0,14–0,20	0,14–0,20	●	○	○
S.3.3	0,07–0,10	0,07–0,10	0,07–0,10	0,08–0,11	0,13–0,18	0,11–0,16	0,11–0,16	●	○	○
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1	0,11–0,16	0,11–0,16	0,11–0,16	0,14–0,20	0,14–0,20	0,14–0,20	0,14–0,20	○	●	○
O.1.2	0,11–0,16	0,11–0,16	0,11–0,16	0,14–0,20	0,14–0,20	0,14–0,20	0,14–0,20	○	●	○
O.2.1										
O.2.2	0,06–0,08	0,06–0,08	0,07–0,10	0,07–0,10	0,08–0,12	0,08–0,12	0,10–0,14		●	
O.3.1	0,06–0,08	0,06–0,08	0,07–0,10	0,07–0,10	0,09–0,12	0,08–0,12	0,10–0,14		●	

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The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The specified values represent guideline cutting data that can be adjusted within the range according to the usage conditions! It is essential to observe the v_c values of the type used, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length (LTA).

Cutting data standard values for boring heads for roughing – SpinTools

Index	62 295 … Twin rough boring head, Cutting depth a_p = 2.5 – 7 mm			● 1st choice ○ suitable		
	Ø 23,5–40,5	Ø 40,5–66,5	Ø 66,5–87,5	Emulsion	Compressed air	MMS
	f (mm/rev)					
P.1.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.1.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.1.3	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.1.4	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.1.5	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.2.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.2.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.2.3	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.2.4	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.3.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.3.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.3.3	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.4.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.4.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
M.1.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
M.2.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
M.3.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
K.1.1	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
K.1.2	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
K.2.1	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
K.2.2	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
K.3.1	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
K.3.2	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
N.1.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
N.1.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
N.2.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
N.2.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
N.2.3	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
N.3.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
N.3.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
N.3.3	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
N.4.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
S.1.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
S.1.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
S.2.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
S.2.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
S.2.3	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
S.3.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
S.3.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
S.3.3	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
H.1.1	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
H.1.2	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
H.1.3	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
H.1.4						
H.2.1	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
H.3.1	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
O.1.1	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
O.1.2	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
O.2.1	0,3–0,4	0,4–0,5	0,5–0,7	○		
O.2.2	0,3–0,4	0,4–0,5	0,5–0,7		●	
O.3.1	0,3–0,4	0,4–0,5	0,5–0,7		●	

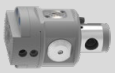
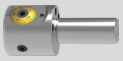
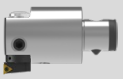
→ v_c Page 65+66 → $n_{max.}$ Page 72+74 → LTA Page 72+74

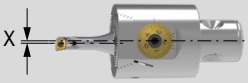
The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The specified values represent guideline cutting data that can be adjusted within the range according to the usage conditions! It is essential to observe the v_c values of the type used, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length (LTA).

5

Fine boring tools

Maximum speed

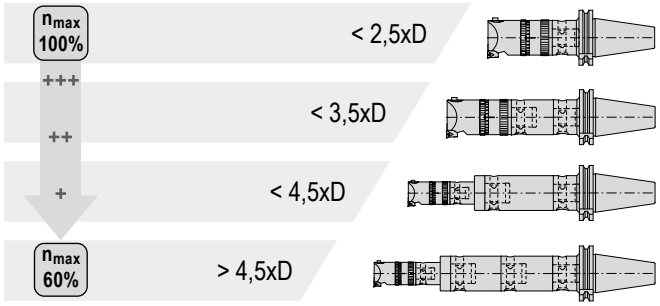
System / tool		Boring range Ø (mm)	Maximum speed in slide centre position n_{max} in $1/_{min}$
	62 820 ..., 62 840 ... BluFlex 2	0,5–365	20.000
	**62 800 ...** hi.flex	0,5–365	17.500
	62 800 06089 hi.flex micro	0,5–60	30.000
	**62 386 ..., 62 382 ...** Micro Boring Head	0,3–19,1	30.000
	62 815 ... M03 Speed	24–39	40.000
		38–50	31.000
		49–63	24.000
		62–80	18.500
		79– 103	15.000
		100– 130	11.500
		128–168	10.000
		166–206	8.000
	**62 810 ...** FF precision adjustment head	29,5–42	25.000
		39–50	18.000
		47–66	12.000
		58–83	9.000
		79– 108	6.000
		100–141	4.000
		138–179	3.500
		178–199	3.000
	62 372 ..., 62 373 ... Multi-Head boring and fine boring head with bridge	88–164	900
		164–320	250
	62 305 ... Single point finish boring head with insert holder	86–138	1.150
		136–220	720
		188–302	520
		242–402	400

System / tool		Offset	
	Boring range Ø (mm)	X ≤ 0,5 mm	X > 0,5 mm
		Maximum speed n_{max} in $1/_{min}$	
62 372 ..., 62 373 ... Multi-Head boring and fine boring head with boring bar	3–20	16.000	6.000
62 326 ..., 62 332 ..., 62 333 ..., 62 363 ... Single point boring head with boring bar	20–48	12.000	4.000
	48–88	8.000	2.000

System / tool			
	Boring range Ø (mm)	Unbalanced	Balanced
		Maximum speed n_{max} in $1/_{min}$	
62 308 ..., 62 303 ... Single point finish boring head with insert holder	24–31	9.000	12.000
	31–40	7.500	10.000
	40–51	5.250	8.000
	51–67	4.000	6.500
	67– 87	3.000	5.000
	87–116	2.500	4.000
	116–153	1.750	3.000

Selection of the maximum speed

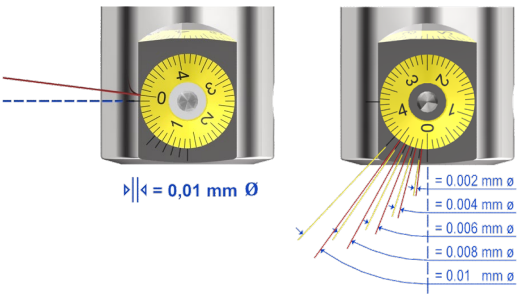
depending on the overhang length (LTA)



Scale accuracy

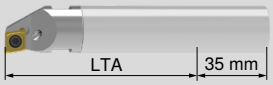
Large scale with 0.002 mm adjustment

How it works:



Fine boring tools

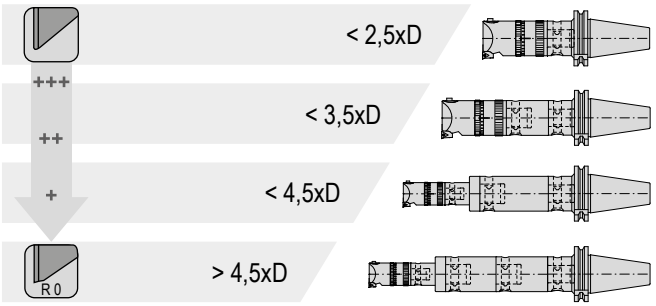
Maximum overhang length LTA at 35 mm shank clamping depth



LTA (mm)	High-speed boring head 62 361 ...																Fine boring head 62 304 ...			Boring bar 62 353 ...
	014	015	016	017	018	019	020	021	022	023	025	027	030	033	037	040	017	020	024	
	56																			008
		63																		009
			70																	010
				77																011
					84															012
						91														013
							98	98									115			014
									112	112	112	112	112	112	112	112		125		016
																			105	018
																			145	118
																			185	218

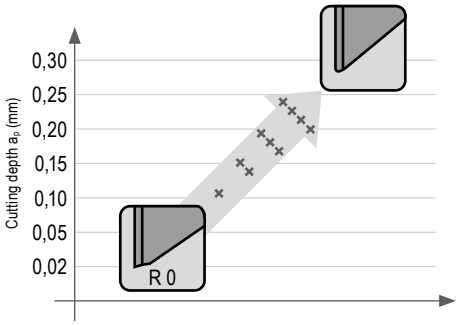
Selection of the cutting radius

depending on the overhang length (LTA)



Selection of the cutting radius

depending on the cutting depth a_p



Influence of the cutting forces of the cutting edge radius on internal machining

Resulting force

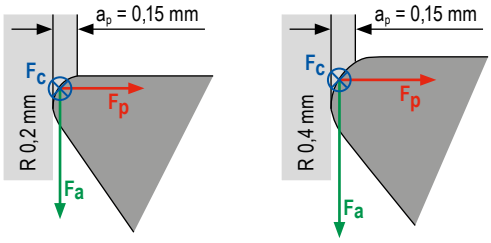
$$F_{res} = \sqrt{F_a^2 + F_p^2} = \sqrt{F_c^2 + F_f^2 + F_p^2}$$

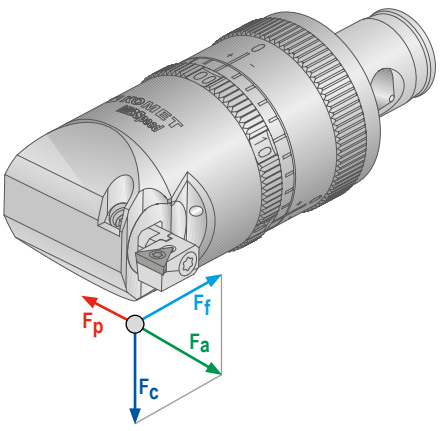
Tangential cutting force (Fc)
- ▲ pushes the tool down from the vertical central axis
- ▲ is influenced by the cutting depth and the chip thickness
- ▲ reduces the clearance angle

Passive cutting force (Fp)
- ▲ pushes the tool away from the horizontal central axis
- ▲ increases the risk of vibrations and causes dimensional inaccuracies

Feed force (Ff)
- ▲ acts in the machining direction of the tool

Active cutting force (Fa)
- ▲ determined by F_c and F_f

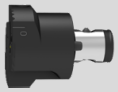




5

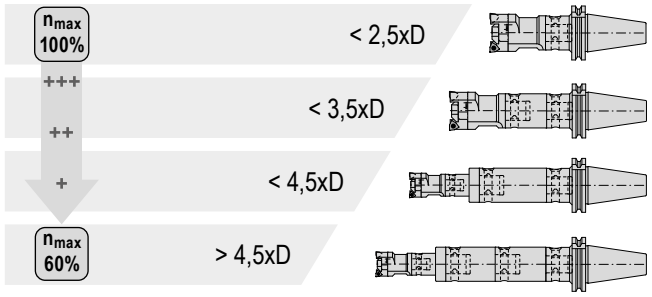
Counterboring tools

Maximum speed

System / tool	Boring range Ø (mm)	Maximum speed n_{max} in $1/_{min}$
 **62 870 ...** TwinKom	24–31	12.000
	31–40	10.000
	40–51	8.000
	51–68	6.500
62 295 ... Twin rough boring head	67–87	5.000
	87–116	4.000
	116–153	3.000
	153–215	2.200

Selection of the maximum speed

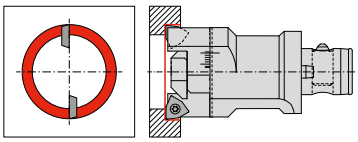
depending on the overhang length (LTA)



TwinKom applications

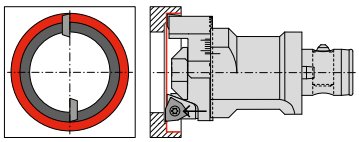
in pre-cast / premachined holes

Roughing as a "true" two-edged cutter

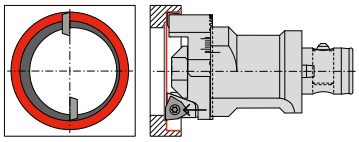


Axial adjustment required

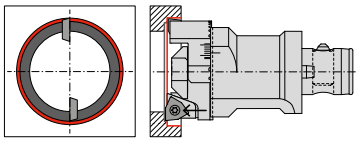
Roughing with large allowance



Roughing with large offset

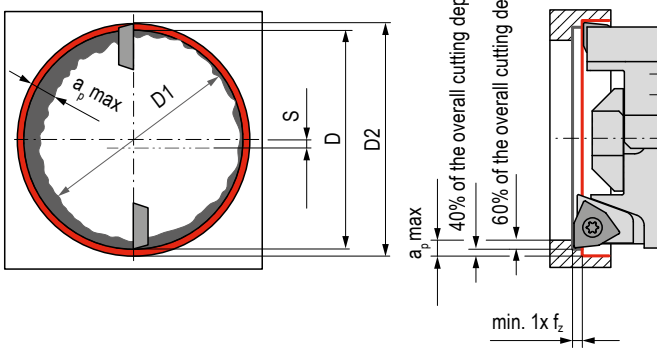


Roughing / Semi-Finishing



Cut distribution calculation

Example:
D2 (finished Ø) = 100 mm,
D1 (raw Ø) = 80 mm,
S (offset) = 3 mm



Calculation formula

$$D = D2 - [(\frac{D2 - D1}{2}) + S] \times 0{,}8$$

$$D = 100 - [(\frac{100 - 80}{2}) + 3] \times 0{,}8 = 89{,}6 \text{ mm}$$

Feed rate guide values for surface finish quality

Roughness range R_Z in µm	R_{th}	Corresponds to R_a	Roughness index	ISO 1302	Corner radius RE in mm and feed f in mm/rev						
					RE = 0,1	RE = 0,2	RE = 0,4	RE = 0,8	RE = 1,2	RE = 1,6	RE = 2,4
63–100	$R_{th}63$	12,5–25	N11	25	0,22*	0,32*	0,45*	0,63	0,78	0,9	1,1
40–63	$R_{th}40$	6,3–12,5	N10	12,5	0,18*	0,25*	0,36	0,51	0,62	0,72	0,88
31,5–40	$R_{th}31{,}5$	4,9–6,3	N9	6,3	0,16*	0,22*	0,32	0,45	0,55	0,63	0,78
25–31,5	$R_{th}25$	4,0–4,9			0,14*	0,2*	0,28	0,4	0,49	0,57	0,69
16–25	$R_{th}16$	2,5–4,0	N8	3,2	0,11*	0,16	0,23	0,32	0,39	0,45	0,55
10–16	$R_{th}10$	1,6–2,5			0,09	0,13	0,18	0,25	0,31	0,36	0,44
6,3–10	$R_{th}6{,}3$	1,0–1,6	N7	1,6	0,07	0,1	0,14	0,2	0,25	0,28	0,35
4–6,3	$R_{th}4$	0,8–1,0	N6	0,8	0,06	0,08	0,11	0,16	0,2	0,23	0,28
2,5–4	$R_{th}2{,}5$	0,4–0,8	N5	0,4	0,04	0,06	0,09	0,13	0,15	0,18	0,22
1,6–2,5	$R_{th}1{,}6$	0,2–0,4	N4	0,2	0,04	0,05	0,07	0,1	0,12	0,14	0,18
1–1,6	$R_{th}1$	0,1–0,2	N3	0,1	0,03	0,04	0,06	0,08	0,1	0,11	0,14

*Please ensure that the feed rate values used do not exceed the corner radius (RE).

The feed rate values shown are recommended values and are based on purely theoretical calculations using the above-mentioned formula. These may however deviate in practice.

Insert

Selection of the rake angle

Recommendations for the usage of indexable inserts with ground chip breakers

	rounded E	Sharp F	chamfered T
0°	P	P	P
	M	M	M
	K	K	**K**
	N	**N**	N
	S	S	S
	H	H	**H**
≤ 6°	**P**	P	P
	M	M	M
	K	K	K
	N	N	N
	S	S	S
	H	H	H
≤ 12°	**P**	P	P
	M	M	M
	K	K	K
	N	**N**	N
	S	**S**	S
	H	H	H
≤ 20°	P	P	P
	M	M	M
	K	K	K
	N	**N**	N
	S	**S**	S
	H	H	H

→ **Page 79**
Here you will find a detailed chip groove description.

Number key

for MicroKom indexable inserts

W	2	9	2	4	0	1	0	.	0	4	8	4	2	5
	2	*3*	*4*	*5*	*6*	*7*	*8*		*9*	*10*	*11*	*12*	*13*	*14*

2 – 3 Type / shape

00	W...	84°	Regular version, periphery ground
29	W...	84°	Reinforced version
30	T...	60°	Periphery ground, clearance angle 8°
57	T...	60°	Periphery ground, clearance angle 11°
80	S...	90°	Periphery sintered

4 – 5 Size / IC

04	4,0 mm	**18**	6,2 mm 6,35 mm	**28**	8,9 mm	**42**	12,0 mm
10	4,8 mm 5,0 mm	**20**	7,0 mm 7,1 mm	**32**	9,52 mm 9,8 mm	**46**	13,2 mm
12	5,5 mm	**24**	8,0 mm	**34**	10,0 mm	**50**	15,0 mm
14	5,6 mm	**26**	8,2 mm	**38**	10,9 mm 11,1 mm	**58**	17,6 mm

6 – 7 Topography

Ground code

06	Left-hand cutting, 6°
12	Left-hand cutting, 12°
34	High-feed geometry, chamfered and rounded

Sintered code

01	Double grooves, cutting edge chamfered and rounded
02	Stepped geometry, cutting edge chamfered and rounded
03	Calotte geometry, cutting edge rounded
11	20° chip former, cutting edge rounded
12	Alu / finishing geometry
13	Shaft geometry, cutting edge rounded
14	Finishing topography
15	Semi-finishing topography
18	Finishing topography with wiper corner
32	Burr-minimised, periphery ground
33	Burr-minimised, periphery sintered

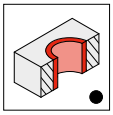
9 – 10 Corner radius

01	R 0,1	**04**	R 0,4
02	R 0,2	**06**	R 0,6
03	R 0,3	**08**	R 0,8

11 – 14 Grade

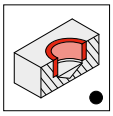
→ **Page 80+81**
Here you will find the detailed grade description.

Notes on drilling technology – TwinKom

1. 

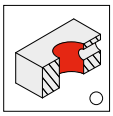
Counterboring a through hole

▲ Possible without any problems

2. 

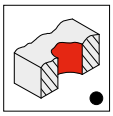
Counterboring a blind hole

▲ Possible without any problems

3. 

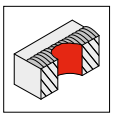
Drilling through a transverse hole

▲ Reduce feed by up to 50%, if necessary
▲ Check for chip jamming on the periphery of the tool
▲ Use tough indexable inserts
▲ Use stable corner radius

4. 

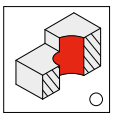
Spot drilling uneven surfaces (casting surfaces)

▲ Feed must reduce by up to 40% when spot drilling
▲ Use tough indexable inserts
▲ Use stable corner radius

5. 

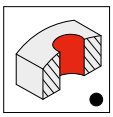
Spot drilling a seam (forging/welding/casting seam)

▲ Reduce feed
▲ Use max. 3xD tools

6. 

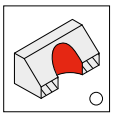
Spot drilling an edge

▲ Reduce feed to 50%
▲ Use tough indexable inserts
▲ Use stable corner radius

7. 

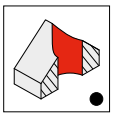
Spot drilling convex surfaces

▲ Possible without any problems
▲ If necessary, reduce feed

8. 

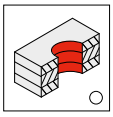
Spot drilling angled surfaces

▲ From the interrupted cut, reduce the feed by up to 50%
▲ Use tough indexable inserts
▲ Use stable corner radius

9. 

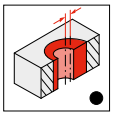
Spot drilling a pointed contour

▲ Reduce the feed by up to 40% in the area where cutting is interrupted

10. 

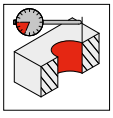
Stack plate drilling

▲ Use holder with 80° positioning
▲ Good workpiece clamping required
▲ Max. gap size = 1 mm

11. 

Large hole offset

▲ Possible without any problems
▲ Axial-radial cut distribution, see graphic: Cut distribution

12. 

Adjustable in diameter

▲ Possible without any problems

Problems / possible causes / solutions – Counterboring and fine boring

1. No chip breakage

▲ Cutting depth a_p too low for cutting edge topography used	→ If necessary, increase the cutting depth a_p → Use cutting edge topography for small to medium cutting depths
▲ Cutting depth a_p too big for cutting edge topography used	→ Reduce cutting depth a_p → Axial-radial cut distribution → Use cutting edge topography for larger cutting depths
▲ Feed/tooth too low	→ Increase feed/tooth
▲ RPM too high	→ Reduce RPM
▲ Cutting edges not same length axially	→ Correct axial offset: Use holder with axial length compensation

2. Chip jamming

▲ Unfavourable chip shape	→ Increase feed → Use cutting edge topography with chip breaker → Axial-radial cut distribution → See measures: 1. No chip breakage
▲ Workpiece clamping	→ In the case of through holes, check there is sufficient space for pecking behind the component
▲ Cooling lubricant pressure/quantity too low	→ Improve cooling lubricant pressure/quantity

3. Conical hole

→ See measures: 1. No chip breakage

4. Poor surface quality

▲ Feed too high	→ Reduce feed
▲ Cutting speed too low	→ Increase cutting speed
▲ Cutting radius too small	→ Use indexable insert with a larger cutting radius → Use indexable insert with wiper geometry
▲ Rake angle of the indexable insert too small	→ Use indexable insert with positive cutting edge geometry
▲ Built-up edge	→ Use indexable insert with positive cutting edge geometry → Use indexable insert with wider chip breaker groove
▲ Unfavourable chip shape	→ See measures: 1. No chip breakage → See measures: 2. Chip jam

5. Vibration

▲ Tool design – high L/D ratio	→ If necessary, check tool design → If possible, consistently avoid the same boring bar Ø → If possible, stepped tool design; design tool to be as stable as possible → Check axial-radial cutting settings → Use vibration-optimised boring bar, if necessary → Use HMD damping element, if necessary
▲ Feed too high	→ Reduce feed
▲ Cutting speed too high	→ Reduce cutting speed, see graphic: Selection of the cutting speed depending on the overhang length
▲ Depth of cut too big	→ Reduce depth of cut → Axial-radial cut distribution
▲ Cutting edge geometry too blunt	→ Use indexable insert with positive cutting edge geometry → Use indexable insert with wider chip breaker groove
▲ Cutting radius too big	→ Use indexable insert with a smaller cutting radius, see graphic: Selection of the cutting radius depending on the overhang length and the depth of cut

Types of wear

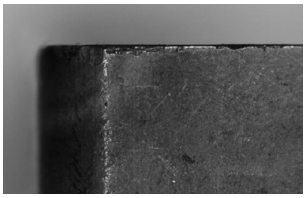
Wear on clearance face

Abrasion on the flank: normal wear after a certain period of operation.

Cause
- Cutting speed too high
- Carbide grade does not have enough wear resistance
- Feed not adapted to application

Remedy
- Reduce cutting speed
- Select a carbide grade with high wear resistance
- Bring feed into the right relationship with cutting speed and cutting depth

Edge chipping

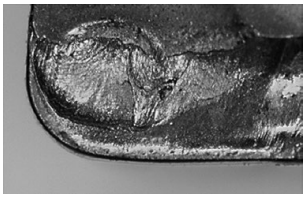


Increased mechanical stress on the cutting edge may result in carbide particles breaking off.

Cause
- Grade with too high a wear resistance
- Vibrations on tool or workpiece
- Feed rate or cutting depth is too high
- Built-up edge
- Interrupted cut
- Chip stroke

Remedy
- Use tougher grade
- Improve stability (tool, workpiece)
- Avoid built-up edges

Cratering

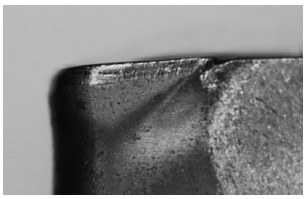


The outgoing hot chip is causing cratering of the cutting insert on the clamping surface.

Cause
- Cutting speed too high, feed too high
- Rake angle too low
- Grade does not have enough wear resistance
- Incorrectly supplied coolant

Remedy
- Reduce cutting speed and/or feed rate
- Choose carbide grades with greater wear-resistance
- Increase quantity and/or pressure of coolant, check supply
- Use a more crater-resistant grade

Plastic deformation

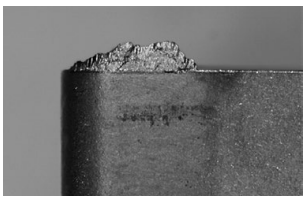


High machining temperature with simultaneous mechanical stress can lead to plastic deformation.

Cause
- Working temperature too high, softening of the base material
- Damage to the coating
- Grade does not have enough wear resistance
- Incorrectly supplied coolant

Remedy
- Reduce cutting speed
- Select more wear-resistant, more thermally stable carbide grade
- Make provisions for cooling / check supply

Built-up edge

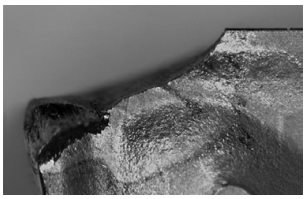


Material builds up on the cutting edge if the chip does not flow correctly due to the cutting temperature being too low.

Cause
- Cutting speed to low
- Rake angle too small
- Incorrect cutting material
- Missing coolant/lubrication

Remedy
- Increase cutting speed
- Increase rake angle
- Use TiN coating
- Make provisions for cooling / increase oil content of emulsion

Insert breakage



If a cutting insert is overloaded, insert breakage may occur.

Cause
- Cutting material overloaded (extreme values)
- Lack of stability
- Wedge angle too small
- Interference contours were not taken into account
- Interrupted cut

Remedy
- Use a tougher cutting material
- Use chamfer for edge protection
- Increase rounding of cutting edge
- Use more stable geometry
- Check cutting data
- Check interference contours

Chip breakers

-SF14

- Rake angle 14°
- Specially developed chip breakers with remarkable chip control for a range of applications, from fine finishing to medium machining

-SF15

- Rake angle 15°
- Balanced geometry: high stability with high cutting edge sharpness
- Excellent chip control with minimum susceptibility to built-up edge formation
- Particularly good chip breakage with small and medium feeds
- Initial recommendation for machining C-steel, alloyed and stainless steels

-SF16

- Rake angle 15°
- Balanced geometry: High stability for high cutting edge sharpness
- Large chip chamber, therefore good chip control at low feeds
- Initial recommendation for machining C-steel, alloyed and stainless steels

-SF20

- Rake angle 20°
- Particularly smooth cutting thanks to the extremely positive rake angle
- Excellent chip control with minimum susceptibility to built-up edge formation
- Perfect cutting performance thanks to the extremely positive rake angle, particularly with low depths of cut and feeds
- Initial recommendation for machining stainless steel, alloy steels, carbon steel and non-ferrous metals

-SF30

- Rake angle 15°
- Balanced geometry: High stability for high cutting edge sharpness
- Chip breaker geometry: Very good chip breakage for small and medium feeds
- Initial recommendation for machining C-steel, alloyed and stainless steels

-01

- Rake angle 12°
- All-round topography chamfered, rounded
- Very smooth-cutting thanks to positive cutting edge geometry
- Also suitable for less-powerful machines and unstable workpieces
- Easily controllable chip formation also in less solid materials

-02

- Rake angle 0°
- Roughing topography, extremely stable (significant wedge angle)
- Excellent chip formation for chips that are difficult to control
- Only suitable for small cutting depths < 1.5 mm under certain circumstances

-11

- Rake angle 20°
- Highly positive, minimally rounded chip breaker
- For soft-cutting usage
- Main application in aluminium

-12

- Rake angle 30°
- Peripheral ground indexable insert with pressed chip breaker
- Highly positive, sharp and all-round cutting edge, therefore extremely smooth-cutting
- Peripheral ground flanks guarantee controlled chip formation and best surface quality at low cutting forces

-14

- Rake angle 14°
- Peripheral ground, sintered topography
- Controlled chip formation in fine and extremely fine machining

-15

- Rake angle 15°
- Semi-finishing chip breaker; peripheral ground, sintered
- Controlled chip formation in fine and extremely fine machining

-18

- Rake angle 14°
- Peripheral ground and sintered topography
- Controlled chip formation in fine and extremely fine machining
- Positive wiper geometry for maximum demands on surface quality

-G06

- Rake angle 6°
- For P / M / K materials
- High stability due to significant wedge angle

-G12

- Rake angle 12°
- For P / N / S materials
- Extremely smooth-cutting thanks to positive cutting edge geometry
- Extremely suitable for less-powerful machines and unstable workpieces
- Easily controllable chip formation also in less solid materials

Type

K10

- Carbide, uncoated
- ISO | **K10**
- Uncoated carbide grade for machining grey cast iron or non-ferrous metals, depending on the cutting edge geometry

BK2710

- Carbide, TiAlN-coated
- ISO | P10 | M10 | **K10**
- Extremely wear-resistant carbide grade for machining stainless steels, structural steels and tool steels as well as cast iron materials

BK60

- Carbide, TiC-TiCN-TiN-coated
- ISO | P25 | **M10**
- Multi-layer coating for long service life even in the upper cutting speed range

BK6110

- Carbide, TiCN-TiN-Al_2O_3-coated
- ISO | P10 | **K10**
- Wear-resistant carbide grade for machining cast iron and steel materials

BK6115

- Carbide, TiCN-TiN-Al_2O_3-coated
- ISO | **P20** | **K20** | H20
- High-quality, surface-treated coating for machining cast iron materials in normal to stable conditions and at high cutting speeds

BK6440

- Carbide, CVD-TiCN-Al_2O_3-TiN coated
- ISO | **M25** | **K35**
- Extremely tough standard grain grade; good wear resistance in steel and stainless steel materials, even in unfavourable cutting conditions / interrupted cut

BK7615

- Carbide, TiCN-Al_2O_3-coated
- ISO | **K15**
- Highly productive grade with extreme edge stability for wet and dry machining of all cast iron materials

BK77

- Carbide, TiN-coated
- ISO | **S10** | H10 | O10
- The wear-resistant carbide grade for machining aluminum alloys, superalloys and plastics at medium cutting speeds

BK7710

- Carbide, TiB_2-coated
- ISO | **N10** | S10 | O10
- The wear-resistant grade with optimum cutting characteristics to prevent built-up edge formation for machining aluminium and titanium alloys

BK7935

- Carbide, AlTiN-coated
- ISO | **P35** | **M30** | **K30** | N30 | **S30** | O30
- The tough carbide grade for machining stainless steel and acid-resistant steels as well as special alloys

BK8425

- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25** | **K25**
- Universal grade with greater wear resistance thanks to innovative PVD multi-layer coating

BK8430

- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25**
- Fine-grain grade with high wear resistance
- Extreme edge stability and maximum wear resistance in the middle and top speed range

BK8440

- Carbide, TiCN-TiN-coated
- ISO | **P35** | M10
- Very tough carbide grade for medium cutting speeds and interrupted cut

Type

CBN40

- Cubic boron nitride, uncoated
- ISO | **H05**
- Uncoated cutting material made of cubic boron nitride for machining hardened steels over 45 HRC, heat-resistant nickel-based or cobalt-based alloys

CK32

- Cermet, uncoated
- ISO | **P10** | **M15** | K05 | N15
- For fine and finish turning
- Less wear and greater cutting speed result in longer tool life and high surface quality
- Cutting material for high productivity in the top cutting speed range

CK3230

- Cermet, uncoated
- ISO | **P20** | **M20** | K10 | N20
- Extremely tough behaviour with good wear resistance suitable for use also in interrupted cut

CTDPU20

- Polycrystalline diamond cutting material with mixed grain, uncoated
- ISO | **N15**
- Outstanding wear resistance, even where Si content > 12 % and high proportion of abrasive reinforcements
- Used in plastics and fibre composites (GFK, CFK)

CWC06

- Cermet, TiC/TiN-coated
- ISO | **P10** | M10 | **K10** | N10
- Coated cermet grade for fine boring at high cutting speed and with a uniform cut

CWC10

- Cermet, uncoated
- ISO | **P15** | **M10** | K10
- The uncoated cermet grade for finish machining of stainless and hardened steel
- Particularly wear-resistant due to high heat resistance

CWN10

- Carbide, TiN-coated
- ISO | **K10**
- The carbide grade for machining steels, stainless steels and non-ferrous metals

CWP25

- Carbide, uncoated
- ISO | **P25** | **M25** | K25 | **N25** | S25
- Uncoated carbide grade for fine boring with large hole depths and small machining allowances

Coatings

TiN

- TiN coating
- Maximum application temperature: 450 °C

Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

M	Thread type Explanation of the thread types can be found on → **Page 6**
UNI NCW	Application range Special feature An explanation of the areas of application/ special features can be found on → **Page 7**
C 2–3	Chamfer form An explanation of the chamfer forms can be found on → **Page 6**
ISO 2 6H	Tolerance Explanation of the tolerances can be found on → **Page 103**
TiN	Coating An explanation of the coatings can be found on → **Page 106**
	Cooling agent supply

	Coloured ring An explanation of the coloured rings can be found on → **Page 5**
HSS-E	Tool Material An explanation of the cutting materials can be found on → **Page 6**
FHA 42°	Helix angle
≤ 1100 N/mm²	Tensile strength
	Through hole thread
	Blind hole thread
	Through hole thread and blind hole thread

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

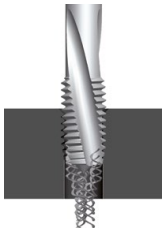
Tool types

TruTap

Through hole tap type TruTap

- For through holes up to 4xD
- Lead Form B: 3.5–5 cutting leads, with spiral point
- Straight Flutes
- Also suitable for synchronised machining, with Weldon flat and with extra long version
- Due to the special geometry of the flutes, the chips are removed in the direction of cut

TruTap DL



Through hole tap type TruTap DL

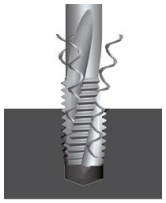
- For through holes up to 4xD
- Lead Form C: 3.5–5 cutting leads, without spiral point
- 15° left hand helix
- Suitable for steel, titanium alloys and Inconel 718
- The chips are discharged in the direction of cut

CavTap

Blind hole tap type CavTap

- For blind holes up to 3xD
- Lead Form C: 2–3 cutting leads, without spiral point
- Lead Form E: 1.5–2 cutting leads, without spiral point
- (35°, 42°, 45°, 50°) right hand helix
- Also suitable for syncronised machining, with Weldon flat, with extra long version and through coolant
- The high helix angle ensures chips are discharged effectively against the direction of cut

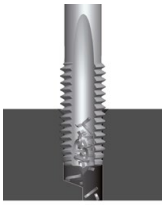
CavTap SL



Blind hole tap type CavTap SL

- For blind holes up to 2xD
- Lead Form C: 2–3 cutting leads, without spiral point
- Lead Form E: 1.5–2 cutting leads, without spiral point
- (15°, 25°, 30°) slow right hand helix
- For steel, titanium alloys and Inconel 718
- Also suitable for synchronised machining, with extra long version and through coolant
- Also suitable for difficult operating conditions such as cross holes

DuoTap



Through and blind hole tap Type DuoTap

- For blind and through holes up to 2xD
- Lead Form C: 2–3 cutting leads, without spiral point
- Lead Form D: 3.5–5 cutting leads, without spiral point
- Lead Form E: 1.5–2 cutting leads, without spiral point
- Straight Flutes
- For steel, short chipping and hardened materials to 55 (62) HRc
- Also with extra long version and through coolant

DuoForm

Thread former type DuoForm

- For blind and through holes up to 3xD
- Lead Form C: 2–3 cutting leads, without spiral point
- For cold formable materials up to 1400 N/mm²
- Suitable for synchronised machining, with lubrication grooves and internal cooling

Coloured rings

for steel up to 750 N/mm²

ST

ST application area:
uncoated taps for steels up to a tensile strength of 750 N/mm²

for corrosion and acid-resistant steels

VA

VA application area:
for stainless steels

for hardened steels

HT

HT application area:
for hard machining

for steel to 1100 N/mm²

ST
VG

ST and VG application area:
coated taps for steels up to a tensile strength of 1100 N/mm²

for heat resistant alloys

Ti
Ni

Ti and Ni application area:
for heat-resistant steels, titanium and Inconel

for aluminium and non-ferrous metal

NW | Ms
Soft | AMPCO

NW, Soft, Ms and AMPCO application area:
for aluminium, short-chipping brass and soft materials

for steel up to 1400 N/mm²

HR

HR application area:
for steels up to a tensile strength of 1400 N/mm²

for cast iron materials

GG

GG application area:
for cast iron materials

for universal application up to 1100 N/mm²

UNI

UNI application area:
for universal application

→ **Page 7**
Here you will find a detailed explanation of the areas of application.

Thread types

M	ISO metric coarse thread DIN 13
MF	ISO Metric fine thread DIN 13
G	Whitworth pipe thread DIN EN ISO 228
UNC	Unified coarse thread ASME B1.15 and ISO 3161
UNF	Unified fine thread ASME B1.1
EG M	ISO Metric coarse thread for wire inserts DIN 8140-2
EG UNC	EG Unified coarse thread for wire inserts ASME B18.29.1
EG UNF	EG Unified fine thread for wire inserts ASME B18.29.1
UNJC	Unified coarse thread ASME B1.15 and ISO 3161
UNJF	Unified extra fine thread ASME B1.15 and ISO 3161
BSW	Whitworth thread BS84
NPT	American taper pipe thread with sealing (1:16) ANSI/ASME B1.20.1
NPTF	American taper pipe thread with sealing (1:16) ANSI/ASME B1.20.3
Rc	Whitworth taper pipe thread (1:16) DIN EN 10226-2 (ISO7-1)
Rp	Cylindrical Whitworth coarse thread DIN EN 10226-1 (ISO7-1)

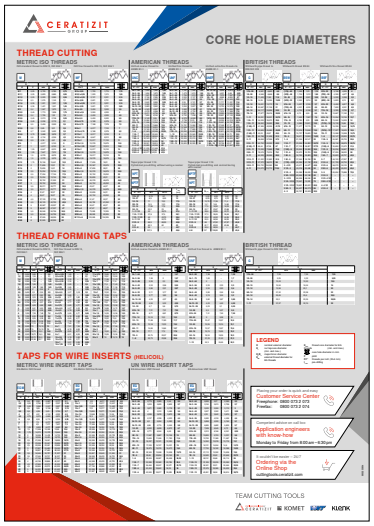
These thread types, as well as hand taps and dies, are available in the online shop.

Chamfer forms

B 4–5	Form B (with spiral point, 4–5 thread lead)
C 2–3	Form C (without spiral point, 2–3 thread lead)
D 4–5	Form D (without spiral point, 4–5 thread lead)
E 1,5–2	Form E (without spiral point, 1.5–2 thread lead)

Cutting materials

HSS	High-speed steel
HSS-E	High-performance high speed steel
HSS-E / HM	HSS-E base support material cutting/forming medium: HM
HSS-PM	High-performance sintered high-speed steel
Solid carbide	Solid carbide



A must-have for your production processes!

Thread core hole diameters at a glance thanks to the CERATIZIT workshop poster!

To receive a copy in your national language, please contact your sales representative.

Application areas

WNT \ Performance

UNI	for universal application up to 1100 N/mm²
ST	for good quality free machining steel
FE	Dies for steel
VG	for tempered and heat-resistant steels < 1100 N/mm²
HR	for high-tensile steels < 1400 N/mm²
VA	for stainless and acid-resistant steels up to 1100 N/mm²
GG	for cast iron
NW	For aluminium
Soft	For soft materials
Ms	for short chipping brass
AMPCO	For Ampco alloys
Ti	For titanium and titanium alloys
Ni	special for Inconel 718
HT	for hardened steel and chilled iron up to 55 HRc

EC	DuoForm thread former for universal use
NEO	DuoForm thread former for heat-resistant alloys
ERGO	Hand Taps for stainless, heat-resistant and heat-treated steels up to 1100 N/mm²
ERGO F.T	Hand tap for steel up to 1400 N/mm², wolfram, chilled iron

Tools for these application areas are available in the online shop.

WNT \ Standard

UNI	for universal application up to 1000 N/mm²
FE	for steel to 850 N/mm²
FE-HF	for high-tensile steel to 1100 N/mm²
VA	for corrosion and acid-resistant steels
GG	for cast iron
AL	for aluminium and aluminium alloys

Special Features

AUT	short version for automatic use
AZ	with intermittent teeth, reduces friction
CNC	for synchronised CNC machining with minimum length compensation chuck
DRY	for dry machining or minimum quantity lubrication (MMS)
EL	extra long, with double overall length
ES	extra short
HML	with soldered-in carbide strips for a higher cutting speed
LH	for left hand threads

MMB	Machine taps
NC	for synchronised CNC machining with minimum length compensation chuck
NCW	with Weldon flat for synchronised CNC machining without length compensation chuck
R_z=1	Lapped Dies
S	with back taper, for deep threads
SN	Thread formers with lubrication grooves
TS	for high-speed machining, up to 100 m/min.

Toolfinder

Thread formers

		Machining	Application range	WNT \ Standard M	MF	G	UNC	UNF
UNI	for cold-formable materials		UNI	54	72			

HSS taps

UNI	for universal use up to 1000 N/mm² **WNT Standard** up to 1100 N/mm² **WNT Performance**		UNI	26+27	59+60	74	81	89
			UNI	42+43	65	77	83	92
P	for steels up to 850 N/mm² **WNT Standard** up to 1100 N/mm² **WNT Performance**		FE	27	60			
			FE	43	66			23 282... 23 283...
P	for high-strength steels up to 1100 N/mm² **WNT Standard** up to 1400 N/mm² **WNT Performance**		FE-HF	27			81	
			FE-HF	43			83	
M	for corrosion and acid-resistant steels		VA	28	60		81	
			VA	43+44	67		83	92
K	for cast iron materials		GG	50				
N	for aluminium and non-ferrous metal		AL	28				
			AL	44				
S	for heat-resistant materials							
H	Hard materials							

→ **Page 10–15**
Here you will find the taps overview with tools for other applications.

This article can be found in our online shop at cuttingtools.ceratizit.com

Tool type	Application range	WNT \ Performance														
		M	EG M	MF	G	UNC	EG UNC	UNJC	UNF	EG UNF	UNJF	BSW	NPT	NPTF	Rp	Rc
DuoForm	EC	51+52		71	79	84			93							
TruTap	UNI	16–18	55	57+58	73	80	85		88	94		22 626... 22 627...				
CavTap	UNI	29–31	56	61+62	75+76	82	86		90	95		22 628... 22 629...				
TruTap	ST	19+20		58												
CavTap	ST	32+33			76											
DuoTap	ST	45+46											98	22 367... 22 382...	22 381...	22 389...
TruTap	HR	20														
CavTap	HR	34														
DuoTap	HR	45+46		68+69	78											
TruTap	VA	21			73	80										
CavTap	VA	35			76	82			90				96			
DuoTap	GG	47		22 173...												
TruTap	NW															
CavTap	NW	36														
DuoTap	AMPCO	22 030...														
TruTap	Ti	22				80					22 167...					
CavTap SL	Ti	37				22 262...		87	91		22 168...					
DuoTap	HT	48														

→ Page 99
Here you will find shank extensions for taps.

Thread-cutting oils can be found in our online shop at cuttingtools.ceratizit.com

Taps Overview

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
M	**Metric ISO standard thread**							
	UNI – Through hole thread							
UNI	TruTap	B 4–5	ISO 2 6H ISO 3 6G 7G	HSS-E	■		16+17	
UNI CNC	TruTap	B 4–5	ISO 2X 6HX ISO 3X 6GX 7GX	HSS-E	■		18	
UNI NCW	TruTap	B 4–5	ISO 2 6H	HSS-PM	■		18	
UNI EL	TruTap	B 4–5	ISO 2 6H	HSS-E	■		24	
UNI		B 4–5	ISO 2 6H	HSS-E HSS-PM	■			26
UNI NC		B 4–5	ISO 2 6H	HSS-E	■			27
UNI NCW		B 4–5	ISO 2 6H	HSS-PM	■			27
	UNI – Blind hole thread							
UNI	CavTap	C 2–3	ISO 2 6H 7G	HSS-E	■		29	
UNI	CavTap	E 1,5–2	ISO 2 6H	HSS-E	■	●	30	
UNI		C 2–3	ISO 2 6H	HSS-E HSS-PM	■			42
UNI NC		C 2–3	ISO 2 6H	HSS-E	■			42
UNI NCW	CavTap	C 2–3	ISO 2 6H	HSS-PM	■		30	
UNI NCW		C 2–3	ISO 2 6H	HSS-PM	■			43
UNI CNC	CavTap	C 2–3	ISO 2X 6HX ISO 2 6H 7G	HSS-E	■		31	
UNI CNC	CavTap	E 1,5–2	ISO 2 6H	HSS-E	■	●	31	
UNI CNC	CavTap	C 2–3	ISO 3 6G	HSS-E	■		22 588..., 22 589...	
UNI	CavTap	C 2–3	ISO 1 4H	HSS-E	■		22 528...	
UNI	CavTap	E 1,5–2	ISO 3 6G	HSS-E	■		22 530...	
UNI S	CavTap	C 2–3	ISO 2 6H	HSS-E	■		22 536..., 22 537...	
UNI ES	CavTap	E 1,5–2	ISO 2 6H	HSS-E	■		38	
UNI EL	CavTap	C 2–3	ISO 2 6H	HSS-E	■		40	
UNI	CavTap SL	C 2–3	ISO 2 6H	HSS-E	□		22 516...	

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
M	**Metric ISO standard thread**							
	P – Through hole thread							
ST	TruTap	B 4–5	ISO 2 6H	HSS-E	□		19	
ST LH	TruTap	B 4–5	ISO 2 6H	HSS-E	□		19	
ST	TruTap	B 4–5	ISO 1 4H	HSS-E	□		22 002..., 22 003...	
ST	TruTap	B 4–5	ISO 3 6G	HSS-E	□		22 004...	
ST TS	TruTap	B 4–5	ISO 2X 6HX	HSS-E	■		20	
HR	TruTap	B 4–5	ISO 2X 6HX	HSS-PM	■		20	
VG	TruTap	B 4–5	ISO 2X 6HX	HSS-E	■		20	
ST EL	TruTap	B 4–5	ISO 2 6H	HSS-E	□		24	
ST MMB		≈ 20	ISO 2 6H	HSS-E	□		25	
FE		B 4–5	ISO 2 6H	HSS-E	□			27
FE-HF		B 4–5	ISO 2 6H	HSS-E	■			27
	P – Blind hole thread							
ST	CavTap	C 2–3	ISO 2 6H	HSS-E	■□		33	
ST	CavTap	C 2–3	ISO 3 6G	HSS-E	□		22 134..., 22 135...	
ST CNC	CavTap SL	C 2–3	ISO 2X 6HX	HSS-E	■	●	32	
ST ES	CavTap SL	C 2–3	ISO 2 6H	HSS-E	□		39	
ST EL	CavTap	C 2–3	ISO 2 6H	HSS-E	□		40	
ST EL	CavTap SL	E 1,5–2	ISO 2 6H	HSS-E	□		41	
HR	CavTap SL	C 2–3	ISO 2 6H	HSS-PM	■		32	
HR	CavTap	C 2–3	ISO 2 6H	HSS-PM	■□		34	

This article can be found in our online shop at cuttingtools.ceratizit.com

Taps Overview

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
M	**Metric ISO standard thread**							
FE		C 2–3	ISO 2 6H	HSS-E	□			43
FE-HF		C 2–3	ISO 2 6H	HSS-E	■			43
	P – Through hole thread and blind hole thread							
ST	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	□		45+46	
ST AZ	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	□		22 111..., 22 113...	
HR	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	■		45+46	
HR EL	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	■		49	
	M – Through hole thread							
VA	TruTap	B 4–5	ISO 2 6H	HSS-E	■		21	
VA		B 4–5	ISO 2 6H	HSS-PM HSS-E	■			28
	M – Blind hole thread							
VA	CavTap	C 2–3	ISO 2 6H	HSS-E	■		35	
VA	CavTap	E 1,5–2	ISO 2 6H	HSS-E	■	●	35	
VA		C 2–3	ISO 2 6H	HSS-E HSS-PM	■□			43+44
	K – Through hole thread and blind hole thread							
GG	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	■	●	47	
GG		C 2–3	ISO 2X 6HX	HSS-E	■			50
	N – Through hole thread							
Soft	TruTap	B 4–5	ISO 2 6H	HSS-E	■		22 305...	
AL		B 4–5	ISO 2 6H	HSS-E	■□			28
	N – Blind hole thread							
Soft	CavTap	C 2–3	ISO 2 6H	HSS-E	□		36	
NW	CavTap	C 2–3	ISO 2 6H	HSS-E	■		36	
AL		C 2–3	ISO 2 6H	HSS-E	■□			44

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
M	**Metric ISO standard thread**							
	N – Through hole thread and blind hole thread							
AMPCO	DuoTap	C 2–3	ISO 2X 6HX	HSS-PM	□		22 030...	
Ms	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	□		22 119...	
	S – Through hole thread							
Ti	TruTap	B 4–5	ISO 1X 4HX ISO 2X 6HX	HSS-PM	■		22	
Ti	TruTap DL	D 4–5	ISO 2X 6HX	HSS-E	■		23	
Ni	TruTap DL	D 4–5	ISO 2X 6HX	HSS-E	■		23	
	S – Blind hole thread							
Ti	CavTap SL	C 2–3	ISO 2X 6HX	HSS-PM	■		37	
Ni	CavTap SL	C 2–3	ISO 2X 6HX	HSS-PM	■		37	
	H – Through hole thread and blind hole thread							
HT	DuoTap	D 4–5	ISO 2X 6HX	VHM	■		48	
HT	DuoTap	C 2–3	ISO 2X 6HX	HSS-PM	■		48	
	Machine thread formers							
EC	DuoForm	C 2–3	ISO 2X 6HX	HSS-E	■		51	
EC SN	DuoForm	C 2–3	ISO 2X 6HX ISO 3X 6GX	HSS-E	■		52	
NW HML	DuoForm	C 2–3	ISO 2X 6HX	HSS-E	□	●	51	
NEO SN	DuoForm	C 2–3	ISO 2X 6HX	HSS-PM	■	●	53	
UNI		C 2–3	ISO 2X 6HX	HSS-E	■			54
UNI SN		C 2–3	ISO 2X 6HX	HSS-E	■			54
	Hand taps							
ST		C 2–3	ISO 2X 6HX	VHM	□		22 800...	
ST		C 2–3	ISO 2X 6HX	HSS-E	□		22 010...	
ERGO		C 2–3	ISO 2X 6HX	HSS-E	□		22 012...	
ERGO F.T.		C 2–3	ISO 2X 6HX	HSS-E	■		22 013...	

6

Taps Overview

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
M	**Metric ISO standard thread**							
	Dies							
FE		1,5–2	ISO 6g ISO 6e	HSS	□		22 700..., 22 701...	
FE		1,5–2	ISO 6g	HSS	□		23 910...	
FE LH		1,5–2	ISO 6g	HSS	□		22 702...	
VA		2	ISO 6g	HSS-E	□		22 704...	
VA R_z=1		2	ISO 6g	HSS-E	□		22 705...	
EG M	**ISO metric coarse thread for wire inserts**							
	UNI – Through hole thread							
UNI	TruTap	B 4–5	6H mod	HSS-E	■		55	
	UNI – Blind hole thread							
UNI	CavTap	C 2–3	6H mod	HSS-E	■		56	
MF	**Metric ISO fine thread**							
	UNI – Through hole thread							
UNI	TruTap	B 4–5	ISO 2 6H	HSS-E	■		57+58	
UNI	TruTap	B 4–5	ISO 3 6G	HSS-E	■		22 599...	
UNI		B 4–5	ISO 2 6H	HSS-PM HSS-E	■			59+60
	UNI – Blind hole thread							
UNI	CavTap	E 1,5–2	ISO 2 6H ISO 3 6G	HSS-E	■		61	
UNI	CavTap	C 2–3	ISO 2 6H	HSS-E	■		62	
UNI		C 2–3	ISO 2 6H	HSS-PM HSS-E	■			65+66

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
MF	**Metric ISO fine thread**							
UNI CNC	CavTap	E 1,5–2	ISO 3 6G	HSS-E	■		22 561...	
UNI CNC	CavTap	E 1,5–2	ISO 2 6H 7G	HSS-E	■		62	
UNI NC		E 1,5–2	ISO 2 6H	HSS-E	■			66
	P – Through hole thread							
ST TS	TruTap	B 4–5	ISO 2X 6HX	HSS-E	■		58	
FE		B 4–5	ISO 2 6H	HSS-E	□			60
	P – Blind hole thread							
ST TS	CavTap	C 2–3	ISO 2 6H	HSS-E	■		22 216...	
ST	CavTap SL	C 2–3	ISO 2 6H	HSS-E	□		63	
FE		C 2–3	ISO 2 6H	HSS-E	□			66
	P – Through hole thread and blind hole thread							
ST	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	□		22 171...	
ST ES	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	□		70	
ST LH/ES	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	□		70	
HR	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	■		68+69	
	M – Through hole thread							
VA		B 4–5	ISO 2 6H	HSS-E	■			60
	M – Blind hole thread							
VA	CavTap	E 1,5–2	ISO 2 6H	HSS-E	■		64	
VA		E 1,5–2	ISO 2 6H	HSS-E	■			67

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Taps Overview

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
MF	**Metric ISO fine thread**							
	Machine thread formers							
EC SN	DuoForm	C 2–3	ISO 2X 6HX	HSS-E	■		71	
EC HML	DuoForm	C 2–3	ISO 2X 6HX	HSS-E	■	💧	71	
UNI SN		C 2–3	ISO 2X 6HX	HSS-E	■			72
	Dies							
FE		1,5–2	ISO 6g	HSS	□		22 711...	
VA		2	ISO 6g	HSS-E	□		22 714...	
G	**Whitworth pipe thread**							
	UNI – Through hole thread							
UNI	TruTap	B 4–5	ISO 228	HSS-E	■		73	
UNI		B 4–5	ISO 228	HSS-E	■			74
	UNI – Blind hole thread							
UNI	CavTap	C 2–3	ISO 228	HSS-E	■		75	
UNI	CavTap	E 1,5–2	ISO 228, ISO 228 +0,05	HSS-E	■		75	
UNI CNC	CavTap	E 1,5–2	ISO 228	HSS-E	■		76	
UNI		C 2–3	ISO 228	HSS-E	■			77

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
G	**Whitworth pipe thread**							
	P – Through hole thread							
FE		B 4–5	ISO 228	HSS-E	□			23 260...
	P – Blind hole thread							
ST	CavTap	C 2–3	ISO 228	HSS-E	□		76	
ST	CavTap SL	C 2–3	ISO 228	HSS-E	□		22 353...	
FE		C 2–3	ISO 228	HSS-E	□			23 261...
	P – Through hole thread and blind hole thread							
HR	DuoTap	C 2–3	ISO 228X	HSS-E	■		78	
	M – Through hole thread							
VA	TruTap	B 4–5	ISO 228	HSS-E	■		73	
	M – Blind hole thread							
VA	CavTap	E 1,5–2	ISO 228	HSS-E	■		76	
	K – Through hole thread and blind hole thread							
GG	DuoTap	C 2–3	ISO 228X	HSS-E	■		22 348...	
	Machine thread formers							
EC SN	DuoForm	C 2–3	ISO 228	HSS-E	■		79	
	Dies							
FE		1,5–2	ISO 228A	HSS	□		22 741...	

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Taps Overview

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
UNC	**Unified coarse thread**							
	UNI – Through hole thread							
UNI	TruTap	B 4–5	2B	HSS-E	■		80	
UNI		B 4–5	2B	HSS-E	■			81
	UNI – Blind hole thread							
UNI	CavTap	C 2–3	2B	HSS-E	■		82	
UNI		C 2–3	2B	HSS-E	■			83
	P – Through hole thread							
FE-HF		B 4–5	2B	HSS-E	■			81
	P – Blind hole thread							
ST	CavTap	C 2–3	2B	HSS-E	□		22 264...	
FE-HF		C 2–3	2B	HSS-E	■			83
	M – Through hole thread							
VA	TruTap	B 4–5	2B	HSS-E	■		80	
VA		B 4–5	2B	HSS-E	■			81
	M – Blind hole thread							
VA	CavTap	C 2–3	2B	HSS-E	■		82	
VA		C 2–3	2B	HSS-E	□			83
	S – Through hole thread							
Ti	TruTap	B 4–5	2BX	HSS-PM	■		80	
	S – Blind hole thread							
TI	CavTap SL	C 2–3	2BX	HSS-PM	■		22 262...	
	Machine thread formers							
EC	DuoForm	C 2–3	2BX	HSS-E	■		22 270...	
EC SN	DuoForm	C 2–3	2BX	HSS-E	■		84	

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
UNC	**Unified coarse thread**							
	Dies							
FE		1,5–2	2A	HSS	□		22 721...	
EG UNC	**Unified coarse thread for wire inserts**							
	UNI – Through hole thread							
UNI	TruTap	B 4–5	2B mod	HSS-E	■		85	
	UNI – Blind hole thread							
UNI	CavTap	E 1,5–2	2B mod	HSS-E	■		86	
UNJC	**Unified coarse thread**							
	S – Blind hole thread							
Ti	CavTap SL	C 2–3	3BX	HSS-E	■		87	
UNF	**Unified fine thread**							
	UNI – Through hole thread							
UNI	TruTap	B 4–5	2B	HSS-E	■		88	
UNI		B 4–5	2B	HSS-E	■			89
	UNI – Blind hole thread							
UNI	CavTap	C 2–3	2B	HSS-E	■		90	
UNI	CavTap	E 1,5–2	2B +0,05	HSS-E	■		90	
UNI		C 2–3	2B	HSS-E	■			92
	M – Blind hole thread							
VA	CavTap	E 1,5–2	2B	HSS-E	■		90	
VA		C 2–3	2B	HSS-E	□			92

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Taps Overview

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
UNF	**Unified fine thread**							
	S – Blind hole thread							
Ti	CavTap SL	C 2–3	2BX 3BX	HSS-PM	■		91	
	Thread formers							
EC SN	DuoForm	C 2–3	2BX	HSS-E	■		93	
EG UNF	**Unified Fine Thread for wire inserts**							
	UNI – Through hole thread							
UNI	TruTap	B 4–5	2B	HSS-E	■		94	
	UNI – Blind hole thread							
UNI	CavTap	E 1,5–2	2B	HSS-E	■		95	
UNJF	**Unified extra-fine thread**							
	S – Through hole thread							
Ti	TruTap DL	D 4–5	3BX	HSS-E	■		22 167...	
	S – Blind hole thread							
Ti	CavTap SL	C 2–3	3BX	HSS-E	■		22 168...	
BSW	**Whitworth thread**							
	UNI – Through hole thread							
UNI	TruTap	B 4–5	med.	HSS-E	■		22 626..., 22 627...	
	UNI – Blind hole thread							
UNI	CavTap	C 2–3	med.	HSS-E	■		22 628..., 22 629...	

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
NPT	**American taper pipe thread**							
	P – Through hole thread and blind hole thread							
ST ES	DuoTap	C 2–3		HSS-E	□		98	
VG	DuoTap	C 2–3		HSS-E	□		97	
VG AZ	DuoTap	C 2–3		HSS-E	□		22 377..., 22 378...	
	M – Blind hole thread							
VA	CavTap	C 2–3		HSS-E	■		96	
VA	CavTap	E 1,5–2		HSS-E	■		96	
NPTF	**American taper pipe thread**							
	P – Through hole thread and blind hole thread							
ST	DuoTap	C 2–3		HSS-E	□		22 382...	
VG	DuoTap	C 2–3		HSS-E	□		22 380...	
ST ES	DuoTap	C 2–3		HSS-E	□		22 367...	
Rp	**Cylindrical Whitworth thread**							
	P – Through hole thread and blind hole thread							
ST	DuoTap	C 2–3	X	HSS-E	□		22 381...	
Rc	**Tapered Whitworth thread**							
	P – Through hole thread and blind hole thread							
ST	DuoTap	C 2–3		HSS-E	□		22 389...	

Accessories

Shank extensions for taps	99
Thread cutting oil, chlorine free	22 950...
Thread cutting paste, chlorine free	

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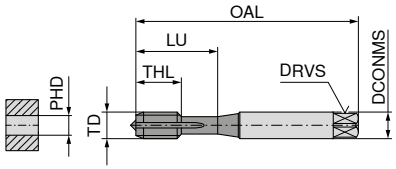
Through hole – Machine taps, right hand

TruTap | M



DIN 371 with reinforced shank

UNI	UNI	UNI	UNI
B 4–5	B 4–5	B 4–5	B 4–5
ISO 2 6H	ISO 2 6H	ISO 3 6G	7G
nitr. + vap.	TiN	nitr. + vap.	nitr. + vap.
HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD
22 501 ...	**22 503 ...**	**22 508 ...**	**22 510 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 501 ...	22 503 ...	22 508 ...	22 510 ...
M1	0,25	40	2,5	2,1	0,75	5	5	2	**010** 1)			
M1,2	0,25	40	2,5	2,1	0,95	5	5	2	**012** 1)			
M1,4	0,30	40	2,5	2,1	1,10	7	7	3	**014** 1)			
M1,6	0,35	40	2,5	2,1	1,25	8	11	3	**016**			
M1,7	0,35	40	2,5	2,1	1,35	6	11	2	**017**			
M1,8	0,35	40	2,5	2,1	1,45	6	11	2	**018**			
M2	0,40	45	2,8	2,1	1,60	7	12	2		**020**		**020**
M2	0,40	45	2,8	2,1	1,60	7	12	3	**020**			
M2,2	0,45	45	2,8	2,1	1,75	7	12	2	**022**			
M2,5	0,45	50	2,8	2,1	2,05	9	14	2	**025**		**025**	**025**
M3	0,50	56	3,5	2,7	2,50	11	18	3	**030**	**030**	**030**	**030**
M3,5	0,60	56	4,0	3,0	2,90	12	20	3	**035**			
M4	0,70	63	4,5	3,4	3,30	13	21	3	**040**	**040**	**040**	**040**
M5	0,80	70	6,0	4,9	4,20	15	25	3	**050**	**050**	**050**	**050**
M6	1,00	80	6,0	4,9	5,00	17	30	3	**060**	**060**	**060**	**060**
M7	1,00	80	7,0	5,5	6,00	17	30	3	**070**			
M8	1,25	90	8,0	6,2	6,80	20	35	3	**080**	**080**	**080**	**080**
M10	1,50	100	10,0	8,0	8,50	22	39	3	**100**	**100**	**100**	**100**
M12	1,75	110	12,0	9,0	10,20	24	44	3	**120**			

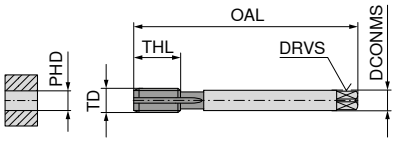
Cutting speed v_c (m/min.)				
P			**12**	**15**	**12**	**12**
M			**7**	**9**	**7**	**7**
K			**12**	**18**	**12**	**12**
N				**12**		
S						
H						
O						

1) Tol. ISO 1 4H ≤ M1.4

DIN 376 can be found on the next page

Through hole – Machine taps, right hand

TruTap | M



DIN 376 with reduced shank

	UNI	UNI	UNI	UNI
	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 3 6G	7G
	nitr. + vap.	TiN	nitr. + vap.	nitr. + vap.
	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD
	22 502 ...	**22 504 ...**	**22 509 ...**	**22 511 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes							
M3	0,50	56	2,2		2,5	11	3	**030**						
M4	0,70	63	2,8	2,1	3,3	13	3	**040**						
M5	0,80	70	3,5	2,7	4,2	15	3	**050**						
M6	1,00	80	4,5	3,4	5,0	17	3	**060**						
M8	1,25	90	6,0	4,9	6,8	20	3	**080**						
M10	1,50	100	7,0	5,5	8,5	22	3	**100**						
M12	1,75	110	9,0	7,0	10,2	24	3	**120**		**120**		**120**		**120**
M14	2,00	110	11,0	9,0	12,0	26	3	**140**		**140**				
M16	2,00	110	12,0	9,0	14,0	27	3	**160**		**160**		**160**		**160**
M18	2,50	125	14,0	11,0	15,5	30	3	**180**		**180**				
M20	2,50	140	16,0	12,0	17,5	32	3	**200**		**200**		**200**		
M22	2,50	140	18,0	14,5	19,5	32	3	**220**		**220**				
M24	3,00	160	18,0	14,5	21,0	34	3	**240**		**240**				
M27	3,00	160	20,0	16,0	24,0	36	3	**270**						
M30	3,50	180	22,0	18,0	26,5	40	4	**300**						

P	**12**	**15**	**12**	**12**
M	**7**	**9**	**7**	**7**
K	**12**	**18**	**12**	**12**
N		**12**		
S				
H				
O				

Cutting speed v_c (m/min.)

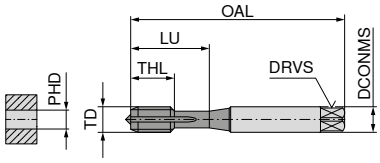
6

Through hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

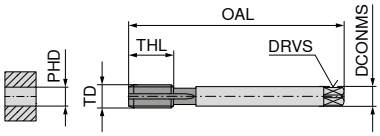
TruTap | M



DIN 371 with reinforced shank

UNI NCW	UNI CNC	UNI CNC	UNI CNC
B 4–5	B 4–5	B 4–5	B 4–5
ISO 2 6H	ISO 2X 6HX	ISO 3X 6GX	7GX
TiN	TiN GS	TiN GS	TiN GS
HSS-PM FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD
22 148 ...	**22 542 ...**	**22 596 ...**	**22 592 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes				
M3	0,50	56	3,5	2,7	2,5	6	18	3		030		
M3	0,50	70	6,0	4,9	2,5	6	18	3	030			
M4	0,70	63	4,5	3,4	3,3	7	21	3		040	040	040
M4	0,70	70	6,0	4,9	3,3	7	21	3	040			
M5	0,80	70	6,0	4,9	4,2	8	25	3	050	050	050	050
M6	1,00	80	6,0	4,9	5,0	10	30	3	060	060	060	060
M8	1,25	90	8,0	6,2	6,8	14	35	3	080			
M8	1,25	90	8,0	6,2	6,8	14	35	4		080	080	080
M10	1,50	100	10,0	8,0	8,5	16	39	3	100			
M10	1,50	100	10,0	8,0	8,5	16	39	4		100	100	100
M12	1,75	110	10,0	8,0	10,2	18	41	3	120			
M16	2,00	110	12,0	9,0	14,0	22	44	3	160			



DIN 376 with reduced shank

										22 543 ...		**22 593 ...**
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**					
M12	1,75	110	9	7	10,2	18	4			120		120
M14	2,00	110	11	9	12,0	20	4			140		
M16	2,00	110	12	9	14,0	22	4			160		
M20	2,50	140	16	12	17,5	25	4			200		

P	**15**	**15**	**15**	**15**
M	**8**	**9**	**9**	**9**
K	**15**	**18**	**18**	**18**
N	**22**	**12**	**12**	**12**
S				
H				
O				

Cutting speed v_c (m/min.)

Through hole – Machine taps

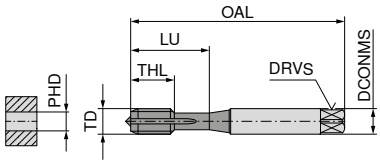
▲ LH = for left hand threads

TruTap | M

ST | ST LH

B 4–5

ISO 2 6H | ISO 2 6H

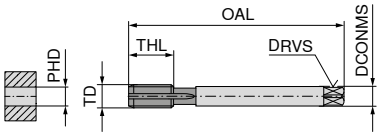


DIN 371 with reinforced shank

HSS-E
FHA 0°
≤ 750 N/mm²
≤ 4xD

HSS-E
FHA 0°
≤ 750 N/mm²
≤ 4xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 020 ...		22 127 ...	
M2	0,40	45	2,8	2,1	1,60	7	12	2	**020**			
M2,3	0,40	45	2,8	2,1	1,90	7	12	2	**023**			
M2,5	0,45	50	2,8	2,1	2,05	9	14	2	**025**			
M2,6	0,45	50	2,8	2,1	2,15	9	14	2	**026**			
M3	0,50	56	3,5	2,7	2,50	11	18	3	**030**			**030**
M3,5	0,60	56	4,0	3,0	2,90	12	20	3	**035**			
M4	0,70	63	4,5	3,4	3,30	13	21	3	**040**			**040**
M5	0,80	70	6,0	4,9	4,20	15	25	3	**050**			**050**
M6	1,00	80	6,0	4,9	5,00	17	30	3	**060**			**060**
M8	1,25	90	8,0	6,2	6,80	20	35	3	**080**			**080**
M10	1,50	100	10,0	8,0	8,50	22	39	3	**100**			**100**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 021 ...		22 147 ...	
M5	0,80	70	3,5	2,7	4,2	15	3	**050**			
M6	1,00	80	4,5	3,4	5,0	17	3	**060**			
M8	1,25	90	6,0	4,9	6,8	20	3	**080**			
M10	1,50	100	7,0	5,5	8,5	22	3	**100**			
M12	1,75	110	9,0	7,0	10,2	24	3	**120**			**120**
M14	2,00	110	11,0	9,0	12,0	26	3	**140**			
M16	2,00	110	12,0	9,0	14,0	27	3	**160**			**160**
M18	2,50	125	14,0	11,0	15,5	30	3	**180**			
M20	2,50	140	16,0	12,0	17,5	32	3	**200**			**200**

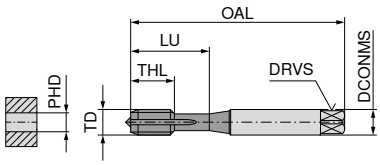
P	**12**	**12**
M		
K	**12**	**12**
N	**12**	**22**
S		
H		
O		

Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

▲ TS = for high-speed machining, up to 100 m/min.

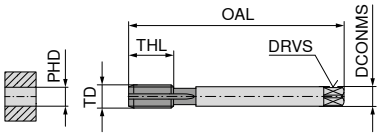
TruTap | M



DIN 371 with reinforced shank

	ST TS	HR	VG
	B 4–5	B 4–5	B 4–5
	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
	TiN	AlTiNHD	TiN
	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-PM FHA 0° ≤ 1400 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD
	22 092 ...	**22 468 ...**	**22 120 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes			
M2	0,40	45	2,8	2,1	1,60	7	12	2		**02000**	
M2	0,40	45	2,8	2,1	1,60	4	12	2	**020**		**020**
M2,5	0,45	50	2,8	2,1	2,05	9	14	2		**02500**	
M2,5	0,45	50	2,8	2,1	2,05	5	15	2	**025**		**025**
M3	0,50	56	3,5	2,7	2,50	11	18	2		**03000**	
M3	0,50	56	3,5	2,7	2,50	6	18	3	**030**		**030**
M4	0,70	63	4,5	3,4	3,30	13	21	2		**04000**	
M4	0,70	63	4,5	3,4	3,30	7	21	3	**040**		**040**
M5	0,80	70	6,0	4,9	4,20	15	25	2		**05000**	
M5	0,80	70	6,0	4,9	4,20	8	25	3	**050**		**050**
M6	1,00	80	6,0	4,9	5,00	17	30	3		**06000**	
M6	1,00	80	6,0	4,9	5,00	10	30	3	**060**		**060**
M8	1,25	90	8,0	6,2	6,80	20	35	3		**08000**	
M8	1,25	90	8,0	6,2	6,80	14	35	4	**080**		**080**
M10	1,50	100	10,0	8,0	8,50	22	39	3		**10000**	
M10	1,50	100	10,0	8,0	8,50	16	39	4	**100**		**100**



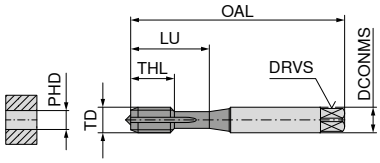
DIN 376 with reduced shank

								22 093 ...		**22 121 ...**
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**			
M12	1,75	110	9	7	10,2	18	4	**120**		**120**
M16	2,00	110	12	9	14,0	22	4	**160**		**160**
M20	2,50	140	16	12	17,5	25	4	**200**		**200**
P								**65**	**8**	**10**
M									**8**	**8**
K								**65**		
N								**75**	**10**	**22**
S									**4**	
H										
O										

Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

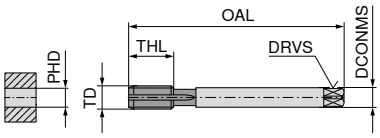
TruTap | M



DIN 371 with reinforced shank

VA	VA
B 4–5	B 4–5
ISO 2 6H	ISO 2 6H
nitr.	TiN GS
HSS-E FHA 0° ≤ 900 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 900 N/mm² ≤ 4xD
22 056 ...	**22 038 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes		
M1,6	0,35	40	2,5	2,1	1,25	6	11	2		**016**
M2	0,40	45	2,8	2,1	1,60	7	12	2	**020**	**020**
M2,5	0,45	50	2,8	2,1	2,05	9	14	2	**025**	**025**
M3	0,50	56	3,5	2,7	2,50	11	18	3	**030**	**030**
M3,5	0,60	56	4,0	3,0	2,90	12	20	3	**035**	
M4	0,70	63	4,5	3,4	3,30	13	21	3	**040**	**040**
M5	0,80	70	6,0	4,9	4,20	15	25	3	**050**	**050**
M6	1,00	80	6,0	4,9	5,00	17	30	3	**060**	**060**
M8	1,25	90	8,0	6,2	6,80	20	35	3	**080**	**080**
M10	1,50	100	10,0	8,0	8,50	22	39	3	**100**	**100**



DIN 376 with reduced shank

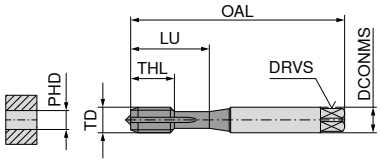
								22 057 ...	**22 039 ...**
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes		
M12	1,75	110	9	7	10,2	24	3	**120**	**120**
M14	2,00	110	11	9	12,0	26	3	**140**	**140**
M16	2,00	110	12	9	14,0	27	3	**160**	**160**
M18	2,50	125	14	11	15,5	30	3	**180**	
M20	2,50	140	16	12	17,5	32	3	**200**	**200**
P								**8**	**10**
M								**6**	**8**
K									
N									
S									
H									
O									

Cutting speed v_c (m/min.)

6

Through hole – Machine taps, right hand

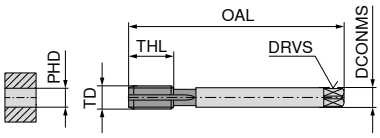
TruTap | M



DIN 371 with reinforced shank

	Ti	Ti	Ti
	B 4–5	B 4–5	B 4–5
	ISO 1X 4HX	ISO 2X 6HX	ISO 2X 6HX
	TiN	vap.	TiN
	HSS-PM FHA 0° ≤ 44 HRC ≤ 4xD	HSS-PM FHA 0° ≤ 1400 N/mm² ≤ 4xD	HSS-PM FHA 0° ≤ 44 HRC ≤ 4xD
	22 081 ...	22 075 ...	22 077 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes					
M1,6	0,35	40	2,5	2,1	1,25	8	9,5	3			016		
M2	0,40	45	2,8	2,1	1,60	8	9,5	3	020		020		
M2,5	0,45	50	2,8	2,1	2,05	9	14,0	3			025		
M3	0,50	56	3,5	2,7	2,50	11	18,0	3	030		030		030
M3,5	0,60	56	4,0	3,0	2,90	12	20,0	3			035		
M4	0,70	63	4,5	3,4	3,30	13	21,0	3	040		040		040
M5	0,80	70	6,0	4,9	4,20	15	25,0	3	050		050		050
M6	1,00	80	6,0	4,9	5,00	17	30,0	3	060		060		060
M8	1,25	90	8,0	6,2	6,80	20	35,0	3	080		080		080
M10	1,50	100	10,0	8,0	8,50	22	39,0	3			100		100



DIN 376 with reduced shank

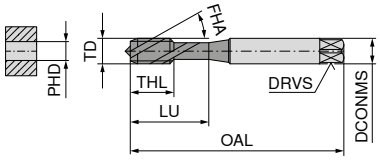
								22 142 ...
M12	1,75	110	9	7	10,2	24	3	**120**

P	7	5	7
M	7	5	7
K			
N			
S	5	3	5
H			
O			

Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

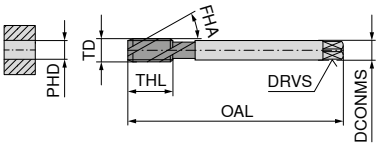
TruTap DL | M



DIN 371 with reinforced shank

	Ti	Ni
	D 4–5	D 4–5
	ISO 2X 6HX	ISO 2X 6HX
	TiCN	TiCN
	HSS-E FHA 15° ≤ 1200 N/mm² ≤ 4xD	HSS-E FHA 15° ≤ 1600 N/mm² ≤ 4xD
	22 159 ...	**22 297 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes		
M3	0,50	56	3,5	2,7	2,5	11	18	2	**030**	**030**
M4	0,70	63	4,5	3,4	3,3	13	21	3	**040**	**040**
M5	0,80	70	6,0	4,9	4,2	15	25	3	**050**	**050**
M6	1,00	80	6,0	4,9	5,0	17	30	3	**060**	**060**
M8	1,25	90	8,0	6,2	6,8	20	35	3	**080**	**080**
M10	1,50	100	10,0	8,0	8,5	22	39	3	**100**	**100**



DIN 376 with reduced shank

									22 160 ...	22 298 ...
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes			
M12	1,75	110	9	7	10,2	24	3		**120**	**120**
M16	2,00	110	12	9	14,0	27	3		**160**	**160**

P	**7**	
M	**7**	
K		
N	**22**	**22**
S	**5**	**2**
H		
O		

Cutting speed v_c (m/min.)

6

Through hole – Machine taps, right hand

▲ EL = extra long, with double overall length

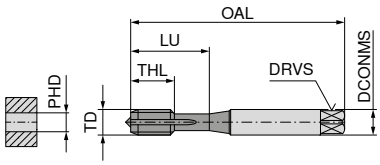
TruTap | M

UNI EL | ST EL

B 4–5 | B 4–5

ISO 2 6H | ISO 2 6H

nitr. + vap.

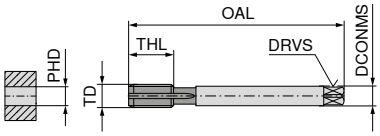


DIN 371 with reinforced shank

HSS-E
FHA 0°
≤ 1100 N/mm²
≤ 4xD

HSS-E
FHA 0°
≤ 950 N/mm²
≤ 4xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 514 ...	22 233 ...
M3	0,50	100	3,5	2,7	2,5	11	18	3	**030**	**030**
M4	0,70	125	4,5	3,4	3,3	13	21	3	**040**	**040**
M5	0,80	140	6,0	4,9	4,2	15	25	3	**050**	**050**
M6	1,00	160	6,0	4,9	5,0	17	30	3	**060**	**060**
M8	1,25	180	8,0	6,2	6,8	20	35	3	**080**	**080**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 515 ...	22 234 ...
M6	1,00	160	4,5	3,4	5,0	17	3	**060**	**060**
M8	1,25	180	6,0	4,9	6,8	20	3	**080**	**080**
M10	1,50	200	7,0	5,5	8,5	22	3	**100**	**100**
M12	1,75	224	9,0	7,0	10,2	24	3	**120**	**120**
M14	2,00	224	11,0	9,0	12,0	26	3	**140**	**140**
M16	2,00	224	12,0	9,0	14,0	27	3	**160**	**160**
M18	2,50	250	14,0	11,0	15,5	30	3	**180**	**180**
M20	2,50	280	16,0	12,0	17,5	32	3	**200**	**200**

P	**12**	**12**
M	**7**	
K	**12**	**12**
N		**22**
S		
H		
O		

Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

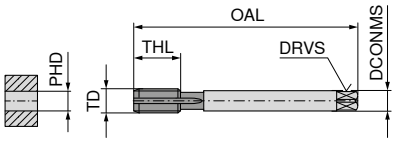
▲ MMB = Nut taps

M

ST
MMB

≈ 20

ISO 2
6H



DIN 357 with reduced shank

HSS-E
FHA 0°
≤ 850 N/mm²
≤ 1xD

22 098 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M3	0,50	70	2,2		2,5	16	3	**030**
M4	0,70	90	2,8	2,1	3,3	22	3	**040**
M5	0,80	100	3,5	2,7	4,2	24	3	**050**
M6	1,00	110	4,5	3,4	5,0	30	3	**060**
M8	1,25	125	6,0	4,9	6,8	38	3	**080**
M10	1,50	140	7,0	5,5	8,5	45	3	**100**
M12	1,75	180	9,0	7,0	10,2	50	3	**120**
M16	2,00	200	12,0	9,0	14,0	63	3	**160**

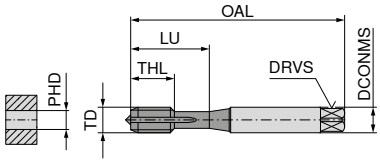
P	**15**
M	
K	
N	
S	
H	
O	

Cutting speed v_c (m/min.)

6

Through hole – Machine taps, right hand

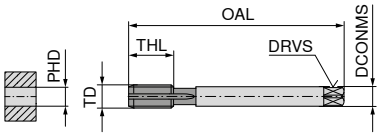
M



DIN 371 with reinforced shank

	UNI	UNI	UNI
	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 2 6H
	nitr. + vap.	TiN	TiN
	HSS-E FHA 0° ≤ 1000 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 1000 N/mm² ≤ 3xD	HSS-PM FHA 0° ≤ 1000 N/mm² ≤ 3xD
	23 110 ...	**23 112 ...**	**23 010 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes			
M2	0,40	45	2,8	2,1	1,60	4	13,5	2			**020**
M2	0,40	45	2,8	2,1	1,60	7	12,0	2	**020**	**020**	
M2,5	0,45	50	2,8	2,1	2,05	9	14,0	2	**025**	**025**	
M3	0,50	56	3,5	2,7	2,50	11	18,0	3	**030**	**030**	**030**
M4	0,70	63	4,5	3,4	3,30	13	21,0	3	**040**	**040**	**040**
M5	0,80	70	6,0	4,9	4,20	15	25,0	3	**050**	**050**	**050**
M6	1,00	80	6,0	4,9	5,00	17	30,0	3	**060**	**060**	**060**
M8	1,25	90	8,0	6,2	6,80	20	35,0	3	**080**	**080**	**080**
M10	1,50	100	10,0	8,0	8,50	22	39,0	3	**100**	**100**	**100**



DIN 376 with reduced shank

			23 111 ...	**23 113 ...**	**23 021 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes			
M3	0,50	56	2,2		2,5	11	3	**030**		
M4	0,70	63	2,8	2,1	3,3	13	3	**040**		
M5	0,80	70	3,5	2,7	4,2	15	3	**050**		
M6	1,00	80	4,5	3,4	5,0	17	3	**060**		
M8	1,25	90	6,0	4,9	6,8	20	3	**080**		
M10	1,50	100	7,0	5,5	8,5	22	3	**100**		
M12	1,75	110	9,0	7,0	10,2	24	3	**120**	**120**	**120**
M14	2,00	110	11,0	9,0	12,0	20	4			**140**
M14	2,00	110	11,0	9,0	12,0	26	3	**140**	**14000**	
M16	2,00	110	12,0	9,0	14,0	27	3	**160**	**160**	**160**
M18	2,50	125	14,0	11,0	15,5	25	4			**180**
M18	2,50	125	14,0	11,0	15,5	30	3		**18000**	
M20	2,50	140	16,0	12,0	17,5	32	3	**200**	**200**	**200**
M22	2,50	140	18,0	14,5	19,5	32	3		**22000**	
M24	3,00	160	18,0	14,5	21,0	34	3		**240**	
M27	3,00	160	20,0	16,0	24,0	36	3		**27000**	
M30	3,50	180	22,0	18,0	26,5	40	4		**30000**	
M33	3,50	180	25,0	20,0	29,5	40	4		**33000**	
M36	4,00	200	28,0	22,0	32,0	50	4		**36000**	

P	**12**	**15**	**15**
M	**7**	**9**	**9**
K	**12**	**18**	**18**
N		**12**	**12**
S			
H			
O			

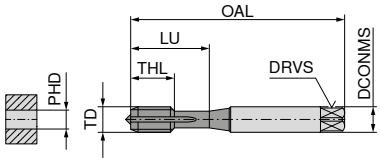
Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

▲ NC = for synchronised CNC machining with minimum length compensation chuck

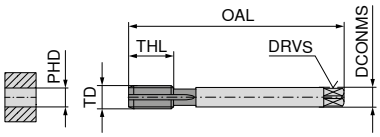
M



DIN 371 with reinforced shank

	UNI NC	UNI NCW	FE	FE-HF
	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	TiN GS	TiCN		TiCN
	HSS-E FHA 0° ≤ 1000 N/mm² ≤ 3xD	HSS-PM FHA 0° ≤ 1000 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 850 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 3xD
	23 114 ...	23 116 ...	23 212 ...	23 310 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes							
M1,6	0,35	40	2,5	2,1	1,25	6	11	2						016	
M2	0,40	45	2,8	2,1	1,60	7	12	2						020	
M2,5	0,45	50	2,8	2,1	2,05	9	14	2						025	
M3	0,50	56	3,5	2,7	2,50	11	18	3	030					030	030
M3	0,50	70	6,0	4,9	2,50	6	18	3		030					
M3,5	0,60	56	4,0	3,0	2,90	12	20	3						035	
M4	0,70	63	4,5	3,4	3,30	13	21	3	040					040	040
M4	0,70	70	6,0	4,9	3,30	7	21	3		040					
M5	0,80	70	6,0	4,9	4,20	8	25	3		050					
M5	0,80	70	6,0	4,9	4,20	15	25	3	050					050	050
M6	1,00	80	6,0	4,9	5,00	10	30	3		060					
M6	1,00	80	6,0	4,9	5,00	17	30	3	060					060	060
M8	1,25	90	8,0	6,2	6,80	14	35	3		080					
M8	1,25	90	8,0	6,2	6,80	20	35	3	080					080	080
M10	1,50	100	10,0	8,0	8,50	16	39	3		100					
M10	1,50	100	10,0	8,0	8,50	22	39	3	100					100	100



DIN 376 with reduced shank

	23 115 ...	23 117 ...	23 213 ...	23 311 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes				
M12	1,75	110	9	7	10,2	24	3	120		120	120
M12	1,75	110	10	8	10,2	18	3		120		
M14	2,00	110	11	9	12,0	26	3			140	
M16	2,00	110	12	9	14,0	22	3		160		
M16	2,00	110	12	9	14,0	27	3	160		160	160
M20	2,50	140	16	12	17,5	32	3	200		200	200

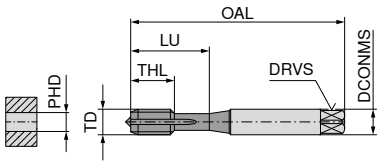
P	15	15	12	15
M	9	8		
K	18	15	12	15
N	12	22	12	15
S				
H				
O				

Cutting speed v_c (m/min.)

6

Through hole – Machine taps, right hand

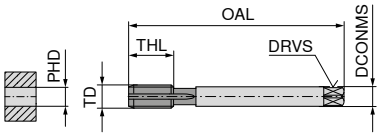
M



DIN 371 with reinforced shank

	VA	VA	VA	AL	AL
	B 4–5	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	TiN	nitr.	nitr.		CrN
	HSS-E FHA 0° ≤ 1200 N/mm² ≤ 3xD	HSS-PM FHA 0° ≤ 1200 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 1200 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 500 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 500 N/mm² ≤ 3xD
	23 412 ...	23 450 ...	23 410 ...	23 610 ...	23 612 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes									
M2	0,40	45	2,8	2,1	1,60	7	12	2	**020**				**020**				
M2,5	0,45	50	2,8	2,1	2,05	9	14	2	**025**				**025**				
M3	0,50	56	3,5	2,7	2,50	11	18	3	**030**		**030**		**030**		**030**		**030**
M4	0,70	63	4,5	3,4	3,30	13	21	3	**040**		**040**		**040**		**040**		**040**
M5	0,80	70	6,0	4,9	4,20	15	25	3	**050**		**050**		**050**		**050**		**050**
M6	1,00	80	6,0	4,9	5,00	17	30	3	**060**		**060**		**060**		**060**		**060**
M8	1,25	90	8,0	6,2	6,80	20	35	3	**080**		**080**		**080**		**080**		**080**
M10	1,50	100	10,0	8,0	8,50	22	39	3	**100**		**100**		**100**		**100**		**100**



DIN 376 with reduced shank

	23 413 ...	23 451 ...	23 411 ...

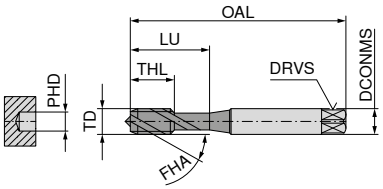
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes									
M12	1,75	110	9	7,0	10,2	24	3	**120**		**120**		**120**				
M14	2,00	110	11	9,0	12,0	26	3			**140**						
M16	2,00	110	12	9,0	14,0	27	3	**160**		**160**		**160**				
M20	2,50	140	16	12,0	17,5	32	3	**200**		**200**		**200**				
M24	3,00	160	18	14,5	21,0	34	3					**240**				

P	**10**	**8**	**8**		
M	**8**	**6**	**6**		
K					
N	**24**	**22**	**22**	**15**	**20**
S					
H					
O					

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

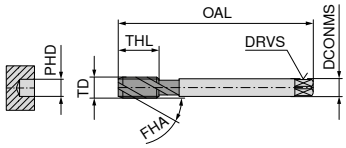
CavTap | M



DIN 371 with reinforced shank

UNI	UNI	UNI
C 2–3	C 2–3	C 2–3
ISO 2 6H	ISO 2 6H	ISO 2 6H
vap.	TiN	TiCN
HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD
22 518 ...	**22 520 ...**	**22 522 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes			
M2	0,40	45	2,8	2,1	1,60	4	12	2	**020**	**020**	
M2,5	0,45	50	2,8	2,1	2,05	5	15	2	**025**		
M3	0,50	56	3,5	2,7	2,50	6	18	3	**030**	**030**	**030**
M4	0,70	63	4,5	3,4	3,30	7	21	3	**040**	**040**	**040**
M5	0,80	70	6,0	4,9	4,20	8	25	3	**050**	**050**	**050**
M6	1,00	80	6,0	4,9	5,00	10	30	3	**060**	**060**	**060**
M8	1,25	90	8,0	6,2	6,80	14	35	3	**080**	**080**	**080**
M10	1,50	100	10,0	8,0	8,50	16	39	3	**100**	**100**	**100**



DIN 376 with reduced shank

									22 519 ...	**22 521 ...**	
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**				
M12	1,75	110	9	7,0	10,2	18	3		**120**	**120**	
M14	2,00	110	11	9,0	12,0	20	3		**140**	**140**	
M16	2,00	110	12	9,0	14,0	22	3		**160**	**160**	
M18	2,50	125	14	11,0	15,5	25	3		**180**	**180**	
M20	2,50	140	16	12,0	17,5	25	3		**200**	**200**	
M22	2,50	140	18	14,5	19,5	27	4		**220**	**220**	
M24	3,00	160	18	14,5	21,0	30	4		**240**	**240**	
M30	3,50	180	22	18,0	26,5	35	4		**300**		
M33	3,50	180	25	20,0	29,5	35	4		**330**		
M36	4,00	200	28	22,0	32,0	40	4		**360**		
P									**12**	**15**	**15**
M									**7**	**9**	**9**
K									**12**	**18**	**18**
N										**12**	**12**
S											
H											
O											

Cutting speed v_c (m/min.)

6

Blind hole – Machine taps, right hand

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

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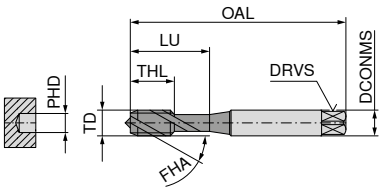
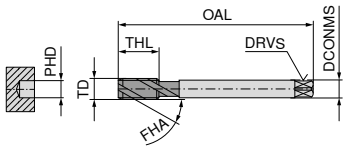


DIN 371 with reinforced shank

	UNI NCW	UNI	UNI	UNI
	C 2–3	E 1,5–2	E 1,5–2	E 1,5–2
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	TiN	vap.	vap.	TiN
	HSS-PM FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD
	22 149 ...	22 524 ...	22 534 ...	22 526 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes				
M3	0,50	56	3,5	2,7	2,5	6	18	3		030		030
M3	0,50	70	6,0	4,9	2,5	6	18	3	030			
M4	0,70	63	4,5	3,4	3,3	7	21	3		040		040
M4	0,70	70	6,0	4,9	3,3	7	21	3	040			
M5	0,80	70	6,0	4,9	4,2	8	25	3	050	050	050	050
M6	1,00	80	6,0	4,9	5,0	10	30	3	060	060	060	060
M8	1,25	90	8,0	6,2	6,8	14	35	3	080	080	080	080
M10	1,50	100	10,0	8,0	8,5	16	39	3	100	100	100	100



DIN 376 with reduced shank

								22 149 ...	22 525 ...	22 535 ...	22 527 ...
M12	1,75	110	9	7,0	10,2	18	4		120	120	120
M12	1,75	110	10	8,0	10,2	18	3	120			
M14	2,00	110	11	9,0	12,0	20	4		140	140	
M16	2,00	110	12	9,0	14,0	22	3	160			
M16	2,00	110	12	9,0	14,0	22	4		160	160	160
M18	2,50	125	14	11,0	15,5	25	4		180		
M20	2,50	140	16	12,0	17,5	25	4		200	200	200
M22	2,50	140	18	14,5	19,5	27	5		220		
M24	3,00	160	18	14,5	21,0	30	5		240		

P	15	12	12	15
M	8	7	7	9
K	15	12	12	18
N	22			12
S				
H				
O				

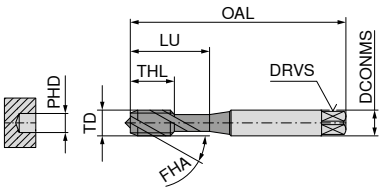
Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

CavTap | M

UNI CNC	UNI CNC	UNI CNC	UNI CNC
C 2–3	C 2–3	E 1,5–2	C 2–3
ISO 2X 6HX	ISO 2 6H	ISO 2 6H	7G
TiN	TiN GS	TiN GS	TiN GS



DIN 371 with reinforced shank

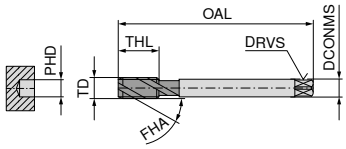
HSS-E
FHA 50°
≤ 1100 N/mm²
≤ 3xD

HSS-E
FHA 45°
≤ 1100 N/mm²
≤ 3xD

HSS-E
FHA 45°
≤ 1100 N/mm²
≤ 3xD

HSS-E
FHA 45°
≤ 1100 N/mm²
≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	22 416 ...	22 544 ...	22 546 ...	22 594 ...
mm	mm	mm	mm	mm	mm	mm	mm					
M3	0,50	56	3,5	2,7	2,5	6	18	3	030	030		030
M4	0,70	63	4,5	3,4	3,3	7	21	3	040	040		040
M5	0,80	70	6,0	4,9	4,2	8	25	3	050	050	050	050
M6	1,00	80	6,0	4,9	5,0	10	30	3	060	060	060	060
M8	1,25	90	8,0	6,2	6,8	14	35	3	080	080	080	080
M10	1,50	100	10,0	8,0	8,5	16	39	3	100	100	100	100



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	22 417 ...	22 545 ...		22 595 ...
mm	mm	mm	mm	mm	mm	mm					
M12	1,75	110	9	7	10,2	18	3	120			
M12	1,75	110	9	7	10,2	18	4		120		120
M14	2,00	110	11	9	12,0	20	3	140			
M14	2,00	110	11	9	12,0	20	4		140		140
M16	2,00	110	12	9	14,0	22	3	160			
M16	2,00	110	12	9	14,0	22	4		160		160
M20	2,50	140	16	12	17,5	25	3	200			
M20	2,50	140	16	12	17,5	25	4		200		200
P								15	15	15	15
M								9	9	9	9
K								18	18	18	18
N								22	12	12	12
S											
H											
O											

Cutting speed v_c (m/min.)

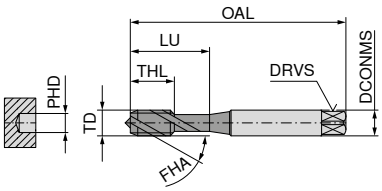
6

Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

CavTap SL | M

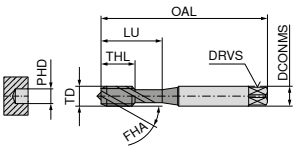
ST CNC	HR	ST CNC
C 2–3	C 2–3	C 2–3
ISO 2X 6HX	ISO 2 6H	ISO 2X 6HX
TiN	AlTiNHD	TiN



DIN 371 with reinforced shank

HSS-E FHA 15° ≤ 1100 N/mm² ≤ 2xD	HSS-PM FHA 25° ≤ 1400 N/mm² ≤ 2xD	HSS-E FHA 15° ≤ 1100 N/mm² ≤ 2xD
22 328 ...	**22 469 ...**	**22 443 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes			
M3	0,50	56	3,5	2,7	2,5	6	18	2	**030**		
M3	0,50	56	3,5	2,7	2,5	11	18	3		**03000**	
M4	0,70	63	4,5	3,4	3,3	7	21	3	**040**		
M4	0,70	63	4,5	3,4	3,3	13	21	3		**04000**	
M5	0,80	70	6,0	4,9	4,2	8	25	3	**050**		**050**
M5	0,80	70	6,0	4,9	4,2	15	25	3		**05000**	
M6	1,00	80	6,0	4,9	5,0	10	30	3	**060**		**060**
M6	1,00	80	6,0	4,9	5,0	17	30	3		**06000**	
M8	1,25	90	8,0	6,2	6,8	14	35	3	**080**		**080**
M8	1,25	90	8,0	6,2	6,8	20	35	3		**08000**	
M10	1,50	100	10,0	8,0	8,5	16	39	3	**100**		**100**
M10	1,50	100	10,0	8,0	8,5	22	39	3		**10000**	
M12	1,75	110	12,0	9,0	10,2	24	44	3		**12000**	



DIN 376 with reduced shank

	22 329 ...

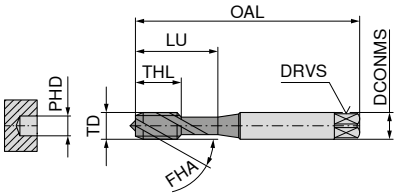
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M12	1,75	110	9	7	10,2	18	3	**120**
M16	2,00	110	12	9	14,0	22	3	**160**
M20	2,50	140	16	12	17,5	25	3	**200**

P	**12**	**8**	**12**
M	**8**	**8**	**8**
K	**20**		**20**
N	**22**	**10**	**22**
S		**4**	
H			
O			

Cutting speed v_c (m/min.)

Blind hole – Machine taps

CavTap | M



DIN 371 with reinforced shank

ST | C 2–3 | ISO 2 6H

HSS-E
FHA 42°
≤ 750 N/mm²
≤ 3xD

22 082 ...

ST | C 2–3 | ISO 2 6H | TiN

HSS-E
FHA 42°
≤ 750 N/mm²
≤ 3xD

22 084 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes		
M2	0,40	45	2,8	2,1	1,60	4	12	2	**020**	**020**
M2,5	0,45	50	2,8	2,1	2,05	5	15	2	**025**	
M3	0,50	56	3,5	2,7	2,50	6	18	3	**030**	**030**
M4	0,70	63	4,5	3,4	3,30	7	21	3	**040**	**040**
M5	0,80	70	6,0	4,9	4,20	8	25	3	**050**	**050**
M6	1,00	80	6,0	4,9	5,00	10	30	3	**060**	**060**
M8	1,25	90	8,0	6,2	6,80	14	35	3	**080**	**080**
M10	1,50	100	10,0	8,0	8,50	16	39	3	**100**	**100**

P	**12**	**15**
M		
K	**12**	**15**
N	**12**	**15**
S		
H		
O		

Cutting speed v_c (m/min.)

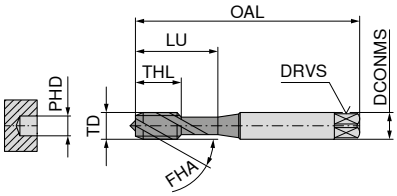
6

Blind hole – Machine taps, right hand

CavTap | M

HR | C 2–3 | ISO 2 6H

HR | C 2–3 | ISO 2 6H | OSM



DIN 371 with reinforced shank

HSS-PM
FHA 42°
≤ 1400 N/mm²
≤ 3xD

HSS-PM
FHA 42°
≤ 1400 N/mm²
≤ 3xD

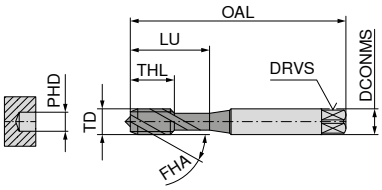
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 498 ...	22 499 ...
M3	0,50	56	3,5	2,7	2,5	6	18	3	**030**	**030**
M4	0,70	63	4,5	3,4	3,3	7	21	3	**040**	**040**
M5	0,80	70	6,0	4,9	4,2	8	25	3	**050**	**050**
M6	1,00	80	6,0	4,9	5,0	10	30	3	**060**	**060**
M8	1,25	90	8,0	6,2	6,8	14	35	3	**080**	**080**
M10	1,50	100	10,0	8,0	8,5	16	39	3	**100**	**100**

P	**6**	**8**
M	**6**	**8**
K		
N	**8**	**12**
S		
H		
O		

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

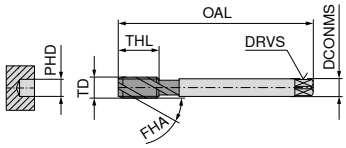
CavTap | M



DIN 371 with reinforced shank

VA	VA	VA	
C 2–3	E 1,5–2	C 2–3	
ISO 2 6H	ISO 2 6H	ISO 2 6H	
vap.	TiN GS	TiN GS	
HSS-E FHA 42° ≤ 900 N/mm² ≤ 3xD	HSS-E FHA 45° ≤ 900 N/mm² ≤ 3xD	HSS-E FHA 45° ≤ 900 N/mm² ≤ 3xD	
22 090 ...	**22 042 ...**	**22 040 ...**	

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes			
M1,6	0,35	40	2,5	2,1	1,25	4	11	2			**016**
M2	0,40	45	2,8	2,1	1,60	4	12	2	**020**		**020**
M2,5	0,45	50	2,8	2,1	2,05	5	15	2	**025**		
M2,5	0,45	50	2,8	2,1	2,05	5	15	3			**025**
M3	0,50	56	3,5	2,7	2,50	6	18	3	**030**		**030**
M4	0,70	63	4,5	3,4	3,30	7	21	3	**040**		**040**
M5	0,80	70	6,0	4,9	4,20	8	25	3	**050**	**050**	**050**
M6	1,00	80	6,0	4,9	5,00	10	30	3	**060**	**060**	**060**
M8	1,25	90	8,0	6,2	6,80	14	35	3	**080**	**080**	**080**
M10	1,50	100	10,0	8,0	8,50	16	39	3	**100**	**100**	**100**



DIN 376 with reduced shank

22 091 ...		**22 041 ...**	

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes			
M12	1,75	110	9	7,0	10,2	18	4	**120**		**120**
M14	2,00	110	11	9,0	12,0	20	4	**140**		**140**
M16	2,00	110	12	9,0	14,0	22	4	**160**		**160**
M20	2,50	140	16	12,0	17,5	25	4	**200**		**200**
M22	2,50	140	18	14,5	19,5	27	5	**220**		
M24	3,00	160	18	14,5	21,0	30	5	**240**		
M30	3,50	180	22	18,0	26,5	35	5	**300**		

P	**8**	**10**	**10**
M	**6**	**8**	**8**
K			
N			
S			
H			
O			

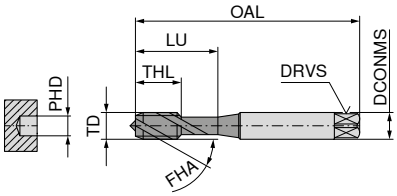
Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

CavTap | M

Soft | C | 2–3 | ISO 2 6H

NW | C | 2–3 | ISO 2 6H | vap.



DIN 371 with reinforced shank

HSS-E
FHA 42°
≤ 500 N/mm²
≤ 3xD

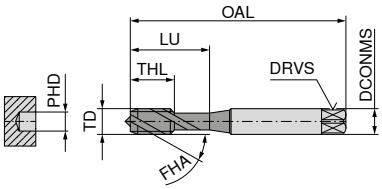
HSS-E
FHA 38°
≤ 500 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 326 ...	22 086 ...
M2	0,40	45	2,8	2,1	1,60	4	12	2	**020**	**020**
M2,5	0,45	50	2,8	2,1	2,05	5	15	2	**025**	**025**
M3	0,50	56	3,5	2,7	2,50	6	18	2	**030**	
M3	0,50	56	3,5	2,7	2,50	6	18	3		**030**
M4	0,70	63	4,5	3,4	3,30	7	21	2	**040**	
M4	0,70	63	4,5	3,4	3,30	7	21	3		**040**
M5	0,80	70	6,0	4,9	4,20	8	25	2	**050**	
M5	0,80	70	6,0	4,9	4,20	8	25	3		**050**
M6	1,00	80	6,0	4,9	5,00	10	30	2	**060**	
M6	1,00	80	6,0	4,9	5,00	10	30	3		**060**
M8	1,25	90	8,0	6,2	6,80	14	35	2	**080**	
M8	1,25	90	8,0	6,2	6,80	14	35	3		**080**
M10	1,50	100	10,0	8,0	8,50	16	39	2	**100**	
M10	1,50	100	10,0	8,0	8,50	16	39	3		**100**
P									**15**	**15**
M										
K										
N									**22**	
S										
H										
O										

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

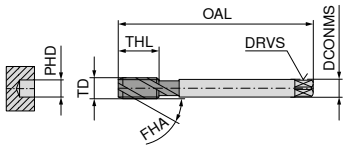
CavTap SL | M



DIN 371 with reinforced shank

	Ti	Ti	Ni
	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
	TiN	TiCN	TiCN
	HSS-PM FHA 30° ≤ 1400 N/mm² ≤ 1,5xD	HSS-PM FHA 15° ≤ 1200 N/mm² ≤ 2xD	HSS-PM FHA 15° ≤ 1600 N/mm² ≤ 2xD
	22 076 ...	22 163 ...	22 424 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes			
M3	0,50	56	3,5	2,7	2,5	11	18	2			
M3	0,50	56	3,5	2,7	2,5	6	18	3	**030**	**030**	**030**
M3,5	0,60	56	4,0	3,0	2,9	12	20	3		**035**	
M4	0,70	63	4,5	3,4	3,3	7	21	3	**040**		
M4	0,70	63	4,5	3,4	3,3	13	21	3		**040**	**040**
M5	0,80	70	6,0	4,9	4,2	8	25	3	**050**		
M5	0,80	70	6,0	4,9	4,2	15	25	3		**050**	**050**
M6	1,00	80	6,0	4,9	5,0	10	30	3	**060**		
M6	1,00	80	6,0	4,9	5,0	17	30	3		**060**	**060**
M8	1,25	90	8,0	6,2	6,8	14	35	3	**080**		
M8	1,25	90	8,0	6,2	6,8	20	35	3		**080**	**080**
M10	1,50	100	10,0	8,0	8,5	16	39	3	**100**		
M10	1,50	100	10,0	8,0	8,5	22	39	3		**100**	**100**
M12	1,75	110	12,0	9,0	10,2	18	44	3	**120**		



DIN 376 with reduced shank

								22 164 ...	22 425 ...	
M12	1,75	110	9	7,0	10,2	24	3	**120**		**120**
M14	2,00	110	11	9,0	12,0	26	3			**140**
M16	2,00	110	12	9,0	14,0	27	3	**160**		**160**
M20	2,50	140	16	12,0	17,5	32	3	**200**		**200**
M24	3,00	160	18	14,5	21,0	34	3	**240**		

P	**7**	**7**	
M	**7**	**7**	
K			
N		**22**	**22**
S	**5**	**5**	**2**
H			
O			

Cutting speed v_c (m/min.)

6

Blind hole – Machine taps, right hand

▲ ES = extra short

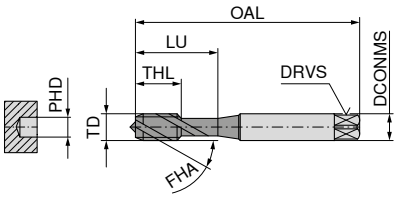
CavTap | M

UNI ES

E 1,5–2

ISO 2 6H

vap.



DIN 352 with reinforced shank

HSS-E
FHA 42°
≤ 1100 N/mm²
≤ 3xD

22 500 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M3	0,50	40	3,5	2,7	2,5	6	18	3	**030**
M4	0,70	45	4,5	3,4	3,3	7	22	3	**040**
M5	0,80	50	6,0	4,9	4,2	9	25	3	**050**
M6	1,00	56	6,0	4,9	5,0	10	28	3	**060**
M8	1,25	63	6,0	4,9	6,8	14		3	**080**
M10	1,50	70	7,0	5,5	8,5	16		3	**100**
M12	1,75	75	9,0	7,0	10,2	18		4	**120**
M16	2,00	80	12,0	9,0	14,0	22		4	**160**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

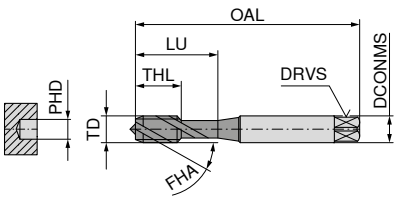
▲ ES = extra short

CavTap SL | M

ST
ES

C
2–3

ISO 2
6H



DIN 352 with reinforced shank

HSS-E
FHA 15°
≤ 750 N/mm²
≤ 2xD

22 016 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M3	0,50	40	3,5	2,7	2,5	10	18	2	**030**
M4	0,70	45	4,5	3,4	3,3	12	22	3	**040**
M5	0,80	50	6,0	4,9	4,2	14	25	3	**050**
M6	1,00	56	6,0	4,9	5,0	16	28	3	**060**
M8	1,25	63	6,0	4,9	6,8	20		3	**080**
M10	1,50	70	7,0	5,5	8,5	22		3	**100**
M12	1,75	75	9,0	7,0	10,2	24		3	**120**

P	**12**
M	
K	**12**
N	**12**
S	
H	
O	

Cutting speed v_c (m/min.)

6

Blind hole – Machine taps, right hand

▲ EL = extra long, with double overall length

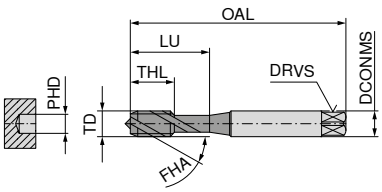
CavTap | M

ST EL | UNI EL

C 2–3 | C 2–3

ISO 2 6H | ISO 2 6H

vap.

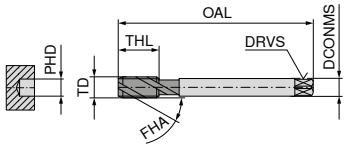


DIN 371 with reinforced shank

HSS-E
FHA 42°
≤ 750 N/mm²
≤ 3xD

HSS-E
FHA 42°
≤ 1100 N/mm²
≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	22 422 ...	22 538 ...
mm	mm	mm	mm	mm	mm	mm	mm			
M3	0,50	100	3,5	2,7	2,5	6	18	3	**030**	**030**
M4	0,70	125	4,5	3,4	3,3	7	21	3	**040**	**040**
M5	0,80	140	6,0	4,9	4,2	8	25	3	**050**	**050**
M6	1,00	160	6,0	4,9	5,0	10	30	3	**060**	**060**
M8	1,25	180	8,0	6,2	6,8	14	35	3	**080**	**080**



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	22 539 ...
mm	mm	mm	mm	mm	mm	mm		
M6	1,00	160	4,5	3,4	5,0	10	3	**060**
M8	1,25	180	6,0	4,9	6,8	14	3	**080**
M10	1,50	200	7,0	5,5	8,5	16	3	**100**
M12	1,75	224	9,0	7,0	10,2	18	3	**120**
M14	2,00	224	11,0	9,0	12,0	20	3	**140**
M16	2,00	224	12,0	9,0	14,0	22	3	**160**
M18	2,50	250	14,0	11,0	15,5	25	3	**180**
M20	2,50	280	16,0	12,0	17,5	25	3	**200**

P	**12**	**12**
M		**7**
K	**12**	**12**
N	**22**	
S		
H		
O		

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

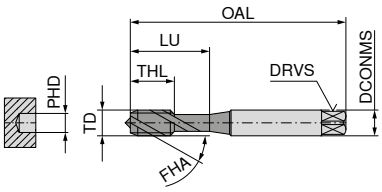
▲ EL = extra long, with double overall length

CavTap SL | M

ST
EL

E
1,5–2

ISO 2
6H

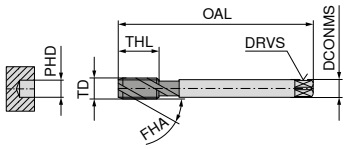


DIN 371 with reinforced shank

HSS-E
FHA 15°
≤ 750 N/mm²
≤ 2xD

22 078 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M3	0,50	100	3,5	2,7	2,5	11	18	2	**030**
M4	0,70	125	4,5	3,4	3,3	13	21	3	**040**
M5	0,80	140	6,0	4,9	4,2	15	25	3	**050**
M6	1,00	160	6,0	4,9	5,0	17	30	3	**060**
M8	1,25	180	8,0	6,2	6,8	20	35	3	**080**



DIN 376 with reduced shank

22 080 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M6	1,00	160	4,5	3,4	5,0	17	3	**060**
M8	1,25	180	6,0	4,9	6,8	20	3	**080**
M10	1,50	200	7,0	5,5	8,5	22	3	**100**
M12	1,75	224	9,0	7,0	10,2	24	3	**120**
M14	2,00	224	11,0	9,0	12,0	26	3	**140**
M16	2,00	224	12,0	9,0	14,0	27	3	**160**
M20	2,50	280	16,0	12,0	17,5	32	3	**200**

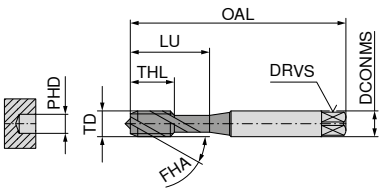
P	**12**
M	
K	**12**
N	**12**
S	
H	
O	

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

▲ NC = for synchronised CNC machining with minimum length compensation chuck

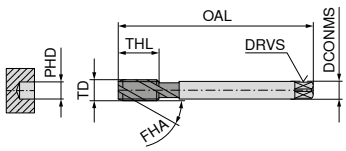
M



DIN 371 with reinforced shank

	UNI	UNI	UNI	UNI	UNI NC
	C 2–3	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	vap.	TiN	TiN	TiCN	TiN GS
	HSS-E FHA 35° ≤ 1000 N/mm² ≤ 2,5xD	HSS-E FHA 35° ≤ 1000 N/mm² ≤ 2,5xD	HSS-PM FHA 50° ≤ 1000 N/mm² ≤ 2,5xD	HSS-E FHA 45° ≤ 1000 N/mm² ≤ 3xD	HSS-E FHA 45° ≤ 1000 N/mm² ≤ 3xD
	23 118 ...	23 120 ...	23 026 ...	23 122 ...	23 124 ...

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes					
mm	mm	mm	mm	mm	mm	mm	mm						
M2	0,40	45	2,8	2,1	1,60	4	12	2	**020**	**020**			
M2,5	0,45	50	2,8	2,1	2,05	5	14	2	**025**	**025**			
M3	0,50	56	3,5	2,7	2,50	6	18	3	**030**	**030**	**030**	**030**	**030**
M4	0,70	63	4,5	3,4	3,30	7	21	3	**040**	**040**	**040**	**040**	**040**
M5	0,80	70	6,0	4,9	4,20	8	25	3	**050**	**050**	**050**	**050**	**050**
M6	1,00	80	6,0	4,9	5,00	10	30	3	**060**	**060**	**060**	**060**	**060**
M8	1,25	90	8,0	6,2	6,80	14	35	3	**080**	**080**	**080**	**080**	**080**
M10	1,50	100	10,0	8,0	8,50	16	39	3	**100**	**100**	**100**	**100**	**100**



DIN 376 with reduced shank

								23 119 ...	23 121 ...	23 027 ...	23 123 ...	23 125 ...
TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes					
mm	mm	mm	mm	mm	mm	mm						
M3	0,50	56	2,2		2,5	6	3	**030**				
M4	0,70	63	2,8	2,1	3,3	7	3	**040**				
M5	0,80	70	3,5	2,7	4,2	8	3	**050**				
M6	1,00	80	4,5	3,4	5,0	10	3	**060**				
M8	1,25	90	6,0	4,9	6,8	14	3	**080**				
M10	1,50	100	7,0	5,5	8,5	16	3	**100**				
M12	1,75	110	9,0	7,0	10,2	18	3	**120**	**120**			
M12	1,75	110	9,0	7,0	10,2	18	4			**120**	**120**	**120**
M14	2,00	110	11,0	9,0	12,0	20	3		**14000**			
M14	2,00	110	11,0	9,0	12,0	20	4			**140**		
M16	2,00	110	12,0	9,0	14,0	22	3	**160**	**160**			
M16	2,00	110	12,0	9,0	14,0	22	4			**160**	**160**	**160**
M18	2,50	125	14,0	11,0	15,5	25	3		**18000**			
M20	2,50	140	16,0	12,0	17,5	25	3	**200**	**200**	**200**		
M20	2,50	140	16,0	12,0	17,5	25	4				**200**	**200**
M22	2,50	140	18,0	14,5	19,5	27	4		**22000**			
M24	3,00	160	18,0	14,5	21,0	34	4		**240**			
M27	3,00	160	20,0	16,0	24,0	30	4		**27000**			
M30	3,50	180	22,0	18,0	26,5	35	4		**30000**			
M33	3,50	180	25,0	20,0	29,5	35	4		**33000**			
M36	4,00	200	28,0	22,0	32,0	40	4		**36000**			

P	**12**	**15**	**15**	**15**	**15**
M	**7**	**9**	**9**	**9**	**9**
K	**12**	**18**	**18**	**18**	**18**
N		**12**	**12**	**12**	**12**
S					
H					
O					

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

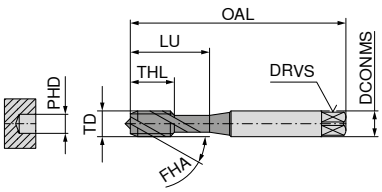
M

UNI NCW | FE | FE-HF | VA

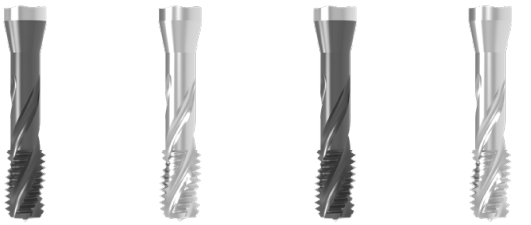
C 2–3

ISO 2 6H

TiCN (UNI NCW, FE-HF)

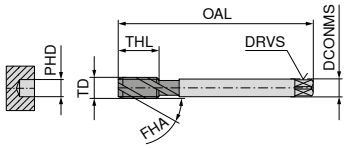


DIN 371 with reinforced shank



HSS-PM FHA 35° ≤ 1000 N/mm² ≤ 2,5xD | HSS-E FHA 35° ≤ 850 N/mm² ≤ 2,5xD | HSS-E FHA 35° ≤ 1100 N/mm² ≤ 2,5xD | HSS-E FHA 35° ≤ 1200 N/mm² ≤ 2,5xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	23 126 ...	23 216 ...	23 312 ...	23 414 ...
mm	mm	mm	mm	mm	mm	mm	mm					
M2	0,40	45	2,8	2,1	1,60	4	12	2		020		020
M2,5	0,45	50	2,8	2,1	2,05	5	14	2		025		025
M3	0,50	56	3,5	2,7	2,50	6	18	3		030	030	030
M3	0,50	70	6,0	4,9	2,50	6	18	3	030			
M4	0,70	63	4,5	3,4	3,30	7	21	3		040	040	040
M4	0,70	70	6,0	4,9	3,30	7	21	3	040			
M5	0,80	70	6,0	4,9	4,20	8	25	3	050	050	050	050
M6	1,00	80	6,0	4,9	5,00	10	30	3	060	060	060	060
M8	1,25	90	8,0	6,2	6,80	14	35	3	080	080	080	080
M10	1,50	100	10,0	8,0	8,50	16	39	3	100	100	100	100



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	23 127 ...	23 217 ...	23 313 ...	23 415 ...
mm	mm	mm	mm	mm	mm	mm					
M12	1,75	110	10	8,0	10,2	18	3	120			
M12	1,75	110	9	7,0	10,2	18	3		120	120	120
M14	2,00	110	11	9,0	12,0	20	3		140		
M16	2,00	110	12	9,0	14,0	22	3	160	160	160	160
M20	2,50	140	16	12,0	17,5	25	3		200	200	200
M24	3,00	160	18	14,5	21,0	30	4				240

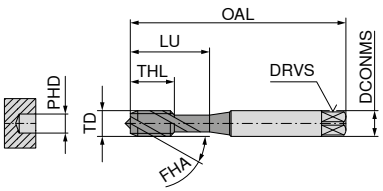
P	15	12	15	8
M	8			6
K	15	12	15	
N	22	22	24	22
S				
H				
O				

Cutting speed v_c (m/min.)

6

Blind hole – Machine taps, right hand

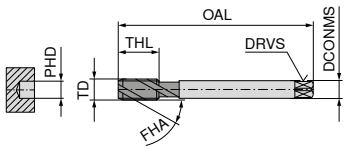
M



DIN 371 with reinforced shank

	VA	VA	VA	AL	AL
	C 2–3	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	TiN		TiN		CrN
	HSS-E FHA 45° ≤ 1200 N/mm² ≤ 3xD	HSS-PM FHA 40° ≤ 1200 N/mm² ≤ 2,5xD	HSS-PM FHA 40° ≤ 1200 N/mm² ≤ 2,5xD	HSS-E FHA 35° ≤ 500 N/mm² ≤ 2,5xD	HSS-E FHA 35° ≤ 500 N/mm² ≤ 2,5xD
	23 416 ...	23 426 ...	23 456 ...	23 616 ...	23 614 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes									
M2	0,40	45	2,8	2,1	1,60	4	12	2	**020**								
M2,5	0,45	50	2,8	2,1	2,05	5	14	2	**025**								
M3	0,50	56	3,5	2,7	2,50	6	18	3	**030**		**030**		**030**		**030**		**030**
M4	0,70	63	4,5	3,4	3,30	7	21	3	**040**		**040**		**040**		**040**		**040**
M5	0,80	70	6,0	4,9	4,20	8	25	3	**050**		**050**		**050**		**050**		**050**
M6	1,00	80	6,0	4,9	5,00	10	30	3	**060**		**060**		**060**		**060**		**060**
M8	1,25	90	8,0	6,2	6,80	14	35	3	**080**		**080**		**080**		**080**		**080**
M10	1,50	100	10,0	8,0	8,50	16	39	3	**100**		**100**		**100**		**100**		**100**



DIN 376 with reduced shank

									23 417 ...		23 427 ...		23 457 ...			23 615 ...	

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes									
M12	1,75	110	9	7,0	10,2	18	3			**120**		**120**				**120**
M12	1,75	110	9	7,0	10,2	18	4	**120**								
M14	2,00	110	11	9,0	12,0	20	4			**140**						
M16	2,00	110	12	9,0	14,0	22	3			**160**		**160**				
M16	2,00	110	12	9,0	14,0	22	4	**160**								
M20	2,50	140	16	12,0	17,5	25	3			**200**		**200**				
M20	2,50	140	16	12,0	17,5	25	4	**200**								
M24	3,00	160	18	14,5	21,0	30	4			**240**						

P	**10**	**8**	**10**			
M	**8**	**6**	**8**			
K						
N	**24**	**22**	**24**	**15**	**20**	
S						
H						
O						

Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine taps, right hand

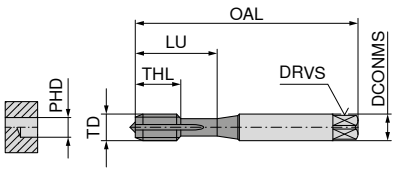
DuoTap | M

ST | HR

C 2–3 | C 2–3

ISO 2X 6HX | ISO 2X 6HX

nitr.



DIN 371 with reinforced shank

HSS-E
FHA 0°
≤ 750 N/mm²
≤ 2xD

HSS-E
FHA 0°
≤ 1400 N/mm²
≤ 2xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 028 ...	22 006 ...
M1,2	0,25	40	2,5	2,1	0,95	5	5	2	**012** 1)	
M1,4	0,30	40	2,5	2,1	1,10	6	6	2	**014** 1)	
M1,6	0,35	40	2,5	2,1	1,25	6	11	2	**016**	
M1,7	0,35	40	2,5	2,1	1,35	6	11	2	**017**	
M1,8	0,35	40	2,5	2,1	1,45	6	11	2	**018**	
M2	0,40	45	2,8	2,1	1,60	7	12	3	**020**	
M2,2	0,45	45	2,8	2,1	1,75	7	12	3	**022**	
M2,3	0,40	45	2,8	2,1	1,90	7	12	3	**023**	
M2,5	0,45	50	2,8	2,1	2,05	9	14	3	**025**	
M2,6	0,45	50	2,8	2,1	2,15	9	14	3	**026**	
M3	0,50	56	3,5	2,7	2,50	11	18	3	**030**	**030**
M3,5	0,60	56	4,0	3,0	2,90	12	20	3	**035**	
M4	0,70	63	4,5	3,4	3,30	13	21	3	**040**	**040**
M5	0,80	70	6,0	4,9	4,20	15	25	3	**050**	**050**
M6	1,00	80	6,0	4,9	5,00	17	30	3	**060**	**060**
M7	1,00	80	7,0	5,5	6,00	17	30	3	**070**	
M8	1,25	90	8,0	6,2	6,80	20	35	3	**080**	**080**
M10	1,50	100	10,0	8,0	8,50	22	39	3	**100**	**100**

P	**12**	**6**
M		
K	**12**	**16**
N		**12**
S		
H		
O		

1) Tol. 4H/5H ≤ M1.4

Cutting speed v_c (m/min.)

DIN 376 can be found on the next page

Through hole / Blind hole – Machine taps, right hand

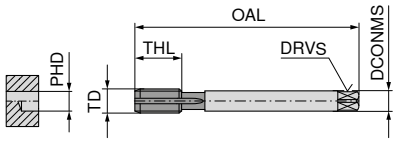
DuoTap | M

ST | HR

C 2–3 | C 2–3

ISO 2X 6HX | ISO 2X 6HX

nitr.



DIN 376 with reduced shank

HSS-E
FHA 0°
≤ 750 N/mm²
≤ 2xD

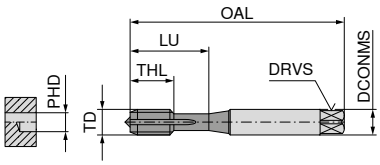
HSS-E
FHA 0°
≤ 1400 N/mm²
≤ 2xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 029 ...	22 007 ...
M4	0,70	63	2,8	2,1	3,3	13	3	**040**	
M5	0,80	70	3,5	2,7	4,2	15	3	**050**	
M6	1,00	80	4,5	3,4	5,0	17	3	**060**	
M8	1,25	90	6,0	4,9	6,8	20	3	**080**	
M10	1,50	100	7,0	5,5	8,5	22	3	**100**	
M12	1,75	110	9,0	7,0	10,2	24	3	**120**	**120**
M14	2,00	110	11,0	9,0	12,0	26	3	**140**	
M16	2,00	110	12,0	9,0	14,0	27	3	**160**	**160**
P								**12**	**6**
M									
K								**12**	**16**
N									**12**
S									
H									
O									

Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine taps, right hand

DuoTap | M

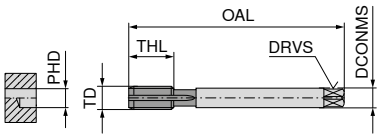


DIN 371 with reinforced shank

HSS-E
FHA 0°
≤ 1050 N/mm²
≤ 2xD

HSS-E
FHA 0°
≤ 1050 N/mm²
≤ 2xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 036 ...	22 032 ...
M2	0,40	45	2,8	2,1	1,60	7	12	3		**020**
M2,5	0,45	50	2,8	2,1	2,05	9	14	3		**025**
M3	0,50	56	3,5	2,7	2,50	11	18	3		**030**
M3,5	0,60	56	4,0	3,0	2,90	12	20	3		**035**
M4	0,70	63	4,5	3,4	3,30	13	21	3		**040**
M5	0,80	70	6,0	4,9	4,20	15	25	3	**050**	**050**
M6	1,00	80	6,0	4,9	5,00	17	30	3	**060**	**060**
M8	1,25	90	8,0	6,2	6,80	20	35	3	**080**	**080**
M10	1,50	100	10,0	8,0	8,50	22	39	3	**100**	**100**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 033 ...
M6	1,00	80	4,5	3,4	5,0	17	3	**060**
M8	1,25	90	6,0	4,9	6,8	20	3	**080**
M10	1,50	100	7,0	5,5	8,5	22	3	**100**
M12	1,75	110	9,0	7,0	10,2	24	3	**120**
M14	2,00	110	11,0	9,0	12,0	26	3	**140**
M16	2,00	110	12,0	9,0	14,0	27	3	**160**

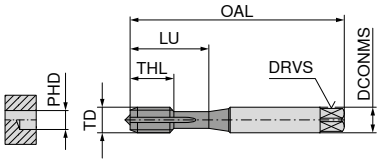
P		
M		
K	**16**	**16**
N	**12**	**12**
S		
H		
O		

Cutting speed v_c (m/min.)

6

Through hole / Blind hole – Machine taps, right hand

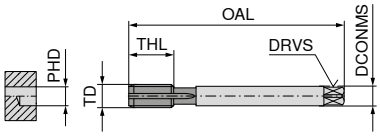
DuoTap | M



DIN 371 with reinforced shank

	HT	HT
	D 4–5	C 2–3
	ISO 2X 6HX	ISO 2X 6HX
	OSM	TiCN
	Solid carbide FHA 0° ≤ 63 HRC ≤ 1,5xD	HSS-PM FHA 0° 44 - 52 HRC ≤ 1,5xD
	22 806 ...	**22 227 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes		
M3	0,50	63	4,5	3,4	2,55	6	18	4	**030**	
M4	0,70	63	4,5	3,4	3,40	8	20	4	**040**	
M5	0,80	70	6,0	4,9	4,30	10	26	4	**050**	
M6	1,00	80	6,0	4,9	5,00	10	30	4		**060**
M6	1,00	80	6,0	4,9	5,10	12	28	4	**060**	
M8	1,25	90	8,0	6,2	6,80	14	35	5		**080**
M8	1,25	90	8,0	6,2	6,90	15	35	5	**080**	
M10	1,50	100	10,0	8,0	8,50	18	38	5	**100**	
M10	1,50	100	10,0	8,0	8,50	16	39	5		**100**
M12	1,75	110	12,0	9,0	10,40	21	41	5	**120**	
M16	2,00	110	16,0	12,0	14,20	24	44	6	**160**	



DIN 376 with reduced shank

	22 228 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M12	1,75	110	9	7	10,4	18	5	**120**
M16	2,00	110	12	9	14,2	22	6	**160**

P		
M		
K		
N		**22**
S		
H	**2**	**2**
O		

Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine taps, right hand

▲ EL = extra long, with double overall length

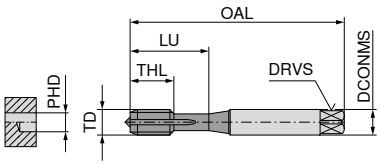
DuoTap | M

HR
EL

C
2–3

ISO 2X
6HX

nitr.

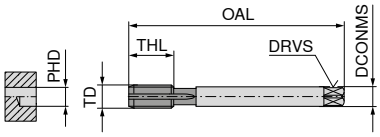


DIN 371 with reinforced shank

HSS-E
FHA 0°
≤ 1400 N/mm²
≤ 2xD

22 122 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M3	0,50	100	3,5	2,7	2,5	11	18	3	**030**
M4	0,70	125	4,5	3,4	3,3	13	21	3	**040**
M5	0,80	140	6,0	4,9	4,2	15	25	3	**050**
M6	1,00	160	6,0	4,9	5,0	17	30	3	**060**
M8	1,25	180	8,0	6,2	6,8	20	35	3	**080**



DIN 376 with reduced shank

22 123 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M10	1,50	200	7	5,5	8,5	22	3	**100**
M12	1,75	224	9	7,0	10,2	24	3	**120**
M16	2,00	224	12	9,0	14,0	27	3	**160**
M20	2,50	280	16	12,0	17,5	32	4	**200**

P	**6**
M	
K	**16**
N	**22**
S	
H	
O	

Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine taps, right hand

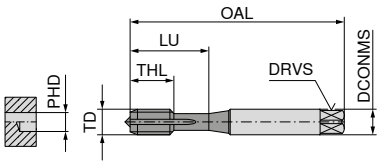
M

GG

C
2–3

ISO 2X
6HX

TiCN

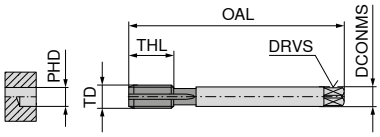


DIN 371 with reinforced shank

HSS-E
FHA 0°
≤ 900 N/mm²
≤ 2xD

23 512 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M5	0,80	70	6	4,9	4,2	15	25	3	**050**
M6	1,00	80	6	4,9	5,0	17	30	3	**060**
M8	1,25	90	8	6,2	6,8	20	35	3	**080**
M10	1,50	100	10	8,0	8,5	22	39	3	**100**



DIN 376 with reduced shank

23 513 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M12	1,75	110	9	7	10,2	24	3	**120**

P	
M	
K	**20**
N	**24**
S	
H	
O	

Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine thread formers, right hand

▲ HML = with soldered-in carbide strips for a higher cutting speed

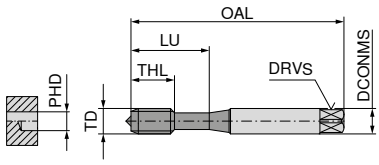
DuoForm | M

NW HML | EC

C 2–3 | C 2–3

ISO 2X 6HX | ISO 2X 6HX

TiN



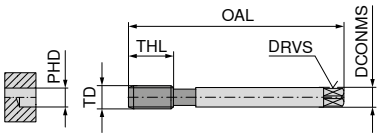
DIN 2174 with reinforced shank

HSS-E / HM
≤ 880 N/mm²
≤ 3xD

HSS-E
≤ 1100 N/mm²
≤ 1,5xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	22 473 ...	22 100 ...
M1	0,25	40	2,5	2,1	0,90	5	6,5		010 [1]
M1,2	0,25	40	2,5	2,1	1,10	5	6,5		012 [1]
M1,4	0,30	40	2,5	2,1	1,28	6	9,0		014 [1]
M1,6	0,35	40	2,5	2,1	1,47	6	9,0		016
M1,7	0,35	40	2,5	2,1	1,57	6	9,0		017
M2	0,40	45	2,8	2,1	1,85	7	10,0		020
M2,5	0,45	50	2,8	2,1	2,33	9	14,0		025
M2,6	0,45	50	2,8	2,1	2,43	9	14,0		026
M3	0,50	56	3,5	2,7	2,80	11	18,0		030
M3,5	0,60	56	4,0	3,0	3,25	12	20,0		035
M4	0,70	63	4,5	3,4	3,70	13	21,0		040
M5	0,80	70	6,0	4,9	4,65	15	25,0		050
M6	1,00	80	6,0	5,0	5,60	18	30,0	06000	
M6	1,00	80	6,0	4,9	5,60	17	30,0		060
M8	1,25	90	8,0	6,2	7,40	20	35,0		080
M8	1,25	90	8,0	6,0	7,45	18	35,0	08000	
M10	1,50	100	10,0	8,0	9,35	22	39,0		100

1) Tol. ISO 1X 4HX ≤ M1.4



DIN 2174 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	22 101 ...
M12	1,75	110	9	7	11,25	24	120
M16	2,00	110	12	9	15,10	27	160

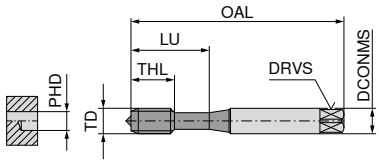
P		18
M		10
K		10
N	30	22
S		
H		
O		

Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

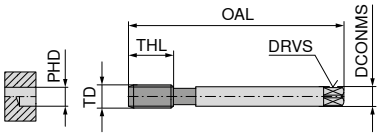
DuoForm | M



DIN 2174 with reinforced shank

	EC SN	EC SN	EC SN	EC SN
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 3X 6GX	ISO 2X 6HX	ISO 2X 6HX
	nitr.	TiN	TiN GS	TiN
	HSS-E ≤ 1100 N/mm² ≤ 3xD	HSS-E ≤ 1100 N/mm² ≤ 3xD	HSS-E ≤ 1100 N/mm² ≤ 3xD	HSS-E ≤ 1100 N/mm² ≤ 3xD
	22 104 ...	**22 108 ...**	**22 154 ...**	**22 105 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes							
M2	0,40	45	2,8	2,1	1,85	7	10	3							**020**
M2,5	0,45	50	2,8	2,1	2,33	9	14	3							**025**
M3	0,50	56	3,5	2,7	2,80	11	18	3	**030**		**030**		**030**		**030**
M3,5	0,60	56	4,0	3,0	3,25	12	20	3							**035**
M4	0,70	63	4,5	3,4	3,70	13	21	4	**040**		**040**		**040**		**040**
M5	0,80	70	6,0	4,9	4,65	15	25	4	**050**		**050**		**050**		
M5	0,80	70	6,0	4,9	4,65	15	25	4							**050**
M6	1,00	80	6,0	4,9	5,60	17	30	4	**060**		**060**		**060**		**060**
M8	1,25	90	8,0	6,2	7,45	20	35	5	**080**		**080**		**080**		**080**
M10	1,50	100	10,0	8,0	9,35	22	39	6	**100**		**100**		**100**		**100**



DIN 2174 with reduced shank

									22 106 ...
M12	1,75	110	9	7	11,25	24	6		**120**
M14	2,00	110	11	9	13,10	26	5		**140**
M16	2,00	110	12	9	15,10	27	7		**160**

P	**12**	**18**	**18**	**18**
M		**10**	**10**	**10**
K	**8**	**10**	**10**	**10**
N	**12**	**22**	**22**	**22**
S				
H				
O				

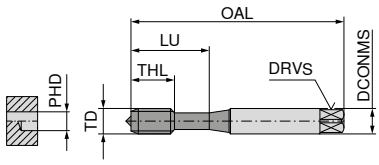
Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

DuoForm | M

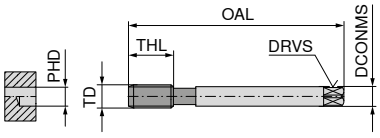
NEO SN | C 2–3 | ISO 2X 6HX | TiN



DIN 2174 with reinforced shank

HSS-PM
≤ 1100 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 452 ...	22 453 ...
M3	0,50	56	3,5	2,7	2,80	11	18	4	**030**	
M4	0,70	63	4,5	3,4	3,70	13	21	4	**040**	
M5	0,80	70	6,0	4,9	4,65	15	25	4	**050**	**050**
M6	1,00	80	6,0	4,9	5,60	17	30	5	**060**	**060**
M8	1,25	90	8,0	6,2	7,45	20	35	5	**080**	**080**
M10	1,50	100	10,0	8,0	9,35	22	39	5	**100**	**100**



DIN 2174 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 452 ...	22 454 ...
M12	1,75	110	9	7	11,25	24	6	**120**	**120**
M16	2,00	110	12	9	15,10	27	6	**160**	**160**

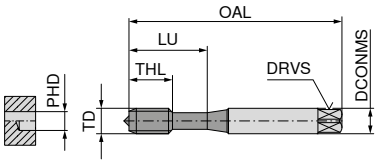
P	**18**	**18**
M	**10**	**10**
K	**10**	**10**
N	**22**	**22**
S		
H		
O		

Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine thread formers, right hand

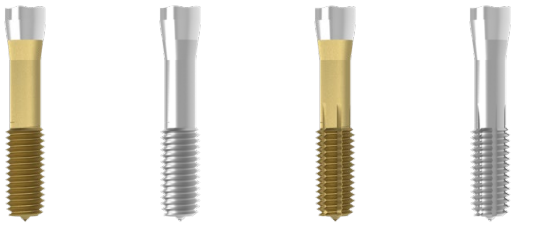
▲ SN = Thread formers with lubrication grooves

M



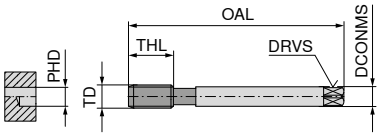
DIN 2174 with reinforced shank

UNI	UNI	UNI SN	UNI SN
C 2–3	C 2–3	C 2–3	C 2–3
ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
TiN	CrN	TiN	CrN



HSS-E ≤ 850 N/mm² ≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 810 ...	23 812 ...	23 814 ...	23 816 ...
M2	0,40	45	2,8	2,1	1,85	7	12		020	020		
M2	0,40	45	2,8	2,1	1,85	7	12	3			020	020
M2,5	0,45	50	2,8	2,1	2,33	9	14		025	025		
M2,5	0,45	50	2,8	2,1	2,33	9	14	3			025	025
M3	0,50	56	3,5	2,7	2,80	11	18		030	030		
M3	0,50	56	3,5	2,7	2,80	11	18	3			030	030
M4	0,70	63	4,5	3,4	3,70	13	21		040	040		
M4	0,70	63	4,5	3,4	3,70	13	21	4			040	040
M5	0,80	70	6,0	4,9	4,65	15	25		050	050		
M5	0,80	70	6,0	4,9	4,65	15	25	4			050	050
M6	1,00	80	6,0	4,9	5,60	17	30		060	060		
M6	1,00	80	6,0	4,9	5,60	17	30	4			060	060
M8	1,25	90	8,0	6,2	7,45	20	35		080	080		
M8	1,25	90	8,0	6,2	7,45	20	35	5			080	080
M10	1,50	100	10,0	8,0	9,35	22	39		100	100		
M10	1,50	100	10,0	8,0	9,35	22	39	5			100	100



DIN 2174 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 811 ...	23 813 ...	23 815 ...	23 817 ...
M12	1,75	110	9	7,0	11,25	24		120	120		
M12	1,75	110	9	7,0	11,25	24	5			120	120
M16	2,00	110	12	9,0	15,10	27		160	160		
M16	2,00	110	12	9,0	15,10	27	6			160	160
M18	2,50	125	14	11,0	16,80	30	6			18000	
M20	2,50	140	16	12,0	18,80	32	6			20000	
M24	3,00	160	18	14,5	22,60	34	6			24000	

P	18	18	18	18
M	10	10	10	10
K	10		10	
N	22	18	22	18
S				
H				
O				

Cutting speed v_c (m/min.)

Through hole – machine taps for wire thread inserts, right hand

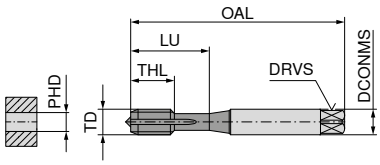
TruTap | EG M

UNI

B
4–5

6H mod

nitr. + vap.

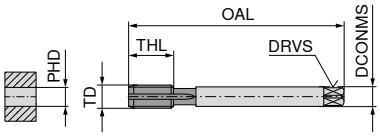


DIN 40435 with reinforced shank

HSS-E
FHA 0°
≤ 1100 N/mm²
≤ 4xD

22 662 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
EG-M2,5	0,45	56	3,5	2,7	2,65	11	18	3	**025**
EG-M3	0,50	63	4,5	3,4	3,15	10	21	3	**030**
EG-M4	0,70	70	6,0	4,9	4,20	12	25	3	**040**
EG-M5	0,80	80	6,0	4,9	5,25	13	30	3	**050**
EG-M6	1,00	90	8,0	6,2	6,30	17	35	3	**060**
EG-M8	1,25	100	10,0	8,0	8,40	18	39	3	**080**



DIN 40435 with reduced shank

22 663 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
EG-M10	1,50	100	9	7,0	10,50	22	3	**100**
EG-M12	1,75	110	11	9,0	12,50	26	3	**120**
EG-M16	2,00	125	14	11,0	16,50	27	3	**160**
EG-M20	2,50	160	18	14,5	20,75	34	3	**200**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Cutting speed v_c (m/min.)

Blind hole – machine taps for wire thread inserts, right hand

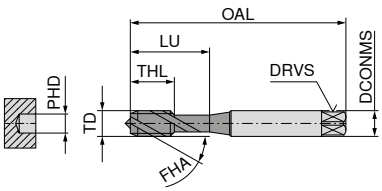
CavTap | EG M

UNI

C
2–3

6H mod

vap.

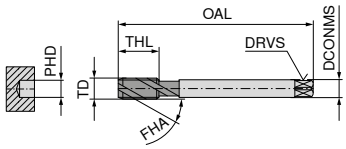


DIN 40435 with reinforced shank

HSS-E
FHA 42°
≤ 1100 N/mm²
≤ 3xD

22 664 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
EG-M2,5	0,45	56	3,5	2,7	2,65	5	18	3	**025**
EG-M3	0,50	63	4,5	3,4	3,15	5	21	3	**030**
EG-M4	0,70	70	6,0	4,9	4,20	8	25	3	**040**
EG-M5	0,80	80	6,0	4,9	5,25	8	30	3	**050**
EG-M6	1,00	90	8,0	6,2	6,30	10	35	3	**060**
EG-M8	1,25	100	10,0	8,0	8,40	16	39	3	**080**



DIN 40435 with reduced shank

22 665 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
EG-M10	1,50	100	9	7,0	10,50	15	5	**100**
EG-M12	1,75	110	11	9,0	12,50	20	4	**120**
EG-M16	2,00	125	14	11,0	16,50	20	5	**160**
EG-M20	2,50	160	18	14,5	20,75	30	4	**200**

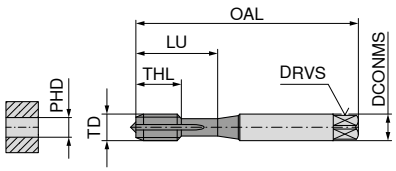
P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

TruTap | MF

UNI | B 4–5 | ISO 2 6H | TiN



DIN 371 with reinforced shank

HSS-E
FHA 0°
≤ 1100 N/mm²
≤ 4xD

22 550 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M5x0,5	0,50	70	6	4,9	4,5	11	25	3	**050**
M6x0,5	0,50	80	6	4,9	5,5	13	30	3	**060**
M6x0,75	0,75	80	6	4,9	5,2	13	30	3	**062**
M8x1	1,00	90	8	6,2	7,0	17	35	3	**080**
M10x1	1,00	90	10	8,0	9,0	18	35	4	**100**

P	**15**
M	**9**
K	**18**
N	**12**
S	
H	
O	

Cutting speed v_c (m/min.)

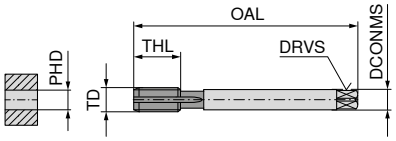
DIN 374 can be found on the next page

6

Through hole – Machine taps, right hand

▲ TS = for high-speed machining, up to 100 m/min.

TruTap | MF



DIN 374 with reduced shank

	ST TS	UNI	UNI
	B 4–5	B 4–5	B 4–5
	ISO 2X 6HX	ISO 2 6H	ISO 2 6H
	TiN	nitr. + vap.	TiN
	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD
	22 193 ...	**22 551 ...**	**22 552 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes			
M8x0,75	0,75	80	6	4,9	7,2	14	3		082	
M8x1	1,00	90	6	4,9	7,0	10	4	080		
M8x1	1,00	90	6	4,9	7,0	17	3		084	080
M10x0,75	0,75	90	7	5,5	9,2	18	4		100	
M10x1	1,00	90	7	5,5	9,0	10	4	100		
M10x1	1,00	90	7	5,5	9,0	18	4		102	100
M10x1,25	1,25	100	7	5,5	8,8	22	3		104	
M12x1	1,00	100	9	7,0	11,0	18	4		120	121
M12x1,25	1,25	100	9	7,0	10,8	22	3		122	
M12x1,5	1,50	100	9	7,0	10,5	15	4	120		
M12x1,5	1,50	100	9	7,0	10,5	22	3		124	120
M14x1	1,00	100	11	9,0	13,0	18	4		140	
M14x1,5	1,50	100	11	9,0	12,5	15	4	140		
M14x1,5	1,50	100	11	9,0	12,5	22	3		144	140
M16x1,5	1,50	100	12	9,0	14,5	15	4	160		
M16x1,5	1,50	100	12	9,0	14,5	22	3		162	160
M18x1	1,00	110	14	11,0	17,0	20	5		180	
M18x1,5	1,50	110	14	11,0	16,5	25	4		182	
M18x2	2,00	125	14	11,0	16,0	26	3		184	
M20x1	1,00	125	16	12,0	19,0	20	5		200	
M20x1,5	1,50	125	16	12,0	18,5	25	4		202	200
M22x1,5	1,50	125	18	14,5	20,5	25	4		222	220
M24x1,5	1,50	140	18	14,5	22,5	27	4		242	
M24x2	2,00	140	18	14,5	22,0	27	4		244	
M25x1,5	1,50	140	18	14,5	23,5	28	4		250	
M26x1,5	1,50	140	18	14,5	24,5	28	4		260	
M27x2	2,00	140	20	16,0	25,0	28	4		272	
M28x1,5	1,50	140	20	16,0	26,5	28	5		280	
M30x1,5	1,50	150	22	18,0	28,5	28	5		302	

P	**65**	**12**	**15**
M		**7**	**9**
K	**65**	**12**	**18**
N	**22**		**12**
S			
H			
O			

Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

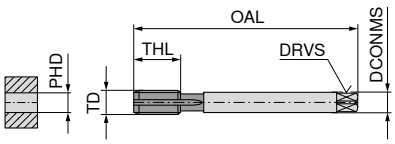
MF

UNI

B
4–5

ISO 2
6H

TiN



DIN 374 with reduced shank

HSS-PM
FHA 0°
≤ 1000 N/mm²
≤ 3xD

23 041 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M8x1	1,00	90	6	4,9	7,0	17	3	**081**
M10x1	1,00	90	7	5,5	9,0	18	4	**102**
M10x1,25	1,25	100	7	5,5	8,8	22	3	**104**
M12x1	1,00	100	9	7,0	11,0	18	4	**120**
M12x1,25	1,25	100	9	7,0	10,8	22	3	**122**
M12x1,5	1,50	100	9	7,0	10,5	22	3	**121**
M14x1,25	1,25	100	11	9,0	12,8	22	3	**142**
M14x1,5	1,50	100	11	9,0	12,5	22	3	**144**
M16x1,5	1,50	100	12	9,0	14,5	22	3	**162**
M18x1,5	1,50	110	14	11,0	16,5	17	4	**182**
M20x1,5	1,50	125	16	12,0	18,5	17	4	**202**
M22x1,5	1,50	125	18	14,5	20,5	25	4	**222**
M24x1,5	1,50	140	18	14,5	22,5	27	4	**242**
M24x2	2,00	140	18	14,5	22,0	27	4	**244**

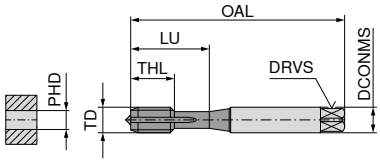
P	**15**
M	**9**
K	**18**
N	**12**
S	
H	
O	

Cutting speed v_c (m/min.)

6

Through hole – Machine taps, right hand

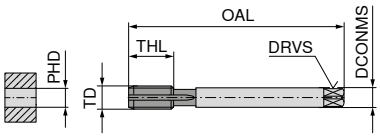
MF



DIN 371 with reinforced shank

	UNI	UNI	FE	VA
	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	nitr. + vap.	TiN		TiN
	HSS-E FHA 0° ≤ 1000 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 1000 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 850 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 1200 N/mm² ≤ 4xD
	23 140 ...	**23 142 ...**		**23 440 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes				
M4x0,5	0,50	63	4,5	3,4	3,5	10	21	3	**040**		**040**	
M5x0,5	0,50	70	6,0	4,9	4,5	11	25	3	**050**		**050**	**050**
M6x0,75	0,75	80	6,0	4,9	5,2	13	30	3	**062**		**062**	**062**
M6x0,5	0,50	80	6,0	4,9	5,5	13	30	3	**060**		**060**	



DIN 374 with reduced shank

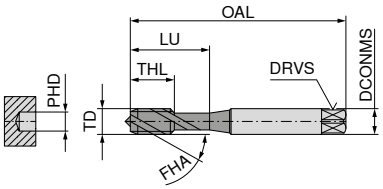
								23 141 ...	**23 143 ...**	**23 241 ...**	**23 441 ...**
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes				
M8x0,5	0,50	80	6	4,9	7,5	14	3			**080**	
M8x0,75	0,75	80	6	4,9	7,2	14	3	**082**	**082**	**082**	**082**
M8x1	1,00	90	6	4,9	7,0	17	3	**084**		**084**	**084**
M8x1	1,00	90	6	4,9	7,0	17	4		**084**		
M10x0,75	0,75	90	7	5,5	9,2	18	4	**100**	**100**	**100**	
M10x1	1,00	90	7	5,5	9,0	18	4	**102**	**102**	**102**	**102**
M10x1,25	1,25	100	7	5,5	8,8	22	3	**104**	**104**	**104**	
M12x1	1,00	100	9	7,0	11,0	18	4	**120**	**120**	**120**	**120**
M12x1,25	1,25	100	9	7,0	10,8	22	3	**122**	**122**	**122**	
M12x1,5	1,50	100	9	7,0	10,5	22	3	**124**	**124**	**124**	**124**
M14x1	1,00	100	11	9,0	13,0	18	4	**140**	**140**	**140**	
M14x1,5	1,50	100	11	9,0	12,5	22	3	**144**	**144**	**144**	**144**
M16x1	1,00	100	12	9,0	15,0	18	4	**160**	**160**	**160**	
M16x1,5	1,50	100	12	9,0	14,5	22	3	**162**	**162**	**162**	**162**
M18x1	1,00	110	14	11,0	17,0	20	5			**180**	
M18x1,5	1,50	110	14	11,0	16,5	25	4	**182**	**182**	**182**	
M20x1	1,00	125	16	12,0	19,0	20	5			**200**	
M20x1,5	1,50	125	16	12,0	18,5	25	4	**202**	**202**	**202**	
M22x1,5	1,50	125	18	14,5	20,5	25	4	**222**	**222**	**222**	
M24x1,5	1,50	140	18	14,5	22,5	27	4	**242**	**242**	**242**	
M26x1,5	1,50	140	18	14,5	24,5	28	4			**260**	
M28x1,5	1,50	140	20	16,0	26,5	28	5			**280**	
M30x1,5	1,50	150	22	18,0	28,5	28	5			**300**	

P	**12**	**15**	**12**	**10**
M	**7**	**9**		**8**
K	**12**	**18**	**12**	
N		**12**	**12**	**24**
S				
H				
O				

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

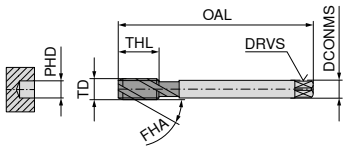
CavTap | MF



DIN 371 with reinforced shank

	UNI	UNI	UNI
	E 1,5–2	E 1,5–2	E 1,5–2
	ISO 2 6H	ISO 2 6H	ISO 3 6G
	vap.	TiN	vap.
	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD
			22 441 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M4x0,5	0,50	63	4,5	3,4	3,50	5	21	3	**040**
M6x0,75	0,75	80	6,0	4,9	5,25	8	30	3	**062**
M5x0,5	0,50	70	6,0	4,9	4,50	5	25	3	**050**



DIN 374 with reduced shank

								22 555 ...	22 556 ...	22 490 ...
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes			
M8x1	1,0	90	6	4,9	7,0	10	3	**080**	**080**	**080**
M10x1	1,0	90	7	5,5	9,0	10	4	**100**	**100**	**100**
M12x1,5	1,5	100	9	7,0	10,5	15	5	**120**	**120**	**120**
M14x1,5	1,5	100	11	9,0	12,5	15	5	**140**	**140**	**140**
M16x1,5	1,5	100	12	9,0	14,5	15	5	**160**	**160**	**160**
M18x1,5	1,5	110	14	11,0	16,5	17	5			**180**
M20x1,5	1,5	125	16	12,0	18,5	17	5			**200**
P								**12**	**15**	**12**
M								**7**	**9**	**7**
K								**12**	**18**	**12**
N									**12**	
S										
H										
O										

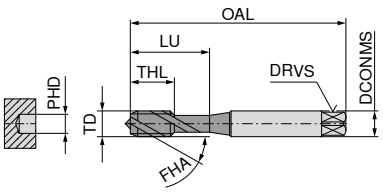
Cutting speed v_c (m/min.)

6

Blind hole – Machine taps, right hand

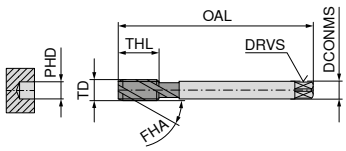
▲ CNC = for synchronised CNC machining with minimum length compensation chuck

CavTap | MF



DIN 371 with reinforced shank

	UNI	UNI	UNI CNC	UNI CNC
	C 2–3	C 2–3	E 1,5–2	E 1,5–2
	ISO 2 6H	ISO 2 6H	7G	ISO 2 6H
	vap.	TiN	TiN GS	TiN GS
	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 45° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 45° ≤ 1100 N/mm² ≤ 3xD
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 548 ...
M5x0,5	0,50	70	6	4,9	4,5	5	25	3	050
M6x0,5	0,50	80	6	4,9	5,5	5	30	3	060
M6x0,75	0,75	80	6	4,9	5,2	8	30	3	062



DIN 374 with reduced shank

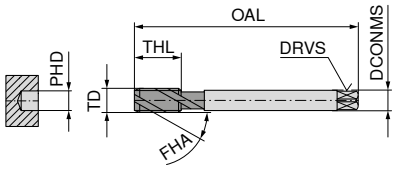
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 553 ...	22 554 ...	22 563 ...	22 549 ...
M8x0,75	0,75	80	6	4,9	7,2	8	3				082
M8x1	1,00	90	6	4,9	7,0	10	3	082	080	084	084
M10x1	1,00	90	7	5,5	9,0	10	3	100	100		
M10x1	1,00	90	7	5,5	9,0	10	4			102	102
M12x1	1,00	100	9	7,0	11,0	11	4	120	121		120
M12x1,5	1,50	100	9	7,0	10,5	15	4	124	120		
M12x1,5	1,50	100	9	7,0	10,5	15	5			124	124
M14x1,5	1,50	100	11	9,0	12,5	15	4	140	140		
M14x1,5	1,50	100	11	9,0	12,5	15	5			144	144
M16x1,5	1,50	100	12	9,0	14,5	15	4	160	160		
M16x1,5	1,50	100	12	9,0	14,5	15	5			162	162
M18x1,5	1,50	110	14	11,0	16,5	17	4	180	182		
M18x1,5	1,50	110	14	11,0	16,5	17	5				182
M20x1,5	1,50	125	16	12,0	18,5	17	4	200	202		
M20x1,5	1,50	125	16	12,0	18,5	17	5			202	202
M22x1,5	1,50	125	18	14,5	20,5	17	4	220			
M24x1,5	1,50	140	18	14,5	22,5	20	5	240			
P								12	15	15	15
M								7	9	9	9
K								12	18	18	18
N									12	12	12
S											
H											
O											

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

CavTap SL | MF

ST | C 2–3 | ISO 2 6H



DIN 374 with reduced shank

HSS-E
FHA 15°
≤ 750 N/mm²
≤ 2xD

6

22 182 ...

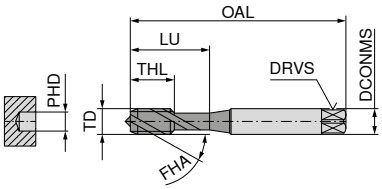
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M6x0,75	0,75	80	4,5	3,4	5,2	13	3	**062**
M8x0,75	0,75	80	6,0	4,9	7,2	14	3	**082**
M8x1	1,00	90	6,0	4,9	7,0	17	3	**084**
M9x1	1,00	90	7,0	5,5	8,0	17	3	**090**
M10x1	1,00	90	7,0	5,5	9,0	18	3	**102**
M10x1,25	1,25	100	7,0	5,5	8,8	22	3	**104**
M11x1	1,00	90	8,0	6,2	10,0	18	3	**110**
M12x1	1,00	100	9,0	7,0	11,0	18	3	**120**
M12x1,25	1,25	100	9,0	7,0	10,8	22	3	**122**
M12x1,5	1,50	100	9,0	7,0	10,5	22	3	**124**
M14x1	1,00	100	11,0	9,0	13,0	18	4	**140**
M14x1,5	1,50	100	11,0	9,0	12,5	22	3	**144**
M15x1	1,00	100	12,0	9,0	14,0	18	4	**150**
M16x1	1,00	100	12,0	9,0	15,0	18	4	**160**
M16x1,5	1,50	100	12,0	9,0	14,5	22	3	**162**
M18x1	1,00	110	14,0	11,0	17,0	20	4	**180**

P	**12**
M	
K	**12**
N	**22**
S	
H	
O	

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

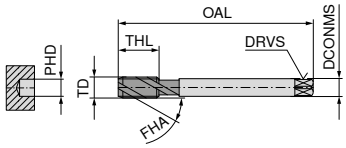
CavTap | MF



DIN 371 with reinforced shank

	VA	VA
	E 1,5–2	E 1,5–2
	ISO 2 6H	ISO 2 6H
	vap.	TiN GS
	HSS-E FHA 42° ≤ 750 N/mm² ≤ 3xD	HSS-E FHA 45° ≤ 900 N/mm² ≤ 3xD
		22 176 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M4x0,5	0,50	63	4,5	3,4	3,5	5	21	3	**040**
M5x0,5	0,50	70	6,0	4,9	4,5	5	25	3	**050**
M6x0,5	0,50	80	6,0	4,9	5,5	5	30	3	**060**
M6x0,75	0,75	80	6,0	4,9	5,2	8	30	3	**062**



DIN 374 with reduced shank

									22 189 ...	22 177 ...
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes			
M8x0,75	0,75	80	6	4,9	7,2	8	3			**082**
M8x1	1,00	90	6	4,9	7,0	10	3		**082**	**084**
M10x1	1,00	90	7	5,5	9,0	10	4		**100**	**102**
M12x1	1,00	100	9	7,0	11,0	11	4		**121**	**120**
M12x1,5	1,50	100	9	7,0	10,5	15	5		**120**	**124**
M14x1,5	1,50	100	11	9,0	12,5	15	5		**140**	**144**
M16x1,5	1,50	100	12	9,0	14,5	15	5		**160**	**162**
M20x1,5	1,50	125	16	12,0	18,5	17	5		**200**	
M26x1,5	1,50	140	18	14,5	24,5	20	6		**260**	
M28x1,5	1,50	140	20	16,0	26,5	20	6		**280**	
M30x1,5	1,50	150	22	18,0	28,5	22	6		**300**	

P	**8**	**10**
M	**6**	**8**
K		
N	**22**	**22**
S		
H		
O		

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

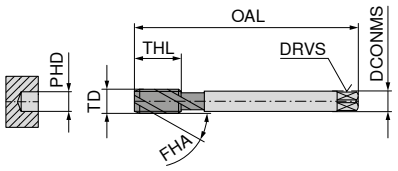
MF

UNI

C
2–3

ISO 2
6H

TiN



DIN 374 with reduced shank

HSS-PM
FHA 40°
≤ 1000 N/mm²
≤ 2,5xD

23 047 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M8x1	1,00	90	6	4,9	7,0	10	35	3	**081**
M10x1	1,00	90	7	5,5	9,0	10	35	4	**102**
M10x1,25	1,25	100	7	5,5	8,8	16	39	4	**104**
M12x1	1,00	100	9	7,0	11,0	11	40	4	**120**
M12x1,25	1,25	100	9	7,0	10,8	15	40	5	**122**
M12x1,5	1,50	100	9	7,0	10,5	15	40	5	**121**
M14x1	1,00	100	11	9,0	12,8	11	40	4	**140**
M14x1,5	1,50	100	11	9,0	12,5	15	40	5	**144**
M16x1,5	1,50	100	12	9,0	14,5	15	44	5	**162**
M18x1,5	1,50	110	14	11,0	16,5	17	44	5	**182**
M20x1,5	1,50	125	16	12,0	18,5	17	44	5	**202**
M22x1,5	1,50	125	18	14,5	20,5	17	44	5	**222**
M24x1,5	1,50	140	18	14,5	22,5	20	48	5	**242**
M24x2	2,00	140	18	14,5	22,0	20	48	5	**244**

P	**15**
M	**9**
K	**18**
N	**12**
S	
H	
O	

Cutting speed v_c (m/min.)

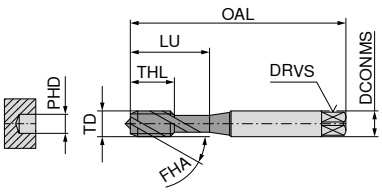
6

Blind hole – Machine taps, right hand

▲ NC = for synchronised CNC machining with minimum length compensation chuck

MF

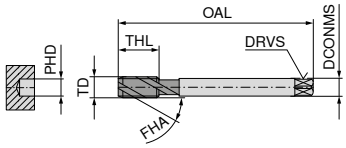
FE	UNI NC	UNI	UNI
C	E	C	C
2–3	1,5–2	2–3	2–3
ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	TiN GS	vap.	TiN



DIN 371 with reinforced shank

HSS-E	HSS-E	HSS-E	HSS-E
FHA 35°	FHA 45°	FHA 35°	FHA 35°
≤ 850 N/mm²	≤ 1000 N/mm²	≤ 1000 N/mm²	≤ 1000 N/mm²
≤ 2,5xD	≤ 3xD	≤ 2,5xD	≤ 2,5xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	23 144 ...	23 146 ...
mm	mm	mm	mm	mm	mm	mm	mm			
M4x0,5	0,50	63	4,5	3,4	3,5	5	21	3	**040**	**040**
M5x0,5	0,50	70	6,0	4,9	4,5	5	25	3	**050**	**050**
M6x0,5	0,50	80	6,0	4,9	5,5	5	30	3	**060**	**060**
M6x0,75	0,75	80	6,0	4,9	5,2	8	30	3	**062**	**062**



DIN 374 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	23 243 ...	23 149 ...	23 145 ...	23 147 ...
mm	mm	mm	mm	mm	mm	mm					
M4x0,5	0,50	63	2,8	2,1	3,5	5	3			**040**	
M5x0,5	0,50	70	3,5	2,7	4,5	5	3			**050**	
M6x0,75	0,75	80	4,5	3,4	5,2	8	3			**062**	
M8x0,5	0,50	80	6,0	8,0	7,5	6	3	**080**			
M8x0,75	0,75	80	6,0	4,9	7,2	8	3	**082**	**082**	**082**	**082**
M8x1	1,00	90	6,0	4,9	7,0	10	3	**084**	**084**	**084**	**084**
M10x0,75	0,75	90	7,0	5,5	9,2	10	4	**100**		**100**	**100**
M10x1	1,00	90	7,0	5,5	9,0	10	3	**102**		**102**	**102**
M10x1	1,00	90	7,0	5,5	9,0	10	4		**102**		
M10x1,25	1,25	100	7,0	5,5	8,8	16	3	**104**		**104**	**104**
M12x1	1,00	100	9,0	7,0	11,0	11	4	**120**	**120**	**120**	**120**
M12x1,25	1,25	100	9,0	7,0	10,8	15	4	**122**		**122**	**122**
M12x1,5	1,50	100	9,0	7,0	10,5	15	4	**124**		**124**	**124**
M12x1,5	1,50	100	9,0	7,0	10,5	15	5		**124**		
M14x1	1,00	100	11,0	9,0	13,0	11	4	**140**		**140**	**140**
M14x1,5	1,50	100	11,0	9,0	12,5	15	4	**144**		**144**	**144**
M14x1,5	1,50	100	11,0	9,0	12,5	15	5		**144**		
M16x1	1,00	100	12,0	9,0	15,0	12	4	**160**		**160**	**160**
M16x1,5	1,50	100	12,0	9,0	14,5	15	4	**162**		**162**	**162**
M16x1,5	1,50	100	12,0	9,0	14,5	15	5		**162**		
M18x1,5	1,50	110	14,0	11,0	16,5	17	4	**182**		**182**	**182**
M18x1,5	1,50	110	14,0	11,0	16,5	17	5		**182**		
M20x1,5	1,50	125	16,0	12,0	18,5	17	4	**202**		**202**	**202**
M20x1,5	1,50	125	16,0	12,0	18,5	17	5		**202**		
M22x1,5	1,50	125	18,0	14,5	20,5	17	4	**222**		**222**	**222**
M24x1,5	1,50	140	18,0	14,5	22,5	20	5	**242**		**242**	**242**

P	**12**	**15**	**12**	**15**
M		**9**	**7**	**9**
K	**12**	**18**	**12**	**18**
N	**22**	**12**		**12**
S				
H				
O				

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

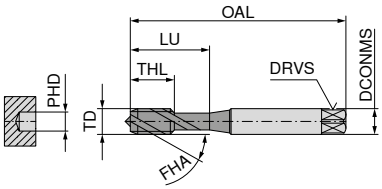
MF

VA

E
1,5–2

ISO 2
6H

TiN

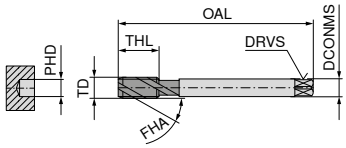


DIN 371 with reinforced shank

HSS-E
FHA 45°
≤ 1200 N/mm²
≤ 3xD

23 442 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M5x0,5	0,50	70	6	4,9	4,5	5	25	3	**050**
M6x0,75	0,75	80	6	4,9	5,2	8	30	3	**062**



DIN 374 with reduced shank

23 443 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M8x0,75	0,75	80	6	4,9	7,2	8	3	**082**
M8x1	1,00	90	6	4,9	7,0	10	3	**084**
M10x1	1,00	90	7	5,5	9,0	10	4	**102**
M12x1	1,00	100	9	7,0	11,0	11	4	**120**
M12x1,5	1,50	100	9	7,0	10,5	15	5	**124**
M14x1,5	1,50	100	11	9,0	12,5	15	5	**144**
M16x1,5	1,50	100	12	9,0	14,5	15	5	**162**

P	**10**
M	**8**
K	
N	**24**
S	
H	
O	

Cutting speed v_c (m/min.)

6

Through hole / Blind hole – Machine taps, right hand

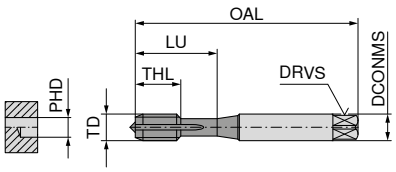
DuoTap | MF

HR

C
2–3

ISO 2X
6HX

nitr.



DIN 371 with reinforced shank

HSS-E
FHA 0°
≤ 1400 N/mm²
≤ 2xD

22 146 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M4x0,5	0,50	63	4,5	3,4	3,5	10	21	3	**040**
M5x0,5	0,50	70	6,0	4,9	4,5	11	25	3	**050**
M6x0,5	0,50	80	6,0	4,9	5,5	13	30	3	**060**
M6x0,75	0,75	80	6,0	4,9	5,2	13	30	3	**062**

P	**6**
M	
K	**16**
N	**22**
S	
H	
O	

Cutting speed v_c (m/min.)

DIN 374 can be found on the next page

Through hole / Blind hole – Machine taps, right hand

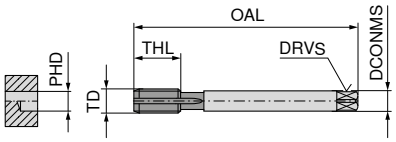
DuoTap | MF

HR

C
2–3

ISO 2X
6HX

nitr.



DIN 374 with reduced shank

HSS-E
FHA 0°
≤ 1400 N/mm²
≤ 2xD

22 209 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M8x1	1,0	90	6	4,9	7,0	17	3	**082**
M10x1	1,0	90	7	5,5	9,0	18	4	**100**
M12x1,5	1,5	100	9	7,0	10,5	22	4	**120**
M14x1,5	1,5	100	11	9,0	12,5	22	4	**140**
M16x1,5	1,5	100	12	9,0	14,5	22	4	**160**
M18x1,5	1,5	110	14	11,0	16,5	25	4	**180**
M20x1,5	1,5	125	16	12,0	18,5	25	4	**200**

P	**6**
M	
K	**16**
N	**22**
S	
H	
O	

Cutting speed v_c (m/min.)

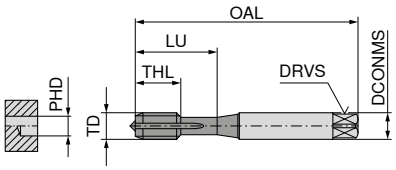
6

Through Hole / Blind Hole – Machine taps

▲ ES = extra short

▲ LH = for left hand threads; ES = extra short

DuoTap | MF



DIN 2181 with reinforced shank

ST ES | C 2–3 | ISO 2X 6HX

HSS-E
FHA 0°
≤ 750 N/mm²
≤ 2xD

22 179 ...

ST LH/ES | C 2–3 | ISO 2X 6HX

HSS-E
FHA 0°
≤ 750 N/mm²
≤ 2xD

22 200 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 179 ...	22 200 ...
M3x0,35	0,35	40	3,5	2,7	2,65	8	18	3	**030**	
M4x0,35	0,35	45	4,5	3,4	3,65	9	22	3	**040**	
M4x0,5	0,50	45	4,5	3,4	3,50	9	22	3	**042**	
M4,5x0,5	0,50	50	6,0	4,9	4,00	10	24	3	**045**	
M5x0,5	0,50	50	6,0	4,9	4,50	11	25	3	**050**	
M6x0,5	0,50	56	6,0	4,9	5,50	12	27	3	**060**	
M6x0,75	0,75	56	6,0	4,9	5,20	12	27	3	**062**	**062**
M7x0,75	0,75	56	6,0	4,9	6,20	14		3	**070**	
M8x0,5	0,50	56	6,0	4,9	7,50	14		4	**080**	
M8x0,75	0,75	56	6,0	4,9	7,20	14		3	**082**	
M8x1	1,00	63	6,0	4,9	7,00	17		3	**084**	**084**
M9x1	1,00	63	7,0	5,5	8,00	17		4	**090**	
M10x0,75	0,75	63	7,0	5,5	9,20	18		4	**100**	
M10x1	1,00	63	7,0	5,5	9,00	18		4	**102**	**102**
M10x1,25	1,25	70	7,0	5,5	8,80	22		3	**104**	
M11x1	1,00	63	8,0	6,2	10,00	18		4	**110**	
M12x1	1,00	70	9,0	7,0	11,00	18		4	**120**	**120**
M12x1,25	1,25	70	9,0	7,0	10,80	20		4	**122**	
M12x1,5	1,50	70	9,0	7,0	10,50	20		4	**124**	**124**
M13x1	1,00	70	11,0	9,0	12,00	18		4	**130**	
M14x1	1,00	70	11,0	9,0	13,00	18		4	**140**	
M14x1,25	1,25	70	11,0	9,0	12,80	20		4	**142**	
M14x1,5	1,50	70	11,0	9,0	12,50	20		4	**144**	**144**
M15x1	1,00	70	12,0	9,0	14,00	18		5	**150**	
M16x1	1,00	70	12,0	9,0	15,00	18		5	**160**	
M16x1,5	1,50	70	12,0	9,0	14,50	20		4	**162**	**162**
M18x1	1,00	80	14,0	11,0	17,00	18		5	**180**	
M18x1,5	1,50	80	14,0	11,0	16,50	22		4	**182**	**182**
M18x2	2,00	80	14,0	11,0	16,00	22		4	**184**	
M20x1,5	1,50	80	16,0	12,0	18,50	22		4	**202**	**202**
M20x2	2,00	80	16,0	12,0	18,00	22		4	**204**	
P									**12**	**12**
M										
K									**12**	**12**
N									**22**	**22**
S										
H										
O										

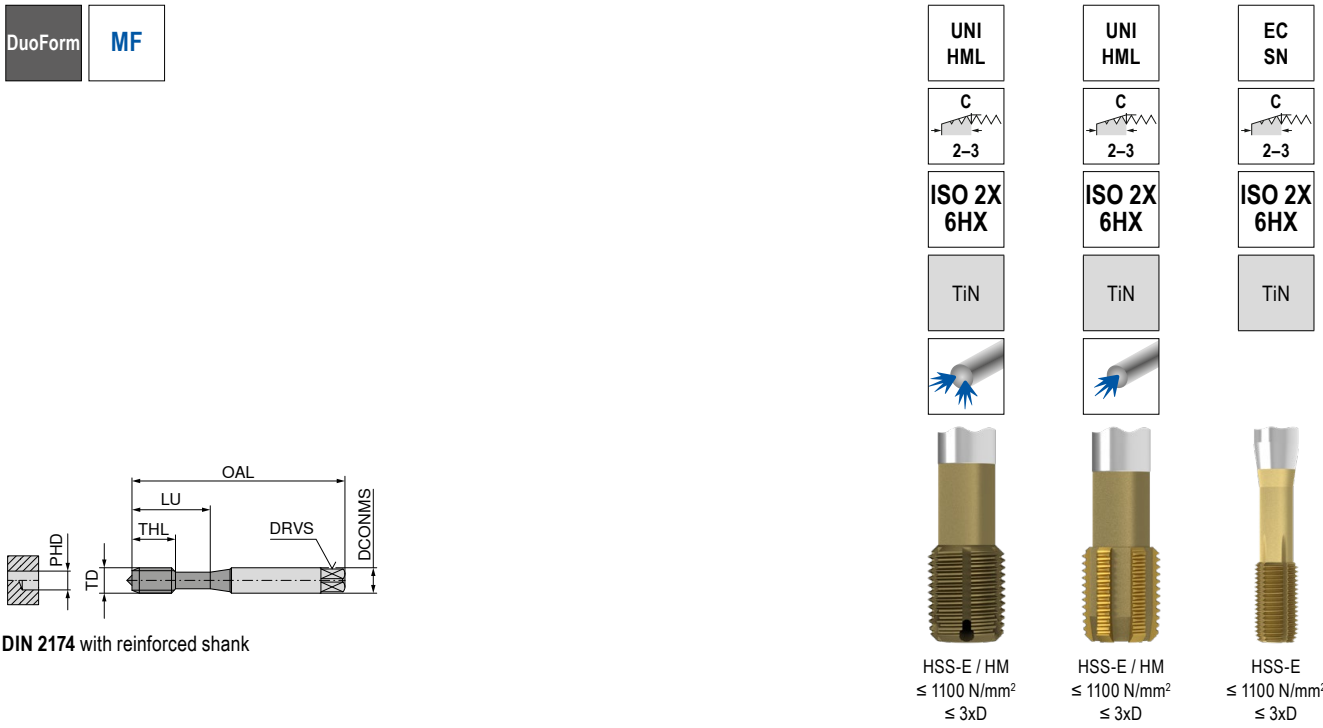
Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

▲ HML = with soldered-in carbide strips for a higher cutting speed

DuoForm | MF



HSS-E / HM
≤ 1100 N/mm²
≤ 3xD

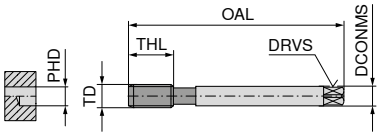
HSS-E / HM
≤ 1100 N/mm²
≤ 3xD

HSS-E
≤ 1100 N/mm²
≤ 3xD

6

DIN 2174 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 205 ...
M4x0,5	0,50	63	4,5	3,4	3,8	10	21	4	**040**
M5x0,5	0,50	70	6,0	4,9	4,8	11	25	4	**050**
M6x0,5	0,50	80	6,0	4,9	5,8	13	30	5	**060**
M6x0,75	0,75	80	6,0	4,9	5,7	13	30	4	**062**
M8x0,75	0,75	80	8,0	6,2	7,7	14	30	5	**080**
M8x1	1,00	90	8,0	6,2	7,6	17	35	5	**082**
M10x1	1,00	90	10,0	8,0	9,6	18	35	5	**100**



DIN 2174 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 474 ...	22 474 ...	22 197 ...
M12x1	1,0	100	9	7	11,60	18	6			**120**
M12x1,5	1,5	100	9	7	11,35	13			**12000**	
M12x1,5	1,5	100	9	7	11,35	22	6			**124**
M14x1,5	1,5	100	11	9	13,35	22	6			**140**
M16x1,5	1,5	100	12	9	15,35	18		**16100**	**16000**	
M16x1,5	1,5	100	12	9	15,35	22	6			**160**
M20x1,5	1,5	125	16	12	19,35	25	6			**200**
P								**30**	**30**	**18**
M								**20**	**20**	**10**
K								**30**	**30**	**10**
N								**40**	**40**	**22**
S										
H										
O										

Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

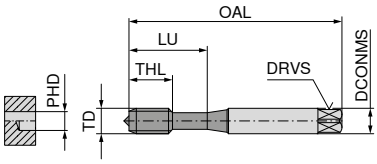
MF

UNI
SN

C
2–3

ISO 2X
6HX

TiN

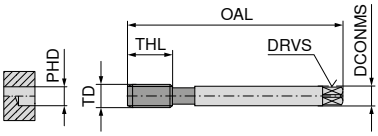


DIN 2174 with reinforced shank

HSS-E
≤ 850 N/mm²
≤ 3xD

23 842 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M4x0,5	0,50	63	4,5	3,4	3,80	10	21	4	**040**
M5x0,5	0,50	70	6,0	4,9	4,80	11	25	4	**050**
M6x0,5	0,50	80	6,0	4,9	5,80	13	30	5	**060**
M8x1	1,00	90	8,0	6,2	7,60	17	35	5	**084**
M10x1	1,00	90	10,0	8,0	9,60	18	35	5	**102**
M10x1,25	1,25	100	10,0	8,0	9,45	18	39	5	**104**



DIN 2174 with reduced shank

23 843 ...

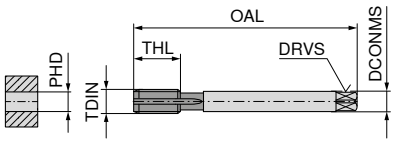
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M12x1,25	1,25	100	9	7	11,45	22	6	**122**
M12x1,5	1,50	100	9	7	11,35	22	6	**124**
M14x1,5	1,50	100	11	9	13,35	22	6	**144**
M16x1,5	1,50	100	12	9	15,35	22	6	**162**

P	**18**
M	**10**
K	**10**
N	**22**
S	
H	
O	

Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

TruTap | G



DIN 5156 with reduced shank

	UNI	VA
	B 4–5	B 4–5
	ISO 228	ISO 228
	TiN	nitr.
	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 900 N/mm² ≤ 4xD
	22 630 ...	**22 352 ...**

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes		
1/8-28	0,907	90	7	5,5	8,80	18	3	**012**	**012**
1/4-19	1,337	100	11	9,0	11,80	22	3	**025**	**025**
3/8-19	1,337	100	12	9,0	15,25	22	3	**037**	**037**
1/2-14	1,814	125	16	12,0	19,00	25	4	**050**	**050**
3/4-14	1,814	140	20	16,0	24,50	28	4		**075**
1-11	2,309	160	25	20,0	30,75	30	4		**100**

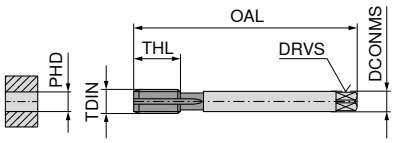
P	**15**	**8**
M	**9**	**6**
K	**18**	
N	**12**	**22**
S		
H		
O		

Cutting speed v_c (m/min.)

6

Through hole – Machine taps, right hand

G



DIN 5156 with reduced shank

UNI	UNI
B 4–5	B 4–5
ISO 228	ISO 228
nitr. + vap.	TiN
HSS-E FHA 0° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 3xD
23 161 ...	**23 160 ...**

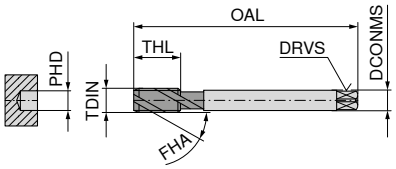
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes		
1/8-28	0,907	90	7	5,5	8,80	18	3	**012**	**012**
1/4-19	1,337	100	11	9,0	11,80	22	3	**025**	**025**
3/8-19	1,337	100	12	9,0	15,25	22	3	**037**	**037**
1/2-14	1,814	125	16	12,0	19,00	25	4	**050**	**050**
3/4-14	1,814	140	20	16,0	24,50	28	4	**075**	**075**
1-11	2,309	160	25	20,0	30,75	30	4	**100**	**100**

P	**12**	**15**
M	**7**	**9**
K	**12**	**18**
N		**12**
S		
H		
O		

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

CavTap | G



DIN 5156 with reduced shank

UNI	UNI	UNI	UNI	UNI
C 2–3	C 2–3	E 1,5–2	E 1,5–2	E 1,5–2
ISO 228	ISO 228	ISO 228	ISO 228	ISO 228 +0,05
vap.	TiN	vap.	TiN	vap.
HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD
22 633 ...	**22 634 ...**	**22 635 ...**	**22 636 ...**	**22 639 ...**

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes									
1/8-28	0,907	90	7	5,5	8,80	10	3	**012**		**012**						
1/8-28	0,907	90	7	5,5	8,80	10	4					**012**		**012**		**012**
1/4-19	1,337	100	11	9,0	11,80	15	4	**025**		**025**						
1/4-19	1,337	100	11	9,0	11,80	15	5					**025**		**025**		**025**
3/8-19	1,337	100	12	9,0	15,25	15	4	**037**		**037**						
3/8-19	1,337	100	12	9,0	15,25	15	5					**037**		**037**		**037**
1/2-14	1,814	125	16	12,0	19,00	17	4	**050**		**050**						
1/2-14	1,814	125	16	12,0	19,00	17	5					**050**		**050**		**050**
3/4-14	1,814	140	20	16,0	24,50	20	4	**075**								
3/4-14	1,814	140	20	16,0	24,50	20	5									**075**
1-11	2,309	160	25	20,0	30,75	24	6									**100**

P	**12**	**15**	**12**	**15**	**12**
M	**7**	**9**	**7**	**9**	**7**
K	**12**	**18**	**12**	**18**	**12**
N		**12**		**12**	
S					
H					
O					

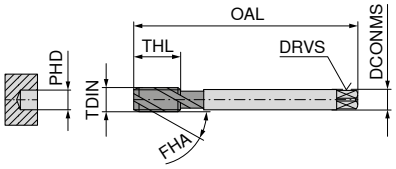
Cutting speed v_c (m/min.)

6

Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

CavTap | G



DIN 5156 with reduced shank

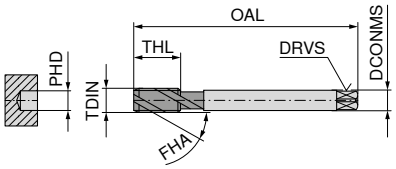
	UNI CNC	ST	VA	VA
	E 1,5–2	C 2–3	E 1,5–2	E 1,5–2
	ISO 228	ISO 228	ISO 228	ISO 228
	TiN GS		vap.	TiN GS
	HSS-E FHA 45° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 750 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 900 N/mm² ≤ 3xD	HSS-E FHA 45° ≤ 900 N/mm² ≤ 3xD
	22 624 ...	**22 354 ...**	**22 355 ...**	**22 358 ...**

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes							
1/8-28	0,907	90	7	5,5	8,80	10	3			012				012
1/8-28	0,907	90	7	5,5	8,80	10	4	012				012		
1/4-19	1,337	100	11	9,0	11,80	15	4			025				
1/4-19	1,337	100	11	9,0	11,80	15	5	025				025		025
3/8-19	1,337	100	12	9,0	15,25	15	4			037				
3/8-19	1,337	100	12	9,0	15,25	15	5	037				037		037
1/2-14	1,814	125	16	12,0	19,00	17	4			050				
1/2-14	1,814	125	16	12,0	19,00	17	5	050				050		050
5/8-14	1,814	125	18	14,5	21,00	17	5					062		
3/4-14	1,814	140	20	16,0	24,50	20	4			075				
3/4-14	1,814	140	20	16,0	24,50	20	5					075		
1-11	2,309	160	25	20,0	30,75	24	5			100				
1-11	2,309	160	25	20,0	30,75	24	6					100		
P								15		12		8		10
M								9				6		8
K								18		12				
N								12		22		22		22
S														
H														
O														

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

G



DIN 5156 with reduced shank

UNI | C 2–3 | ISO 228 | vap.

HSS-E
FHA 35°
≤ 1100 N/mm²
≤ 2,5xD

23 163 ...

UNI | C 2–3 | ISO 228 | TiN

HSS-E
FHA 35°
≤ 1100 N/mm²
≤ 2,5xD

23 162 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes		
1/8-28	0,907	90	7	5,5	8,80	10	3	**012**	**012**
1/4-19	1,337	100	11	9,0	11,80	15	4	**025**	**025**
3/8-19	1,337	100	12	9,0	15,25	15	4	**037**	**037**
1/2-14	1,814	125	16	12,0	19,00	17	4	**050**	**050**
3/4-14	1,814	140	20	16,0	24,50	20	4	**075**	**075**
1-11	2,309	160	25	20,0	30,75	24	5	**100**	**100**

P	**12**	**15**
M	**7**	**9**
K	**12**	**18**
N		**12**
S		
H		
O		

Cutting speed v_c (m/min.)

6

Through hole / Blind hole – Machine taps, right hand

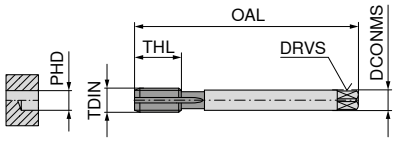
DuoTap | G

HR

C
2–3

ISO 228
X

nitr.



DIN 5156 with reduced shank

HSS-E
FHA 0°
≤ 1400 N/mm²
≤ 2xD

22 339 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
1/8-28	0,907	90	7	5,5	8,80	18	4	**012**
1/4-19	1,337	100	11	9,0	11,80	22	4	**025**
3/8-19	1,337	100	12	9,0	15,25	22	4	**037**
1/2-14	1,814	125	16	12,0	19,00	25	4	**050**

P	**6**
M	
K	**16**
N	**22**
S	
H	
O	

Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

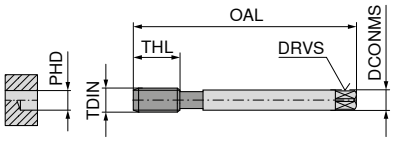
DuoForm | G

EC
SN

C
2–3

ISO 228

TiN



DIN 2189 with reduced shank

HSS-E
≤ 1100 N/mm²
≤ 3xD

22 359 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
1/8-28	0,907	90	7	5,5	9,25	18	5	**012**
1/4-19	1,337	100	11	9,0	12,55	22	6	**025**
3/8-19	1,337	100	12	9,0	16,05	22	6	**037**
1/2-14	1,814	125	16	12,0	20,10	25	6	**050**

P	**18**
M	**10**
K	**10**
N	**22**
S	
H	
O	

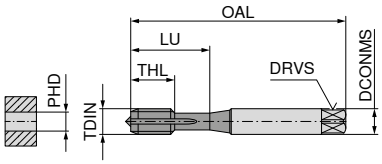
Cutting speed v_c (m/min.)

6

Through hole – Machine taps, right hand

TruTap | UNC

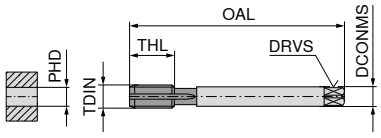
VA	Ti	UNI
B	B	B
4–5	4–5	4–5
2B	2BX	2B
nitr.	TiN	nitr. + vap.



DIN 371 with reinforced shank

HSS-E FHA 0° ≤ 900 N/mm² ≤ 4xD | HSS-PM FHA 0° ≤ 44 HRC ≤ 4xD | HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 250 ...	22 269 ...	22 572 ...
Nr. 2-56	0,454	45	2,8	2,1	1,85	7	12	2			**002**
Nr. 4-40	0,635	56	3,5	2,7	2,35	11	18	2			**004**
Nr. 4-40	0,635	56	3,5	2,7	2,35	11	18	3		**004**	
Nr. 6-32	0,794	56	4,0	3,0	2,85	12	20	3	**006**	**006**	**006**
Nr. 8-32	0,794	63	4,5	3,4	3,50	13	21	3	**008**	**008**	**008**
Nr. 10-24	1,058	70	6,0	4,9	3,90	15	25	3	**010**	**010**	**010**
Nr. 12-24	1,058	80	6,0	4,9	4,50	16	30	3			**012**
1/4-20	1,270	80	7,0	5,5	5,10	17	30	3	**025**	**025**	**025**
5/16-18	1,411	90	8,0	6,2	6,60	20	35	3	**031**	**031**	**031**
3/8-16	1,588	100	10,0	8,0	8,00	22	39	3	**037**	**037**	**037**



DIN 376 with reduced shank

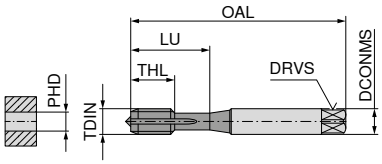
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 573 ...
1/2-13	1,954	110	9	7,0	10,80	25	3	**050**
5/8-11	2,309	110	12	9,0	13,50	27	3	**062**
3/4-10	2,540	125	14	11,0	16,50	30	3	**075**
7/8-9	2,822	140	18	14,5	19,50	32	3	**087**
1-8	3,175	160	18	14,5	22,25	36	3	**100**

P	**8**	**7**	**12**
M	**6**	**7**	**7**
K			**12**
N	**22**		
S		**5**	
H			
O			

Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

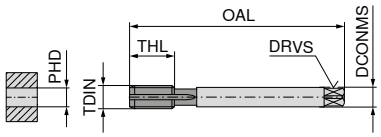
UNC



DIN 371 with reinforced shank

	UNI	FE-HF	VA
	B 4–5	B 4–5	B 4–5
	2B	2B	2B
	TiN	TiCN	nitr.
	HSS-E FHA 0° ≤ 1000 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 1000 N/mm² ≤ 3xD
	23 170 ...	**23 370 ...**	**23 470 ...**

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes			
Nr. 4-40	0,635	56	3,5	2,7	2,30	11	18	2	**004**	**004**	**004**
Nr. 6-32	0,794	56	4,0	3,0	2,85	12	20	3	**006**	**006**	**006**
Nr. 8-32	0,794	63	4,5	3,4	3,50	13	21	3	**008**	**008**	**008**
Nr. 10-24	1,058	70	6,0	4,9	3,90	15	25	3	**010**	**010**	**010**
1/4-20	1,270	80	7,0	5,5	5,10	17	30	3	**025**	**025**	**025**
5/16-18	1,411	90	8,0	6,2	6,60	20	35	3	**031**	**031**	**031**
3/8-16	1,588	100	10,0	8,0	8,00	22	39	3	**037**	**037**	**037**



DIN 376 with reduced shank

	23 171 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
7/16-14	1,814	100	8	6,2	9,40	22	3	**043**
1/2-13	1,954	110	9	7,0	10,75	25	3	**050**
5/8-11	2,309	110	12	9,0	13,50	27	3	**062**
3/4-10	2,540	125	14	11,0	16,50	30	3	**075**

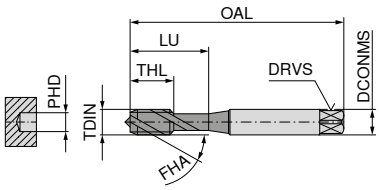
P	**15**	**15**	**8**
M	**9**		**6**
K	**18**	**15**	
N	**12**	**15**	**22**
S			
H			
O			

Cutting speed v_c (m/min.)

6

Blind hole – Machine taps, right hand

CavTap | UNC



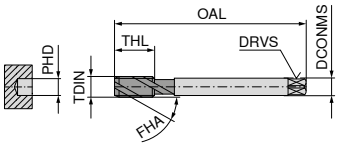
DIN 371 with reinforced shank

UNI	VA
C 2–3	C 2–3
2B	2B
vap.	vap.

HSS-E
FHA 42°
≤ 1100 N/mm²
≤ 3xD

HSS-E
FHA 42°
≤ 900 N/mm²
≤ 3xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 582 ...	22 266 ...
Nr. 4-40	0,635	56	3,5	2,7	2,35	6	18	2	**004**	
Nr. 6-32	0,794	56	4,0	3,0	2,85	7	20	3	**006**	**006**
Nr. 8-32	0,794	63	4,5	3,4	3,50	8	21	3	**008**	**008**
Nr. 10-24	1,058	70	6,0	4,9	3,90	10	25	3	**010**	**010**
1/4-20	1,270	80	7,0	5,5	5,10	13	30	3	**025**	**025**
5/16-18	1,411	90	8,0	6,2	6,60	14	35	3	**031**	**031**
3/8-16	1,588	100	10,0	8,0	8,00	16	39	3	**037**	**037**



DIN 376 with reduced shank

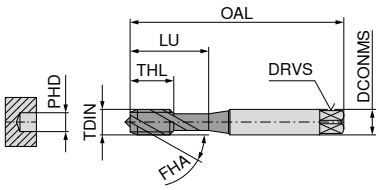
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 583 ...	22 267 ...
7/16-14	1,814	100	8	6,2	9,40	18	3	**043**	
7/16-14	1,814	100	8	6,2	9,40	18	4		**043**
1/2-13	1,954	110	9	7,0	10,80	20	3	**050**	
1/2-13	1,954	110	9	7,0	10,80	20	4		**050**
9/16-12	2,117	110	11	9,0	12,25	20	3	**056**	
5/8-11	2,309	110	12	9,0	13,50	22	3	**062**	
5/8-11	2,309	110	12	9,0	13,50	22	4		**062**
3/4-10	2,540	125	14	11,0	16,50	25	3	**075**	
3/4-10	2,540	125	14	11,0	16,50	25	4		**075**
1-8	3,175	160	18	14,5	22,25	30	4	**100**	
1-8	3,175	160	18	14,5	22,25	30	5		**100**

P	**12**	**8**
M	**7**	**6**
K	**12**	
N		**22**
S		
H		
O		

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

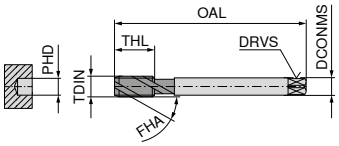
UNC



DIN 371 with reinforced shank

	UNI	FE-HF	VA
	C 2–3	C 2–3	C 2–3
	2B	2B	2B
	TiN	TiCN	
	HSS-E FHA 35° ≤ 1000 N/mm² ≤ 2,5xD	HSS-E FHA 35° ≤ 1100 N/mm² ≤ 2,5xD	HSS-E FHA 35° ≤ 1000 N/mm² ≤ 2,5xD
	23 172 ...	23 372 ...	23 472 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes			
Nr. 4-40	0,635	56	3,5	2,7	2,30	6	18	2	004		004
Nr. 4-40	0,635	56	3,5	2,7	2,30	11	18	2		004	
Nr. 6-32	0,794	56	4,0	3,0	2,85	7	20	3	006		006
Nr. 6-32	0,794	56	4,0	3,0	2,85	12	20	3		006	
Nr. 8-32	0,794	63	4,5	3,4	3,50	8	21	3	008		008
Nr. 8-32	0,794	63	4,5	3,4	3,50	13	21	3		008	
Nr. 10-24	1,058	70	6,0	4,9	3,90	10	25	3	010		010
Nr. 10-24	1,058	70	6,0	4,9	3,90	15	25	3		010	
1/4-20	1,270	80	7,0	5,5	5,20	13	30	3	025		025
1/4-20	1,270	80	7,0	5,5	5,20	17	30	3		025	
5/16-18	1,411	90	8,0	6,2	6,60	14	35	3	031		031
5/16-18	1,411	90	8,0	6,2	6,60	20	35	3		031	
3/8-16	1,588	100	10,0	8,0	8,00	16	39	3	037		037
3/8-16	1,588	100	10,0	8,0	8,00	22	39	3		037	



DIN 376 with reduced shank

	23 173 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
7/16-14	1,814	100	8	6,2	9,40	18	3	043
1/2-13	1,954	110	9	7,0	10,75	20	3	050
5/8-11	2,309	110	12	9,0	13,50	22	3	062
3/4-10	2,540	125	14	11,0	16,50	25	3	075

P	15	15	8
M	9		6
K	18	15	
N	12	24	22
S			
H			
O			

Cutting speed v_c (m/min.)

6

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

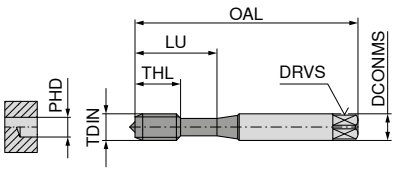
DuoForm | UNC

EC
SN

C
2–3

2BX

TiN



DIN 2174 with reinforced shank

HSS-E
≤ 1100 N/mm²
≤ 3xD

22 271 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
Nr. 4-40	0,635	56	3,5	2,7	2,55	11	18	3	**004**
Nr. 6-32	0,794	56	4,0	3,0	3,15	12	20	3	**006**
Nr. 8-32	0,794	63	4,5	3,4	3,80	13	21	4	**008**
Nr. 10-24	1,058	70	6,0	4,9	4,35	15	25	4	**010**
1/4-20	1,270	80	7,0	5,5	5,75	17	30	4	**025**
5/16-18	1,411	90	8,0	6,2	7,30	20	35	5	**031**
3/8-16	1,588	100	10,0	8,0	8,80	22	39	5	**037**

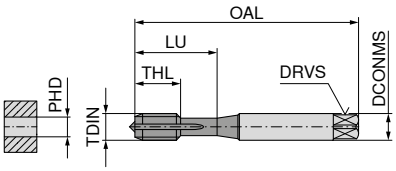
P	**18**
M	**10**
K	**10**
N	**22**
S	
H	
O	

Cutting speed v_c (m/min.)

Through hole – machine taps for wire thread inserts, right hand

TruTap | EG UNC

UNI | B 4–5 | 2B mod | nitr. + vap.



DIN 371 with reinforced shank

HSS-E
FHA 0°
≤ 1100 N/mm²
≤ 4xD

22 668 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
EG Nr. 4-40	0,635	63	4,5	3,4	3,1	13	21	3	**004**
EG Nr. 6-32	0,794	70	6,0	4,9	3,8	14	25	3	**006**
EG Nr. 8-32	0,794	80	6,0	4,9	4,4	16	30	3	**008**
EG Nr. 10-24	1,058	80	7,0	5,5	5,2	17	30	3	**010**

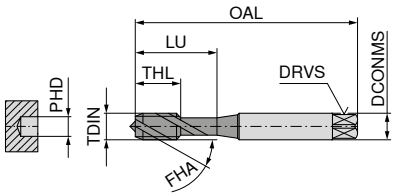
P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Cutting speed v_c (m/min.)

Blind hole – machine taps for wire thread inserts, right hand

CavTap | EG UNC

UNI | E 1,5–2 | 2B mod | vap.



DIN 371 with reinforced shank

HSS-E
FHA 42°
≤ 1100 N/mm²
≤ 3xD

22 672 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
EG Nr. 4-40	0,635	63	4,5	3,4	3,1	7	21	3	**004**
EG Nr. 6-32	0,794	70	6,0	4,9	3,8	8	25	3	**006**
EG Nr. 8-32	0,794	80	6,0	4,9	4,4	8	30	3	**008**
EG Nr. 10-24	1,058	80	7,0	5,5	5,2	10	30	3	**010**

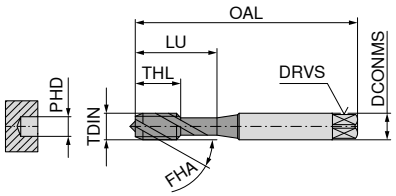
P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

CavTap SL | UNJC

Ti | C 2–3 | 3BX | TiCN



DIN 371 with reinforced shank

HSS-E
FHA 15°
≤ 1200 N/mm²
≤ 2xD

22 166 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
Nr. 4-40	0,635	56	3,5	2,7	2,30	11	18	2	**004**
Nr. 6-32	0,794	56	4,0	3,0	2,85	12	20	3	**006**
Nr. 8-32	0,794	63	4,5	3,4	3,50	13	21	3	**008**
Nr. 10-24	1,058	70	6,0	4,9	3,90	15	25	3	**010**
1/4-20	1,270	80	7,0	5,5	5,25	17	30	3	**025**
3/8-16	1,588	100	10,0	8,0	8,10	22	39	3	**037**

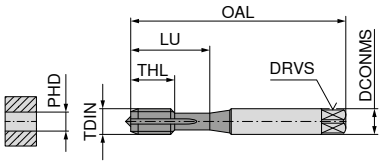
P	**7**
M	**7**
K	
N	**22**
S	**5**
H	
O	

Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

TruTap | UNF

UNI | B 4–5 | 2B | nitr. + vap.

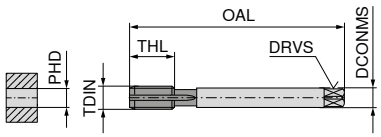


DIN 371 with reinforced shank

HSS-E
FHA 0°
≤ 1100 N/mm²
≤ 4xD

22 602 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
Nr. 4-48	0,529	56	3,5	2,7	2,40	11	18	2	**004**
Nr. 6-40	0,635	56	4,0	3,0	2,95	12	20	3	**006**
Nr. 8-36	0,706	63	4,5	3,4	3,50	13	21	3	**008**
Nr. 10-32	0,794	70	6,0	4,9	4,10	15	25	3	**010**
1/4-28	0,907	80	7,0	5,5	5,50	17	30	3	**025**
5/16-24	1,058	90	8,0	6,2	6,90	17	35	3	**031**



DIN 374 with reduced shank

22 603 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
7/16-20	1,270	100	8	6,2	9,90	22	3	**043**
1/2-20	1,270	100	9	7,0	11,50	22	3	**050**
9/16-18	1,411	100	11	9,0	12,90	22	3	**056**
5/8-18	1,411	100	12	9,0	14,50	22	3	**062**
3/4-16	1,588	110	14	11,0	17,50	25	4	**075**
7/8-14	1,814	125	18	14,5	20,50	25	4	**087**
1-12	2,117	140	18	14,5	23,25	28	4	**100**
1 1/8-12	2,117	150	22	18,0	26,50	28	4	**112**
1 1/4-12	2,117	150	22	18,0	29,75	28	4	**125**
1 3/8-12	2,117	170	28	22,0	33,00	30	5	**137**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

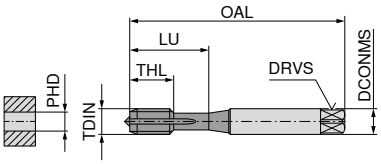
UNF

UNI

B
4–5

2B

TiN

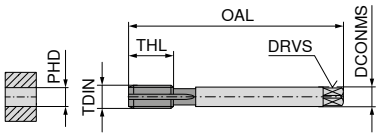


DIN 371 with reinforced shank

HSS-E
FHA 0°
≤ 1100 N/mm²
≤ 3xD

23 180 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
Nr. 10-32	0,794	70	6	4,9	4,1	15	25	3	**010**
1/4-28	0,907	80	7	5,5	5,5	17	30	3	**025**
5/16-24	1,058	90	8	6,2	6,9	17	35	3	**031**
3/8-24	1,058	90	10	8,0	8,5	18	35	4	**037**



DIN 374 with reduced shank

23 181 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
7/16-20	1,270	100	8	6,2	9,9	22	3	**043**
1/2-20	1,270	100	9	7,0	11,5	22	3	**050**
9/16-18	1,411	100	11	9,0	12,9	22	3	**056**
5/8-18	1,411	100	12	9,0	14,5	22	3	**062**
3/4-16	1,588	110	14	11,0	17,5	25	4	**075**

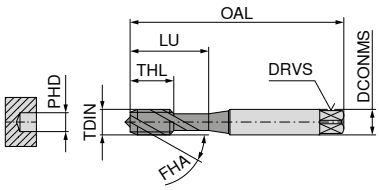
P	**15**
M	**9**
K	**18**
N	**12**
S	
H	
O	

Cutting speed v_c (m/min.)

6

Blind hole – Machine taps, right hand

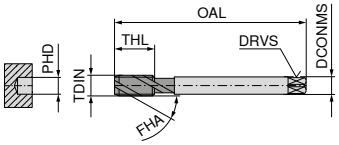
CavTap | UNF



DIN 371 with reinforced shank

	VA	UNI	UNI
	E 1,5–2	C 2–3	E 1,5–2
	2B	2B	2B +0,05
	vap.	vap.	vap.
	HSS-E FHA 42° ≤ 900 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD
	22 308 ...	**22 606 ...**	**22 307 ...**

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes			
Nr. 2-64	0,397	45	2,8	2,1	1,85	4,5	12	2	**002**		
Nr. 4-48	0,529	56	3,5	2,7	2,40	6,0	18	2	**004**		
Nr. 6-40	0,635	56	4,0	3,0	2,95	7,0	20	3	**006**		
Nr. 6-40	0,635	56	4,0	3,0	3,00	7,0	20	3			**006**
Nr. 8-36	0,706	63	4,5	3,4	3,50	8,0	21	3	**008**		
Nr. 10-32	0,794	70	6,0	4,9	4,10	10,0	25	3	**010**	**010**	
Nr. 10-32	0,794	70	6,0	4,9	4,15	10,0	25	3			**010**
1/4-28	0,907	80	7,0	5,5	5,50	10,0	30	3	**025**	**025**	
1/4-28	0,907	80	7,0	5,5	5,55	10,0	30	3			**025**
5/16-24	1,058	90	8,0	6,2	6,90	10,0	35	3	**031**	**031**	
5/16-24	1,058	90	8,0	6,2	6,95	10,0	35	3			**031**
3/8-24	1,058	90	10,0	8,0	8,50	10,0	35	3	**037**		
3/8-24	1,058	90	10,0	8,0	8,55	10,0	35	3			**037**



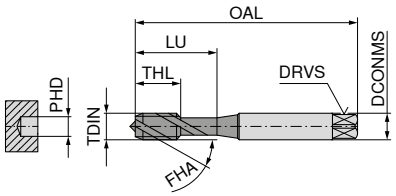
DIN 374 with reduced shank

									22 607 ...		22 409 ...
7/16-20	1,270	100	8	6,2	9,90	13	3			**043**	
7/16-20	1,270	100	8	6,2	9,95	13	4				**043**
1/2-20	1,270	100	9	7,0	11,50	13	4			**050**	
1/2-20	1,270	100	9	7,0	11,55	13	5				**050**
9/16-18	1,411	100	11	9,0	12,90	15	4			**056**	
9/16-18	1,411	100	11	9,0	12,95	15	5				**056**
5/8-18	1,411	100	12	9,0	14,50	15	4			**062**	
5/8-18	1,411	100	12	9,0	14,55	15	5				**062**
3/4-16	1,588	110	14	11,0	17,50	17	4			**075**	
3/4-16	1,588	110	14	11,0	17,55	17	5				**075**
1-12	2,117	140	18	14,5	23,30	20	5				**100**
P									**8**	**12**	**12**
M									**6**	**7**	**7**
K										**12**	**12**
N									**22**		**22**
S											
H											
O											

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

CavTap SL | UNF



DIN 371 with reinforced shank

	Ti	Ti
	C 2–3	C 2–3
	2BX	3BX
	vap.	vap.
	HSS-PM FHA 30° ≤ 1400 N/mm² ≤ 1,5xD	HSS-PM FHA 30° ≤ 1400 N/mm² ≤ 1,5xD
	22 302 ...	**22 303 ...**

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes			
Nr. 10-32	0,794	70	6	4,9	4,1	10	25	3	**010**		**010**
1/4-28	0,907	80	7	5,5	5,5	10	30	3	**025**		**025**
5/16-24	1,058	90	8	6,2	6,9	10	35	3	**031**		**031**
3/8-24	1,058	90	10	8,0	8,5	10	35	3	**037**		**037**

P	**5**	**5**
M	**5**	**5**
K		
N	**22**	**22**
S	**3**	**3**
H		
O		

Cutting speed v_c (m/min.)

6

Blind hole – Machine taps, right hand

UNF

UNI

C
2–3

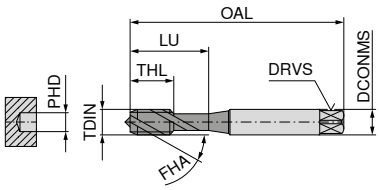
2B

TiN

VA

C
2–3

2B

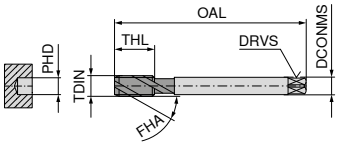


DIN 371 with reinforced shank

HSS-E
FHA 35°
≤ 1100 N/mm²
≤ 2,5xD

HSS-E
FHA 35°
≤ 1100 N/mm²
≤ 2,5xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 182 ...		23 482 ...
Nr. 10-32	0,794	70	6	4,9	4,1	10	25	3	**010**		**010**
1/4-28	0,907	80	7	5,5	5,5	10	30	3	**025**		**025**
5/16-24	1,058	90	8	6,2	6,9	10	35	3	**031**		**031**
3/8-24	1,058	90	10	8,0	8,5	10	35	3	**037**		**037**



DIN 374 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 183 ...		23 483 ...
7/16-20	1,270	100	8	6,2	9,9	13	3	**043**		**043**
1/2-20	1,270	100	9	7,0	11,5	13	4	**050**		**050**
9/16-18	1,411	100	11	9,0	12,9	15	4	**056**		**056**
5/8-18	1,411	100	12	9,0	14,5	15	4	**062**		**062**
3/4-16	1,588	110	14	11,0	17,5	17	4	**075**		**075**

P	**15**	**8**
M	**9**	**6**
K	**18**	
N	**12**	**22**
S		
H		
O		

Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

DuoForm | UNF

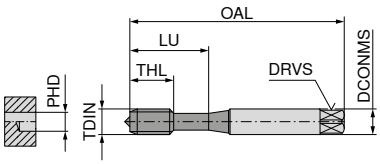
EC
SN

C
2–3

2BX

TiN

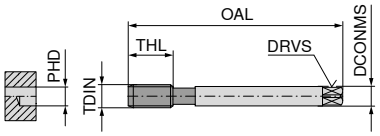
HSS-E
≤ 1100 N/mm²
≤ 3xD



DIN 2174 with reinforced shank

22 312 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
Nr. 4-48	0,529	56	3,5	2,7	2,62	11	18	3	**004**
Nr. 6-40	0,635	56	4,0	3,0	3,22	12	20	3	**006**
Nr. 8-36	0,706	63	4,5	3,4	3,85	13	21	4	**008**
Nr. 10-32	0,794	70	6,0	4,9	4,45	15	25	4	**010**
1/4-28	0,907	80	7,0	5,5	5,95	17	30	4	**025**



DIN 2174 with reduced shank

22 313 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
7/16-20	1,27	100	8	6,2	10,55	22	6	**043**
1/2-20	1,27	100	9	7,0	12,15	22	6	**050**

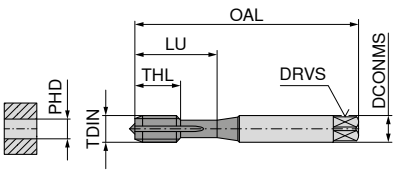
P	**18**
M	**10**
K	**10**
N	**22**
S	
H	
O	

Cutting speed v_c (m/min.)

Through hole – machine taps for wire thread inserts, right hand

TruTap | EG UNF

UNI | B 4–5 | 2B | nitr. + vap.



DIN 371 with reinforced shank

HSS-E
FHA 0°
≤ 1100 N/mm²
≤ 4xD

22 676 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
EG Nr. 4-48	0,529	56	4	3,0	3,0	9	20	3	**004**
EG Nr. 6-40	0,635	70	6	4,9	3,7	11	25	3	**006**
EG Nr. 8-36	0,706	80	6	4,9	4,4	13	30	3	**008**
EG Nr. 10-32	0,794	80	6	4,9	5,1	13	30	3	**010**
EG 1/4-28	0,907	90	8	6,2	6,6	17	35	3	**025**

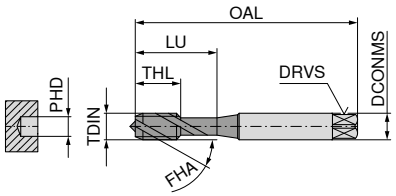
P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Cutting speed v_c (m/min.)

Blind hole – machine taps for wire thread inserts, right hand

CavTap | EG UNF

UNI | E 1,5–2 | 2B | vap.



DIN 371 with reinforced shank

HSS-E
FHA 42°
≤ 1100 N/mm²
≤ 3xD

22 680 ...

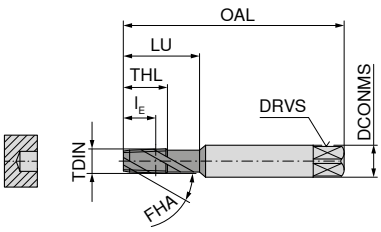
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
EG Nr. 4-48	0,529	56	4	3,0	3,0	7	20	3	**004**
EG Nr. 6-40	0,635	70	6	4,9	3,7	8	25	3	**006**
EG Nr. 8-36	0,706	80	6	4,9	4,4	8	30	3	**008**
EG Nr. 10-32	0,794	80	6	4,9	5,1	8	30	3	**010**
EG 1/4-28	0,907	90	8	6,2	6,6	10	35	3	**025**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

CavTap | NPT



DIN 371 with reinforced shank

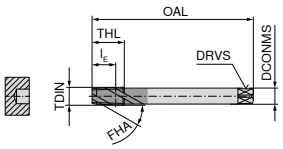
VA | C | 2–3 | vap.

HSS-E
FHA 35°
≤ 900 N/mm²

VA | E | 1,5–2 | TiN

HSS-E
FHA 42°
≤ 1100 N/mm²

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	LU mm	Flutes	22 364 ...	22 365 ...
1/16-27	0,941	90	8	6,2	9,24	13,0	26,0	3	**006**	
1/8-27	0,941	90	10	8,0	9,28	13,0	26,0	3	**012**	
1/8-27	0,941	90	10	8,0	9,28	12,0	26,0	4		**012**
1/4-18	1,411	100	14	11,0	13,55	19,5	34,5	3	**025**	
1/4-18	1,411	100	14	11,0	13,55	18,0	34,5	4		**025**



DIN 374 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	Flutes	22 371 ...	22 372 ...
3/8-18	1,411	110	14	11	13,86	18,0	5		**037**
3/8-18	1,411	110	14	11	13,86	19,5	3	**037**	
1/2-14	1,814	140	16	12	18,11	23,0	5		**050**
1/2-14	1,814	140	16	12	18,11	25,0	5	**050**	
3/4-14	1,814	150	20	16	18,59	26,0	5	**075**	

P	**4**	**5**
M	**3**	**4**
K		
N	**22**	**22**
S		
H		
O		

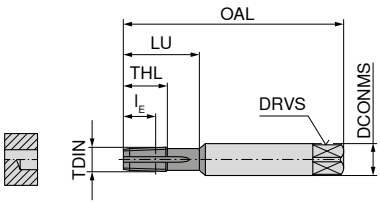
Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine taps, right hand

DuoTap | NPT

VG

C
2–3



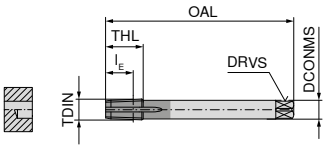
DIN 371 with reinforced shank

HSS-E
FHA 0°
≤ 1100 N/mm²

6

22 374 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	LU mm	Flutes	
1/16-27	0,941	90	8	6,2	9,24	13,0	26,0	3	**006**
1/8-27	0,941	90	10	8,0	9,28	13,0	26,0	3	**012**
1/4-18	1,411	100	14	11,0	13,55	19,5	34,5	3	**025**



DIN 374 with reduced shank

22 375 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	Flutes	
3/8-18	1,411	110	14	11	13,86	19,5	3	**037**
1/2-14	1,814	140	16	12	18,11	25,0	5	**050**
3/4-14	1,814	150	20	16	18,59	26,0	5	**075**
1-11,5	2,209	170	25	20	22,31	30,0	5	**100**

P	**4**
M	
K	**6**
N	**22**
S	
H	
O	

Cutting speed v_c (m/min.)

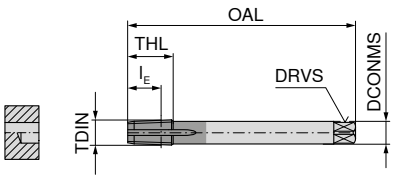
Through hole / Blind hole – Machine taps, right hand

▲ ES = extra short

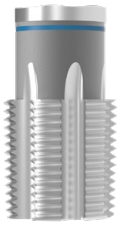
DuoTap | NPT

ST
ES

C
2–3



DIN 2181 with reduced shank



HSS-E
FHA 0°
≤ 750 N/mm²

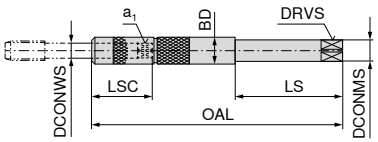
22 361 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	Flutes	
1/16-27	0,941	63	6	4,9	9,24	13,0	4	**006**
1/8-27	0,941	63	7	5,5	9,28	13,0	5	**012**
1/4-18	1,411	63	11	9,0	13,55	19,5	5	**025**
3/8-18	1,411	70	12	9,0	13,86	19,5	5	**037**
1/2-14	1,814	80	16	12,0	18,11	23,0	5	**050**
3/4-14	1,814	100	20	16,0	18,59	26,0	6	**075**
1-11,5	2,209	110	25	20,0	22,31	32,0	6	**100**

P	**6**
M	
K	**6**
N	**22**
S	
H	
O	

Cutting speed v_c (m/min.)

Shank extensions for taps

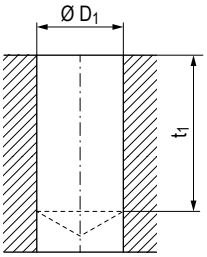


20 450 ...

DIN 371	DIN 374 / 376	DCONWS mm	a_1 mm	LSC mm	BD mm	LS mm	OAL mm	DRVS mm	DCONMS mm	
M3	M4,5 - M5	3,5	2,7	23	7,5	60	130	4,9	6	**020**
M3,5	M5,5	4,0	3,0	23	8,4	60	130	4,9	6	**030**
M4	M6	4,5	3,4	23	8,4	60	130	4,9	6	**040**
M4,5 - M6	M8	6,0	4,9	26	12,1	60	130	5,5	7	**050**
M7	M9 - M10	7,0	5,5	26	12,1	60	130	5,5	7	**060**
M8	M11	8,0	6,2	30	13,0	60	130	6,2	8	**070**
M9	M12	9,0	7,0	31	15,0	60	130	7,0	9	**080**
M10		10,0	8,0	33	15,0	60	130	8,0	10	**090**
	M14	11,0	9,0	36	18,0	90	180	9,0	11	**100**
(M12)	M16	12,0	9,0	36	18,0	90	180	9,0	12	**110**

Core hole diameters for taper threads (taper 1:16)

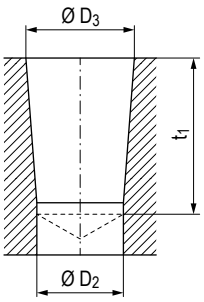
Pre-drilling of cylindrical holes without reamer



		NPT		NPTF				Rc	
Ø D inch	P Gg/1"	Ø D_1 mm	t_1 min. mm	Ø D_1 mm	t_1 min. mm	Ø D inch	P Gg/1"	Ø D_1 mm	t_1 min. mm
1/16	27	6,15	12	6,1	12	1/16	28	6,2	11,9
1/8	27	8,5	12	8,45	12	1/8	28	8,2	11,9
1/4	18	11	17,5	10,9	17,5	1/4	19	10,85	16,3
3/8	18	14,5	17,6	14,3	17,6	3/8	19	14,5	18,1
1/2	14	17,85	22,9	17,6	22,9	1/2	14	18	24
3/4	14	23,2	23	23	23	3/4	14	23,5	25,3
1	11½	29,5	27,4	28,75	27,4	1	11	29,5	30,6
1¼	11½	37,8	28,1	37,5	28,1				
1½	11½	44	28,4	43,75	28,4				
2	11½	56	28,4	55,75	28,4				

P = Pitch

Pre-drilling of cylindrical holes and conical boring with reamer



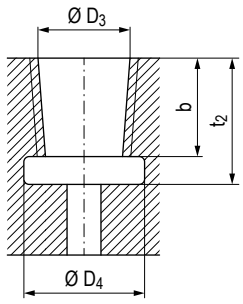
Taper 1:16

		NPT			NPTF		
Ø D inch	P Gg/1"	Ø D_2 mm	Ø D_3 mm	t_1 min. mm	Ø D_2 mm	Ø D_3 mm	t_1 min. mm
1/16	27	5,95	6,39	12	5,95	6,41	12
1/8	27	8,25	8,74	12	8,25	8,76	12
1/4	18	10,75	11,36	17,5	10,75	11,4	17,5
3/8	18	14,1	14,8	17,6	14,1	14,84	17,6
1/2	14	17,5	18,32	22,9	17,5	18,33	22,9
3/4	14	22,7	23,67	23	22,7	23,68	23
1	11½	28,6	29,69	27,4	28,6	29,72	27,4
1¼	11½	37,3	38,45	28,1	37,3	38,48	28,1
1½	11½	43,4	44,52	28,4	43,4	44,5	28,4
2	11½	55,5	56,56	28,4	55,5	56,59	28,4

		Rc		
Ø D inch	P Gg/1"	Ø D_2 mm	Ø D_3 mm	t_1 min. mm
1/16	28	6,1	6,56	11,9
1/8	28	8,1	8,57	11,9
1/4	19	10,75	11,45	17,7
3/8	19	14,25	14,95	18,1
1/2	14	17,75	18,63	24
3/4	14	23	24,12	25,3
1	11	29	30,29	30,6

P = Pitch

Recommendation for the pre-drilling of blind hole threads



Taper 1:16

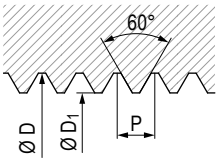
		NPT				NPTF			
Ø D inch	P Gg/1"	Ø D_3 mm	b mm	t_2 min. mm	Ø D_4 min. mm	Ø D_3 mm	b mm	t_2 min. mm	Ø D_4 min. mm
1/16	27	6,39	7	10	7,6	6,41	8	11	7,4
1/8	27	8,74	7	10	10	8,76	8	11	9,8
1/4	18	11,36	10,2	14,5	13,1	11,4	11,6	15,5	12,9
3/8	18	14,8	10,6	15	16,5	14,84	12	16	16,3
1/2	14	18,32	13,8	19	20,5	18,33	15,6	20,5	20,3
3/4	14	23,67	14,2	20	25,8	23,68	16	21,5	25,6
1	11½	29,69	17	24	32,2	29,72	19,2	26	32
1¼	11½	38,45	17,5	24,5	41	38,48	19,7	26,5	40,8
1½	11½	44,52	17,5	24,5	47,2	44,5	19,7	26,5	47
2	11½	56,56	18	25	59,2	56,59	20,2	27	59

		Rc			
Ø D inch	P Gg/1"	Ø D_3 mm	b mm	t_2 min. mm	Ø D_4 min. mm
1/16	28	6,56	5,6	9,5	7,6
1/8	28	8,57	5,6	9,5	9,6
1/4	19	11,45	8,4	14	13
3/8	19	14,95	8,8	14,4	16,5
1/2	14	18,63	11,4	19	20,6
3/4	14	24,12	12,7	20,3	26
1	11	30,29	14,5	24,3	32,8

P = Pitch

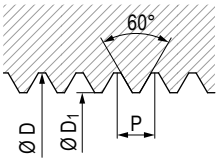
Tapped hole pilot diameter

M ISO metric coarse threads 6H to DIN 13 and DIN ISO 965-1 (M1-M1,4 = 5H)



Thread nominal Ø		Ø D_1		Core hole	Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.		D	P	min.	max.	
M1	0,25	0,729	0,785	0,75	M12	1,75	10,106	10,441	10,2
M1,1	0,25	0,829	0,885	0,85	M14	2	11,835	12,210	12
M1,2	0,25	0,929	0,985	0,95	M16	2	13,835	14,210	14
M1,4	0,3	1,075	1,142	1,1	M18	2,5	15,294	15,744	15,5
M1,6	0,35	1,221	1,321	1,25	M20	2,5	17,294	17,744	17,5
M1,8	0,35	1,421	1,521	1,45	M22	2,5	19,294	19,744	19,5
M2	0,4	1,567	1,679	1,6	M24	3	20,752	21,252	21
M2,2	0,45	1,713	1,838	1,75	M27	3	23,752	24,252	24
M2,5	0,45	2,013	2,138	2,05	M30	3,5	26,211	26,771	26,5
M3	0,5	2,459	2,599	2,5	M33	3,5	29,211	29,771	29,5
M3,5	0,6	2,850	3,01	2,9	M36	4	31,67	32,270	32
M4	0,7	3,242	3,422	3,3	M39	4	34,67	35,270	35
M4,5	0,75	3,688	3,878	3,7	M42	4,5	37,129	37,799	37,5
M5	0,8	4,134	4,334	4,2	M45	4,5	40,129	40,799	40,5
M6	1	4,917	5,153	5	M48	5	42,587	43,297	43
M7	1	5,917	6,153	6	M52	5	46,587	47,297	47
M8	1,25	6,647	6,912	6,8	M56	5,5	50,046	50,796	50,5
M9	1,25	7,647	7,912	7,8	M60	5,5	54,046	54,796	54,5
M10	1,5	8,376	8,676	8,5	M64	6	57,505	58,305	58
M11	1,5	9,376	9,676	9,5	M68	6	61,505	62,305	62

MF ISO metric fine threads 6H to DIN 13 and DIN ISO 965-1

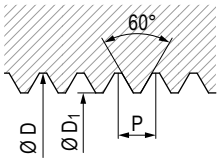


Thread nominal Ø			Ø D_1		Core hole	Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.		D	x	P	min.	max.	
M2	x	0,25	1,729	1,774	1,75	M20	x	1,0	18,917	19,153	19
M2,2	x	0,25	1,929	1,974	1,95	M20	x	1,5	18,376	18,676	18,5
M2,5	x	0,35	2,121	2,221	2,15	M20	x	2,0	17,835	18,210	18
M3	x	0,35	2,621	2,721	2,65	M24	x	1,5	22,376	22,676	22,5
M3,5	x	0,35	3,121	3,221	3,15	M30	x	2,0	27,835	28,210	28
M4	x	0,35	3,621	3,721	3,65	M36	x	1,5	34,376	34,676	34,5
M4	x	0,5	3,459	3,599	3,5	M36	x	3,0	32,752	33,252	33
M4,5	x	0,5	3,959	4,099	4	M42	x	2,0	39,835	40,210	40
M5	x	0,5	4,459	4,599	4,5	M48	x	1,5	46,376	46,676	46,5
M6	x	0,5	5,459	5,599	5,5	M48	x	3,0	44,752	45,252	45
M6	x	0,75	5,188	5,378	5,2	M48	x	4,0	43,67	44,270	44
M8	x	0,75	7,188	7,378	7,2	M56	x	1,5	54,376	54,676	54,5
M8	x	1,0	6,917	7,153	7	M56	x	2,0	53,835	54,210	54
M10	x	0,75	9,188	9,378	9,2	M56	x	3,0	52,752	53,252	53
M10	x	1,0	8,917	9,153	9	M56	x	4,0	51,670	52,270	52
M10	x	1,25	8,647	8,912	8,8	M64	x	3,0	60,752	61,252	61
M12	x	1,0	10,917	11,153	11	M64	x	4,0	59,670	60,270	60
M12	x	1,5	10,376	10,676	10,5	M72	x	4,0	67,670	68,270	68
M14	x	1,25	12,647	12,912	12,8	M80	x	6,0	73,505	74,305	74
M16	x	1,0	14,917	15,153	15	M95	x	6,0	88,505	89,305	89
M16	x	1,5	14,376	14,676	14,5	M110	x	6,0	103,505	104,305	104

Dimensions in mm; P=Pitch

Thread former pilot hole diameter

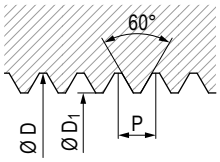
M ISO metric coarse threads 6H to DIN 13 and DIN ISO 965-1 (M1-M1,4 = 5H)



Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.	
M1	0,25	0,89		0,9
M1,2	0,25	1,09		1,1
M1,4	0,3	1,26		1,28
M1,6	0,35	1,45		1,47
M1,8	0,35	1,65		1,67
M2	0,4	1,83	1,86	1,85
M2,2	0,45	2	2,04	2,03
M2,5	0,45	2,3	2,34	2,33
M3	0,5	2,77	2,82	2,8
M3,5	0,6	3,23	3,28	3,25
M4	0,7	3,68	3,73	3,7
M4,5	0,75	4,15	4,21	4,2
M5	0,8	4,63	4,68	4,65

Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.	
M6	1	5,51	5,59	5,6
M7	1	6,51	6,59	6,6
M8	1,25	7,39	7,48	7,45
M9	1,25	8,39	8,48	8,45
M10	1,5	9,25	9,35	9,35
M11	1,5	10,25	10,35	10,35
M12	1,75	11,12	11,25	11,25
M14	2	13	13,15	13,1
M16	2	15	15,15	15,1
M18	2,5	16,72	16,9	16,85
M20	2,5	18,72	18,9	18,85
M22	2,5	20,72	20,9	20,85
M24	3	22,46	22,7	22,65

MF ISO metric fine threads 6H to DIN 13 and DIN ISO 965-1

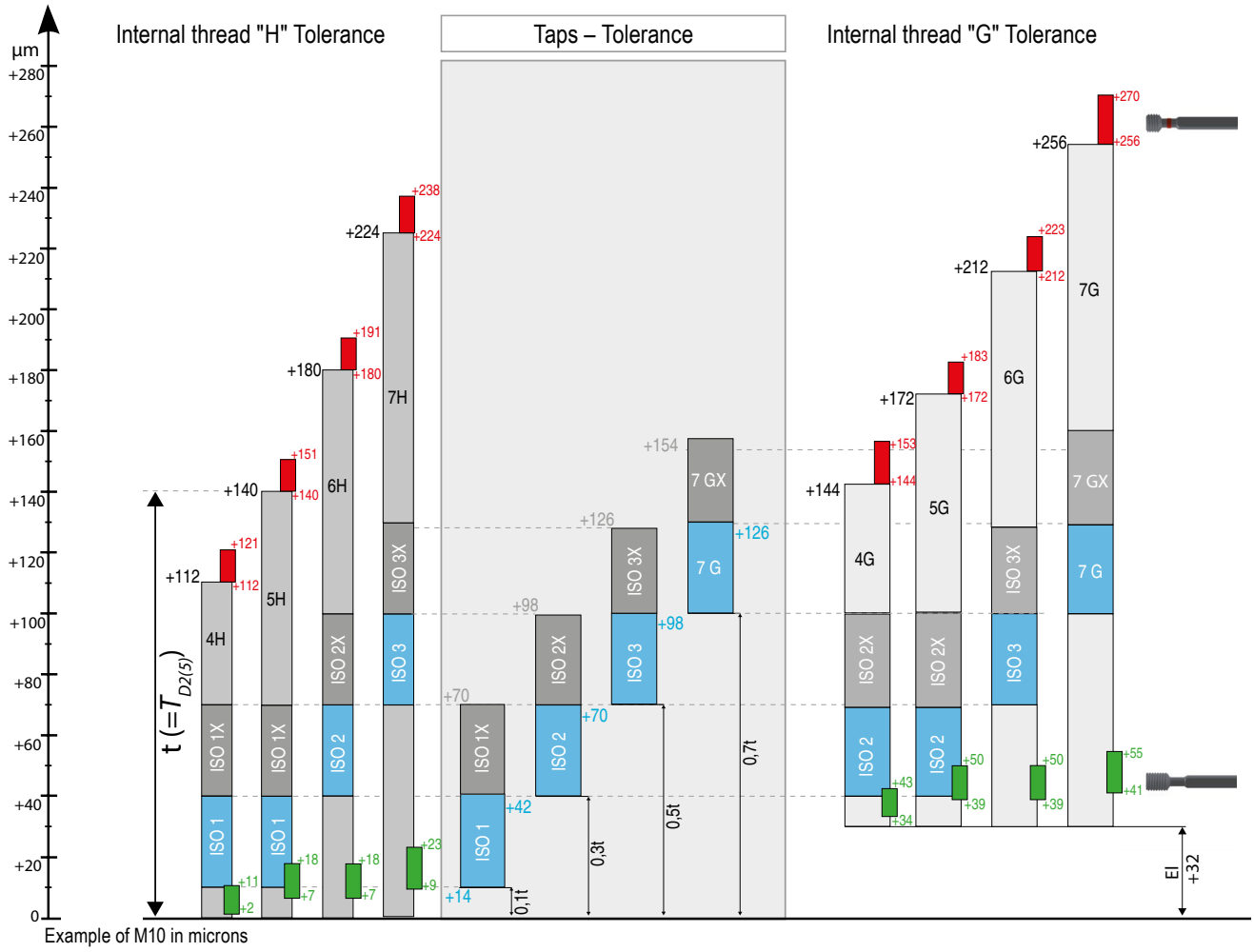


Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.	
M2	x	0,25	1,89		1,9
M2,2	x	0,25	2,09		2,1
M2,5	x	0,25	2,39		2,4
M2,5	x	0,35	2,35		2,37
M3	x	0,25	2,89		2,9
M3	x	0,35	2,85		2,88
M3,5	x	0,35	3,35		3,38
M3,5	x	0,5	3,27	3,32	3,3
M4	x	0,35	3,85		3,88
M4	x	0,5	3,77	3,82	3,8
M4,5	x	0,5	4,27	4,32	4,3
M5	x	0,5	4,77	4,82	4,8
M5	x	0,75	4,65	4,71	4,7
M5,5	x	0,5	5,27	5,32	5,3
M6	x	0,5	5,78	5,83	5,8
M6	x	0,75	5,65	5,71	5,7
M7	x	0,5	6,78	6,83	6,8
M7	x	0,75	6,65	6,71	6,7
M8	x	0,5	7,78	7,83	7,8
M8	x	0,75	7,65	7,71	7,7
M8	x	1,0	7,51	7,59	7,6
M9	x	0,5	8,78	8,83	8,8
M9	x	0,75	8,65	8,71	8,7
M9	x	1,0	8,51	8,59	8,6
M10	x	0,5	9,78	9,83	9,8
M10	x	0,75	9,65	9,71	9,7
M10	x	1,0	9,51	9,59	9,6
M10	x	1,25	9,39	9,48	9,45
M11	x	0,75	10,65	10,71	10,7
M11	x	1,0	10,51	10,59	10,6
M12	x	0,75	11,66	11,72	11,7

Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.	
M12	x	1,0	11,52	11,6	11,6
M12	x	1,25	11,4	11,49	11,45
M12	x	1,5	11,26	11,36	11,35
M13	x	0,75	12,66	12,72	12,7
M13	x	1,0	12,52	12,6	12,6
M13	x	1,5	12,26	12,36	12,35
M14	x	0,75	13,66	13,72	13,7
M14	x	1,0	13,52	13,6	13,6
M14	x	1,25	13,4	13,49	13,45
M14	x	1,5	13,26	13,36	13,35
M15	x	0,75	14,66	14,72	14,7
M15	x	1,0	14,52	14,6	14,6
M15	x	1,5	14,26	14,36	14,35
M16	x	0,75	15,66	15,72	15,7
M16	x	1,0	15,52	15,6	15,6
M16	x	1,5	15,26	15,36	15,35
M18	x	1,0	17,52	17,6	17,6
M18	x	1,5	17,26	17,36	17,35
M18	x	2,0	17	17,15	17,1
M20	x	1,0	19,52	19,6	19,6
M20	x	1,5	19,26	19,36	19,35
M20	x	2,0	19	19,15	19,1
M22	x	1,5	21,26	21,36	21,35
M22	x	2,0	21	21,15	21,1
M24	x	1,5	23,26	23,38	23,35
M24	x	2,0	23,01	23,16	23,1
M25	x	1,5	24,26	24,38	24,35
M26	x	1,5	25,26	25,38	25,35
M27	x	2,0	26,01	26,16	26,1
M28	x	1,5	27,26	27,38	27,35
M30	x	1,5	29,26	29,38	29,35
M30	x	2,0	29,01	29,16	29,1

Dimensions in mm; P=Pitch

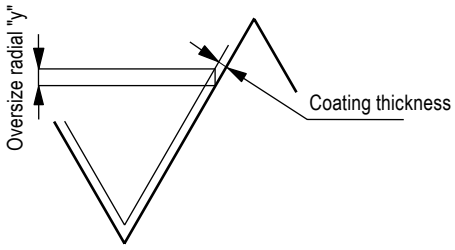
Thread tolerances and recommended manufacturing tolerances



Workpieces to be plated require oversize taps.
The interference depends on the coating thickness and the flank angle.

at

60° Flank angle	Oversize = 4 x coating thickness
55° Flank angle	Oversize = 4.331 x coating thickness
30° Flank angle	Oversize = 7.727 x coating thickness

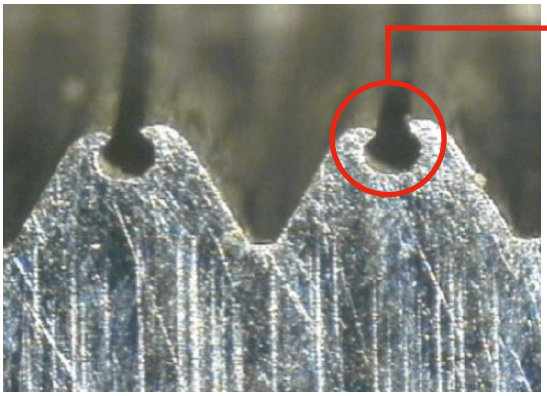


Application class of the tap Designation according to		Tolerance class of the internal thread to be cut				
DIN	ISO					
4H	ISO1	4H	5H	–	–	–
6H	ISO2	4G	5G	6H	–	–
6G	ISO3	–	(4E)	6G	7H	8H
7G	–	–	–	(6E)	7G	8G

For special applications, e.g. abrasive cast iron materials or plastics other dimensions have to be chosen which are determined on previous experience. In such cases an „X“ is added to the short designation of the tolerance, e.g. ISO 2X, however the tolerance zone assignment may be limited (6HX for tolerance zone 6H and 5G). In addition it should be taken into account that the dimensions of the internal thread do not only depend on the dimensions of the tap but on the material to be machined and all production conditions.
For first taps and intermediate taps no thread dimensions are determined.

Thread formers

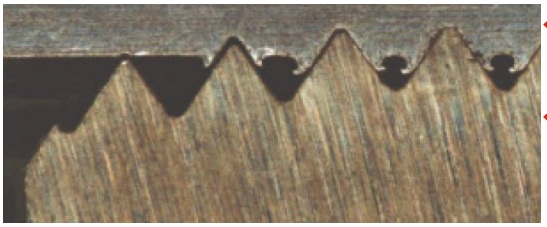
DuoForm thread forming taps for cold-formable materials up to 1400 N/mm² or at least 5 % elongation.
The thread is produced by plastic deformation. The molded thread has very high strength.



Important

Prior to forming a thread, you should ensure that a molded thread is acceptable. In certain sectors, the forming of a thread is **not** permitted. Dirt or bacteria can settle in the formed crown.

Incremental pressure forming



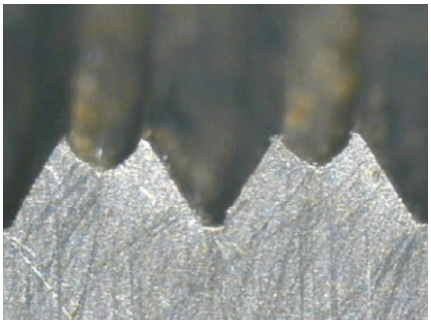
Workpiece

Thread formers

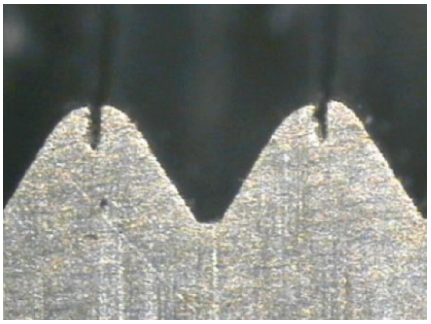
The thread profile is pressed gradually into the material via the start (leading edge) of the tap.

Properties

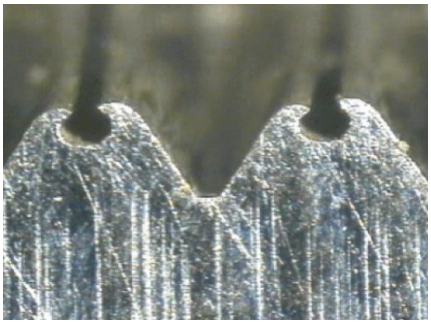
- One type can be used in different materials
- For through and blind holes
- Very good thread surface quality
- High static and dynamic strength thread
- Secure machining of deep and counterbored threads
- Short machining times
- No chip problems
- No swarf
- High process security
- HSS-E and HSS-PM taps for materials up to 33 HRC with a minimum elongation of 5 %



Underformed – core hole too large



Overformed – core hole too small



Perfect form – Core hole correct

Troubleshooting

Poor tool life

Cause

- Overload fractures of the cutting edge on the lead
- Hardness or tool material not suitable for the application
- Core hole too small, or work hardened
- Insufficient lubrication or incorrect application parameters

Remedy

- A longer lead or more flutes for the same lead length, giving a greater number of cutting teeth
- In reground tools the hardness can be reduced, apply correct parameters for regrinding
- Increase frequency of changes or regrinding of the drill
- Use the correct operating parameters for drilling
- Select the correct lubricant and ensure adequate supply

Axial thread error

Cause

- Selected geometry is not suitable
- Spindle speed is wrong compared with feed (synchronisation error)
- Blind hole taps are used with high feed pressure
- Through hole taps are used with low feed pressure

Remedy

- Check programming and pitch control or machine synchronisation
- Use tapping chuck with length compensation
- Increase retraction feed pessure
- Increase feed pessure

Oversize thread

Cause

- Thread tolerances of tool and thread gauge do not match
- Burred tool edges after regrinding
- Cold pressure welding

Remedy

- Check the correct tolerances for tool and thread gauge
- Carefully deburr
- Use appropriate (positive) geometry
- Reduce cutting speed
- Use different surface treatment or coating
- Use tapping chuck with length compensation
- Use appropriate lubricant

Broken tool

Cause

- Tool is worn
- Tool has hit the bottom of the hole
- Weld deposits
- Core hole too small
- Chip trapping
- Incorrect cutting speed
- Chip trapping in the flute
- Insufficient cooling / lubrication

Remedy

- Employ set taps
- Use a tool with lower helix
- Use tools with a shorter / longer lead
- Check the pre-drilling depth and the thread depth
- Drill core hole deeper
- Correct cutting speed
- Use a different coating or surface treatment
- Use tool holder with length compensation
- Use suitable lubricant
- Use correct core hole
- Change geometry and / or flute type
- Note chip shape and chip formation

Coatings

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

nitr.
- Nitrided
- Nitriding increases wear resistance and offers low friction properties

vap. + nitr.
- Vaporized + Nitrated
- Combination of increased surface hardness and lubricant carrier

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

TiN GS
- Titanium nitride low friction layer
- High wear resistance with low friction properties
- Maximum application temperature: 450 °C

TiCN
- TiCN multilayer coating
- Maximum application temperature: 450 °C

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

Ti200
- TiN coating
- Well suited for high cutting speeds during thread forming
- Maximum application temperature: 450 °C

OSM
- Hard material layer and anti-friction layer
- For use in high-strength steels

CH
- Amorphous carbon layer
- For use in non-ferrous metals or aluminum
- Reduces the material adhesion

HCr
- Hard chromed
- For use in non-ferrous metals or aluminum
- Very low surface roughness

CrN
- Chromium-nitrogen coating
- Very wear-resistant coating
- Especially suitable for use in aluminum, but also for P, M and S materials

AlTiN-HD
- AlTiN-based nanolayer hard material coating
- Maximum application temperature: 500 °C

New products for machining technicians

NEW Polygon system extension

Milling insert for part-off → Page 15

- ▲ Reliable cutting with groove depths up to 11.5 mm in almost all materials
- ▲ Longest service lives with maximum process security
- ▲ Different diameters with groove width of 1.5 mm available from stock

Thread milling insert partial profile → Page 16

- ▲ Extension of the existing 50 882 range to include the thread pitch 3.5–6 mm

NEW MiniMill XL multipurpose milling system

Milling insert → Page 28
Tool holder → Page 33

- ▲ Extension of the tried-and-tested MiniMill multipurpose milling system Ø 37 mm by Ø 50 mm
- ▲ Reliable cutting with groove depths up to 16.5 mm in almost all materials
- ▲ Cross-pitched versions for significantly greater self-cleaning effect with lower chip jamming tendency
- ▲ Wide range of groove widths and holders available from stock

NEW Performance Thread milling cutter Type SFSE

→ Page 63–66

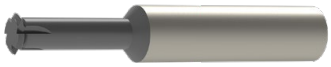
- ▲ Multi-row shank thread milling cutter with countersink cutting edge
- ▲ Universal application in almost all materials
- ▲ 2-in-1 tool: thread milling and countersinking with a single tool
- ▲ Maximum reliability and process security
- ▲ Unsurpassed price-performance ratio

NEW Performance Thread milling cutter Type SGF

→ Page 71+72

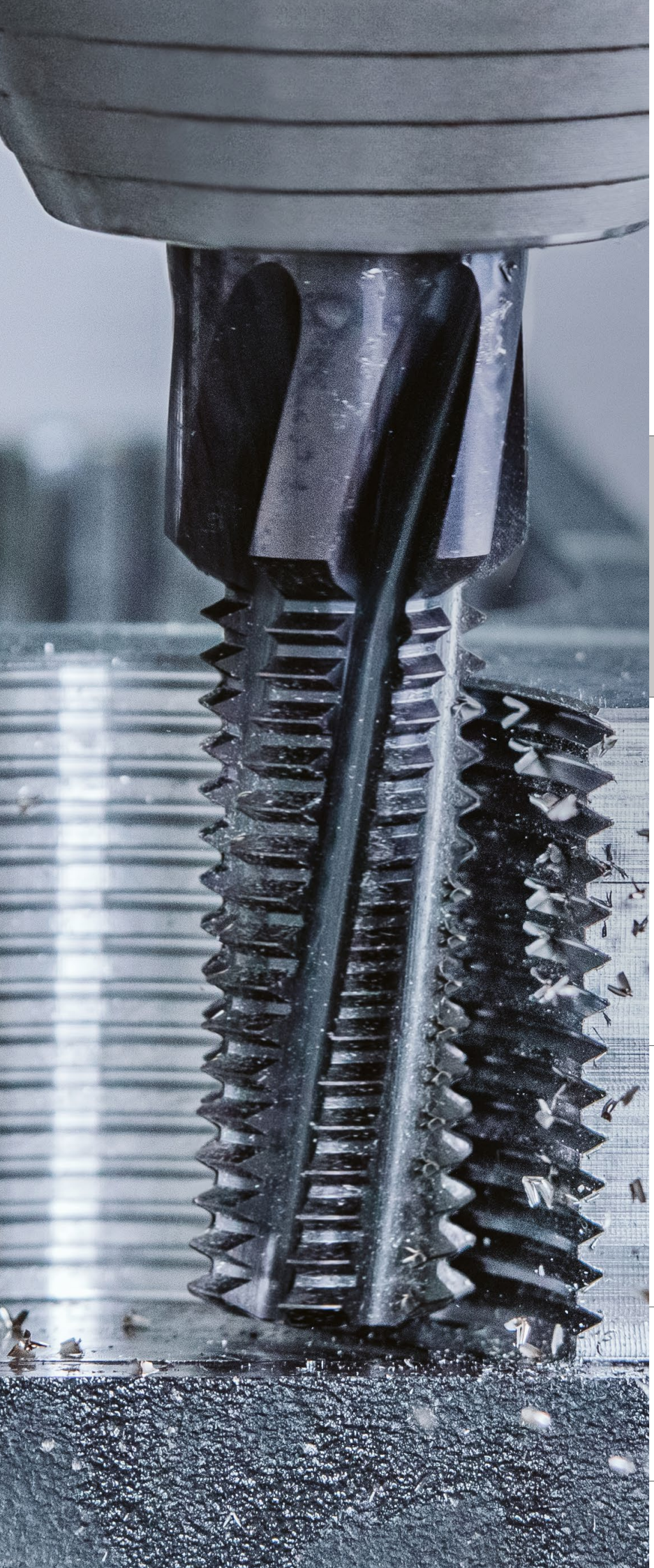
- ▲ Multi-row shank thread milling cutter
- ▲ Universal application in almost all materials
- ▲ Maximum reliability and process security
- ▲ Unsurpassed price-performance ratio

NEW Shank thread milling cutter type HR



→ Page 60

- ▲ Single-row shank thread milling cutter with universal application, but with focus on hard machining
- ▲ Outstanding solution for high lateral forces during machining
  → absolutely cylindrical, true-to-gauge and dimensionally accurate threads of the highest quality



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling 7

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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Tool types	5
Overview Circular and Thread Milling Cutters	5
Thread types	6
Process description	6+7
Toolfinder	8+9
Product programme	10–76
Technical Information	
Cutting Data	77–83
Milling processes (climb milling and conventional milling)	84
Feed rate calculation	84
Calculation of cutting data for thread milling	85
Coatings	85

WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Version

no drilling required

central internal coolant

Radial thro' coolant

Coolant supply either via the flange or centrally

left-hand cutting

Shank

Plain cylindrical shank

Cylindrical shank with lateral driving face „Weldon“

● = **Main Application**

○ = Extended application

Thread / Flank angle

Explanation of the types of thread can be found on → **Page 6.**

Flank angle 60°

Applications

Circlip Grooves

Full radius slot milling

Slot milling

Multipurpose milling

Chamfering and Deburring

Internal R/L

External R/L

Internal/External R/L

Tool types

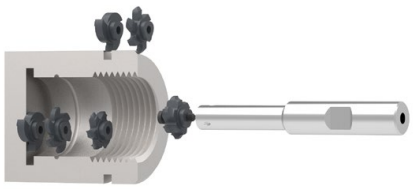
System 300	Circular milling cutter with solid carbide insert
Polygon	Circular shank milling cutter with carbide indexable insert (polygon insert seat)
Mini Mill	Circular milling cutter with solid carbide milling insert (with three-rib insert connection)
MWN	Multi-tooth thread milling cutter with carbide indexable inserts (straight insert seat) and Weldon flat
GZD	Multi-tooth thread milling cutter with carbide indexable inserts (angled insert seat) and Weldon flat
GZG	Multi-tooth thread milling cutter with carbide indexable inserts (straight insert seat) and Weldon flat
EAW	Single-row thread milling cutter with carbide indexable inserts and Weldon flat
EWM	Single-row thread milling cutter with carbide indexable insert and SK adapter
BGF	Solid carbide drill thread milling cutter
Micro Mill	Solid Carbide Circular End Milling Cutter
ZBGF	Solid carbide circular drill thread milling cutter
SGF	Thread milling cutter
SFSE	Thread milling cutter with chamfer facet
SFSE Micro	Thread milling cutter for smallest threads
HR	Single-row shank thread milling cutter

7

Overview Circular and Thread Milling Cutters

Modular Circular Milling Cutters with Carbide Indexable Inserts (ModuSet)

- the perfect tool for every application
- various holders, depending on overhang
- the same threading insert for different pitches and diameters
- highest flexibility and stability
- in addition to circular thread milling, circular and linear milling operations can also be carried out



1st choice for small batch sizes and large threads

Thread Milling Cutters with Indexable Carbide Inserts (ModuThread)

- exchange of the insert for different threads
- same threading insert for different diameters

Solid Carbide Thread Milling Cutters (MonoThread)

- short machining times, ideal for volume production
- one tool for all thread types
- one thread milling cutter for different diameters with the same pitch

MicroMill

SGF

ZBGF

BGF

Thread types

M	Metric ISO standard thread
MF	Metric ISO fine thread
G	Whitworth pipe thread
UN	Unified thread
UNC	Unified Standard Thread
UNF	Unified fine thread
BSW	Whitworth thread
BSF	Whitworth fine thread
NPT	American taper pipe thread
Pg	Steel conduit thread
Tr	Trapezoidal thread

Thread milling process description

Thread milling

- Cutting
- Thread production by circular milling in the pitch (helical interpolation)
- Can be used for a wide range of materials up to 60 HRC
- Lower torque than taps and thread formers (no reversing of the spindle necessary)
- Thread machining to the bottom of the hole possible
- High-speed cutting (HSC) can be performed

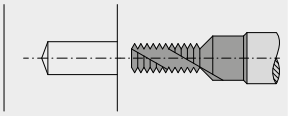
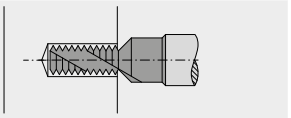
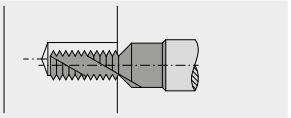
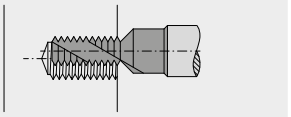
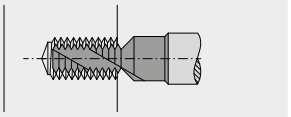
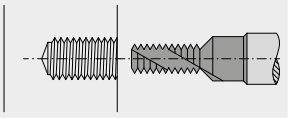
Advantages of thread milling

- Different tolerances can be produced with one tool
- One tool for blind hole and through hole machining
- Outstanding workpiece surfaces and dimensional accuracy guaranteed
- One tool for right and left-hand threads
- Low cutting pressure when machining thin-walled parts
- Precisely repeatable thread depth
- No chip issues and no chip root residues in the finished thread

Added advantages of thread milling cutters with chamfer facet

- Savings in tool change and setup times, resulting in significantly shorter machining times
- Optimisation of magazine assignment in the machine

Process

Positioning above the workpiece	
Entry to start position for thread milling	
Circular approach (milling) in inward circular grinding (90°/180°) at 1/4 pitch	
1x pitch in "Z+" direction	
Outward circular grinding in the centre of the hole (90°/180°)	
Exit to start position	

Climb milling is shown here.
Further information on the milling processes (climb and conventional milling) can be found on → **page 84**

Description of procedure, thread milling cutters

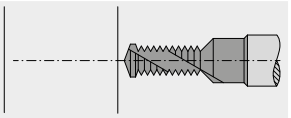
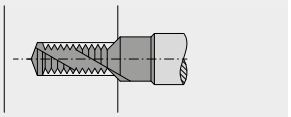
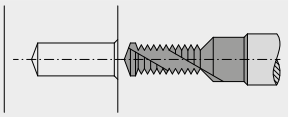
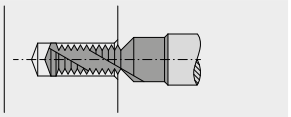
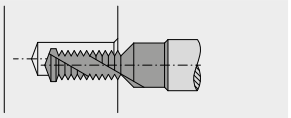
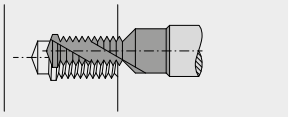
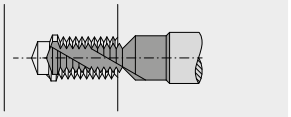
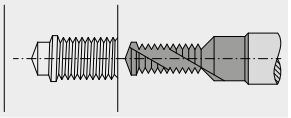
Thread milling

- Cutting
- Production of a complete thread – drilling, countersinking and thread milling with just one tool
- Can be used in different materials (K/N)
- Prerequisite: CNC-controlled milling machine or machining centre with the helical interpolation function

Advantages

- Shortest machining times thanks to high cutting speeds and feeds
- Savings in tool change and setup times, resulting in significantly shorter machining times
- Optimisation of magazine assignment in the machine
- Different tolerances can be produced with one tool
- Outstanding workpiece surfaces and dimensional accuracy guaranteed
- One tool for blind hole and through hole machining
- Precisely repeatable thread depth
- No chip issues and no chip root residues in the finished thread
- High-speed cutting (HSC) can be performed

Process

Positioning above the workpiece	
Tapping, drilling, countersinking	
Chip removal	
Entry to start position for thread milling	
Circular approach (milling) in inward circular grinding (90°/180°) at 1/4 pitch	
1x pitch in "Z+" direction	
Outward circular grinding in the centre of the hole (90°/180°)	
Exit to start position	

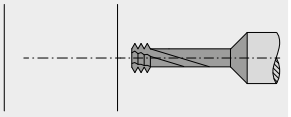
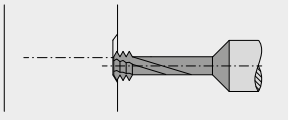
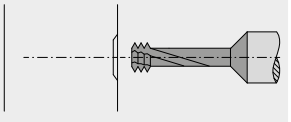
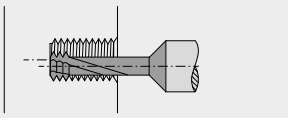
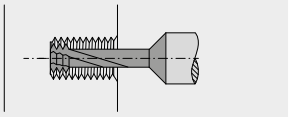
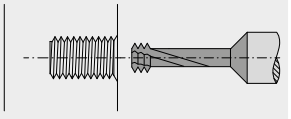
Circular drill thread milling

- Cutting
- Production of a complete thread – drilling, countersinking and thread milling with just one tool
- Can be used in different materials (H/S/O)
- Prerequisite: CNC-controlled milling machine or machining centre with the helical interpolation function

Advantages

- Shortest machining times due to simultaneous creation of the tap hole and thread
- Savings in tool change and setup times, resulting in significantly shorter machining times
- Optimisation of magazine assignment in the machine
- Different tolerances can be produced with one tool
- Outstanding workpiece surfaces and dimensional accuracy guaranteed
- One tool for blind hole and through hole machining
- Precisely repeatable thread depth
- Optimum chip removal and no chip root residues in the finished thread

Process

Positioning above the workpiece	
Chamfering (until countersinking depth is reached)	
Return to the start position above the component	
Circular drill thread milling in helical motion to the required thread depth	
Outward circular grinding in the centre of the hole (90°/180°)	
Exit to start position	

7

Toolfinder

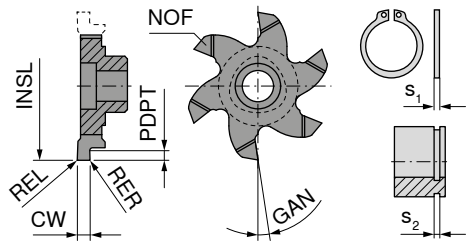
Tool types			Tool properties	from bore diameter in mm
ModuSet – Modular Circular Milling Cutters with Carbide Indexable Inserts	Polygon		▲ high power transmission through polygon connection ▲ 3 and 6 edged inserts ▲ stable holders in solid carbide and steel	9,6
	Mini Mill		▲ three interlocking rib location ▲ compatible with popular manufacturer systems ▲ 3 and 6 edged inserts ▲ stable holders in solid carbide and steel	9,6
	System 300		▲ proven circular milling tool ▲ 3 edged inserts	7,9
ModuThread – Thread Milling Cutters with Indexable Carbide Inserts	MWN		▲ multi tooth thread milling cutter ▲ double sided inserts ▲ exclusively for thread production ▲ holder for tapered threads	9,0
	GZD		▲ multi tooth drilling and thread milling cutter ▲ for thread milling in solid material ▲ core hole and thread with one tool	14,0
	GZG		▲ multi tooth thread milling cutter ▲ exclusively for thread production	18,5
	EAW		▲ single-row thread milling cutter ▲ inserts with 2 or 4 cutting edges ▲ exclusively for production of the thread ▲ insert holder with cylindrical shank DIN 1835	17,5
	EWM		▲ single-row thread milling cutter ▲ inserts with 4 cutting edges ▲ exclusively for production of the thread ▲ monoblock insert holder with steep taper DIN 69871	43,0
MonoThread – Solid Carbide Thread Milling Cutters	Micro Mill		▲ solid carbide circular milling cutter for small diameters	1,25
	BGF		▲ drill thread milling cutter ▲ core hole, countersink, thread and thread undercut with one tool	2,45
	ZBGF		▲ circular drill thread milling cutter ▲ core hole, countersink and thread with one tool	2,3
	SFSE Micro		▲ solid carbide shank thread milling cutter with chamfer facet ▲ just one tool for countersink and thread ▲ specially developed for the smallest threads in hard materials	0,75
	SFSE		▲ solid carbide thread milling cutter with chamfering facet ▲ only one tool for threading and chamfering	2,4
	SGF		▲ solid carbide thread milling cutter without chamfering facet ▲ exclusively for thread production	2,4
	HR		▲ single-row shank thread milling cutter ▲ exclusively for production of the thread ▲ up to 3xD in materials up to 60 HRC	3,14

Thread / Flank angle								Applications					Tool holder
60° M MF	55° G	55° BSW BSF	60° UN	60° UNC UNF	80° Pg	60° NPT	30° Tr						
16+17	18	18		20			19	10+11	12+13	14	14	15	21
29+30	30							22	23+24 25	24	26	27+28	31–33
37	38	38						34+35	36		36		39
40	41		41		42	42							43+44
45	45												46
47	48		49		48								50
51	51		51										52
53			53										54
56									55		55		
57+58													
59													
61													
62+63 67	64 68			66 69		65 68							
70+71 73 76	72 74	74		75									
60													

7

ModuSet – Milling inserts for circlip grooves without chamfer

Polygon



Ti500

Solid carbide

50 880 ...

Size	s_2 H13 mm	INSL mm	CW -0,03 mm	PDPT mm	REL mm	RER mm	GAN °	s_1 mm	NOF	
6	0,90	9,6	0,98	1,20	0,05	0,05	6	0,80	3	**292**
	1,10	11,7	1,18	1,00	0,05	0,05	6	1,00	3	**294**
	1,30	11,7	1,38	1,00	0,05	0,05	6	1,20	3	**296**
	1,60	11,7	1,68	1,00	0,10	0,10	6	1,50	3	**298**
7	1,10	16,0	1,18	0,90	0,05	0,05	6	1,00	6	**301**
	1,30	16,0	1,38	1,10	0,05	0,05	6	1,20	6	**302**
	1,60	16,0	1,68	1,25	0,10	0,10	6	1,50	6	**304**
	1,85	16,0	1,93	1,25	0,10	0,10	6	1,75	6	**306**
	1,10	17,7	1,18	0,90	0,05	0,05	6	1,00	6	**308**
	1,30	17,7	1,38	1,10	0,05	0,05	6	1,20	6	**309**
	1,60	17,7	1,68	1,25	0,10	0,10	6	1,50	6	**310**
	1,85	17,7	1,93	1,25	0,10	0,10	6	1,75	6	**311**
9	1,10	20,0	1,18	0,90	0,05	0,05	6	1,00	6	**313**
	1,30	20,0	1,38	1,10	0,05	0,05	6	1,20	6	**314**
	1,60	20,0	1,68	1,25	0,10	0,10	6	1,50	6	**315**
	1,85	20,0	1,93	1,25	0,10	0,10	6	1,75	6	**316**
	1,60	21,7	1,68	1,25	0,10	0,10	6	1,50	6	**318**
	1,85	21,7	1,93	1,25	0,10	0,10	6	1,75	6	**319**
	2,15	21,7	2,23	1,75	0,10	0,10	6	2,00	6	**320**
	2,65	21,7	2,73	1,75	0,20	0,20	6	2,50	6	**321**
10	1,30	26,0	1,38	1,10	0,05	0,05	6	1,20	6	**322**
	1,60	26,0	1,68	1,25	0,10	0,10	6	1,50	6	**324**
	1,85	26,0	1,93	1,25	0,10	0,10	6	1,75	6	**326**
	2,15	26,0	2,23	1,75	0,10	0,10	6	2,00	6	**328**
	2,65	26,0	2,73	1,75	0,20	0,20	6	2,20	6	**330**
	3,15	26,0	3,23	2,20	0,20	0,20	6	3,00	6	**332**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

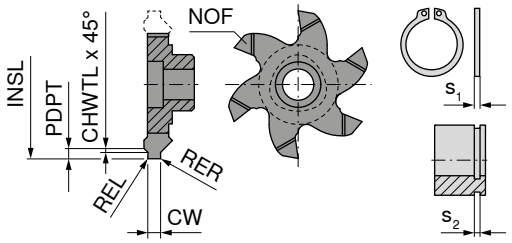
→ v_c/f_z Page 82

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Milling inserts for circlip grooves with chamfer

▲ Both edges chamfered CHWTL x 45°

Polygon



Ti500

Solid carbide

50 879 ...

Size	$s_{2\ H13}$ mm	INSL mm	CW $_{-0,03}$ mm	PDPT mm	REL mm	RER mm	CHWTL mm	s_1 mm	NOF	
7	1,10	16,0	1,18	0,50	0,05	0,05	0,10	1,00	6	**292**
	1,30	16,0	1,38	0,85	0,05	0,05	0,15	1,20	6	**302**
	1,60	16,0	1,68	1,00	0,10	0,10	0,15	1,50	6	**304**
	1,85	16,0	1,93	1,25	0,10	0,10	0,20	1,75	6	**306**
9	1,10	20,0	1,18	0,50	0,05	0,05	0,10	1,00	6	**307**
	1,30	20,0	1,38	0,85	0,05	0,05	0,15	1,20	6	**308**
	1,60	20,0	1,68	1,00	0,10	0,10	0,15	1,50	6	**309**
	1,60	21,7	1,68	1,00	0,10	0,10	0,15	1,50	6	**312**
	1,85	20,0	1,93	1,25	0,10	0,10	0,20	1,75	6	**310**
	1,85	21,7	1,93	1,25	0,10	0,10	0,20	1,75	6	**314**
	2,15	21,7	2,23	1,50	0,10	0,10	0,20	2,00	6	**316**
	2,65	21,7	2,73	1,75	0,20	0,20	0,20	2,50	6	**318**
10	1,30	26,0	1,38	0,85	0,05	0,05	0,15	1,20	6	**322**
	1,60	26,0	1,68	1,00	0,10	0,10	0,15	1,50	6	**324**
	1,85	26,0	1,93	1,25	0,10	0,10	0,20	1,75	6	**326**
	2,15	26,0	2,23	1,50	0,10	0,10	0,20	2,00	6	**328**
	2,65	26,0	2,73	1,75	0,20	0,20	0,20	2,50	6	**330**
	3,15	26,0	3,23	1,75	0,20	0,20	0,20	3,00	6	**332**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 82

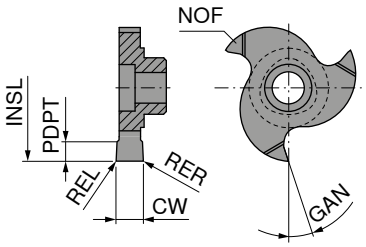
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

ModuSet – Milling insert without profile

▲ Size 7: from 5.0 mm groove width with ground chip breaker
▲ Size 10: from 6.5 mm groove width with ground chip breaker

Polygon



Ti500

Solid carbide

50 875 ...

Size	CW +/-0,02 mm	INSL mm	PDPT mm	REL mm	RER mm	GAN °	NOF	
6	1,5	11,7	2,25	0,10	0,10	6	3	**302**
	2,0	11,7	2,25	0,15	0,15	6	3	**304**
	2,5	11,7	2,25	0,15	0,15	6	3	**306**
	3,0	11,7	2,25	0,15	0,15	6	3	**308**
7	3,5	16,0	3,50	0,15	0,15	0	3	**310**
	3,5	16,0	3,50	0,15	0,15	8	3	**312**
	3,5	16,0	3,50	0,15	0,15	12	3	**314**
	5,0	16,0	3,50	0,15	0,15	0	3	**316**
	5,0	16,0	3,50	0,15	0,15	8	3	**318**
	5,0	16,0	3,50	0,15	0,15	12	3	**320**
10	4,0	25,0	5,70	0,15	0,15	0	3	**330**
	4,0	25,0	5,70	0,15	0,15	8	3	**332**
	4,0	25,0	5,70	0,15	0,15	12	3	**334**
	5,0	25,0	5,70	0,15	0,15	8	3	**337**
	6,5	25,0	5,70	0,15	0,15	0	3	**340**
	6,5	25,0	5,70	0,15	0,15	8	3	**342**
	6,5	25,0	5,70	0,15	0,15	12	3	**344**
	8,0	25,0	5,70	0,15	0,15	0	3	**350**
	8,0	25,0	5,70	0,15	0,15	8	3	**352**
	8,0	25,0	5,70	0,15	0,15	12	3	**354**

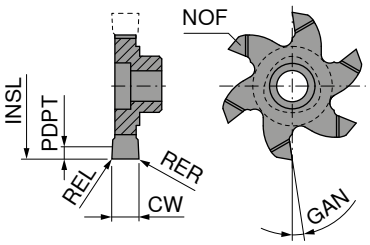
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 82

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Milling insert without profile

Polygon



Ti500

Solid carbide

50 876 ...

Size	CW +/-0,02 mm	INSL mm	PDPT mm	REL mm	RER mm	GAN °	NOF	
7	1,5	17,7	4,0	0,10	0,10	6	6	**307**
	2,0	17,7	4,0	0,10	0,10	6	6	**308**
	2,5	17,7	4,0	0,15	0,15	6	6	**309**
	3,0	16,0	3,5	0,15	0,15	6	6	**302**
	4,0	16,0	3,5	0,15	0,15	6	6	**304**
	5,0	16,0	3,5	0,15	0,15	6	6	**306**
9	1,5	21,7	5,0	0,10	0,10	6	6	**314**
	2,0	21,7	5,0	0,10	0,10	6	6	**315**
	2,5	21,7	5,0	0,15	0,15	6	6	**316**
	3,0	21,7	5,0	0,15	0,15	6	6	**317**
	3,0	20,0	4,2	0,15	0,15	6	6	**311**
	4,0	20,0	4,2	0,15	0,15	6	6	**312**
	5,0	20,0	4,2	0,15	0,15	6	6	**313**
10	1,5	27,7	6,8	0,10	0,10	6	6	**330**
	2,0	27,7	6,8	0,10	0,10	6	6	**332**
	2,5	27,7	6,8	0,15	0,15	6	6	**334**
	3,0	26,0	6,2	0,15	0,15	6	6	**322**
	3,0	27,7	6,8	0,15	0,15	6	6	**336**
	4,0	26,0	6,2	0,15	0,15	6	6	**324**
	5,0	26,0	6,2	0,15	0,15	6	6	**326**
	6,5	26,0	6,2	0,15	0,15	6	6	**328**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

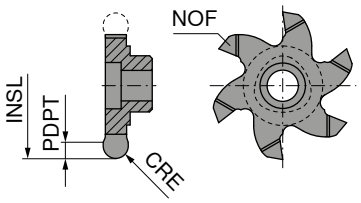
→ v_c/f_z Page 82

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

ModuSet – Milling inserts for radius milling

Polygon



Ti500

Solid carbide

50 886 ...

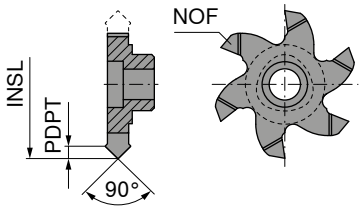
Size	CRE mm	INSL mm	PDPT mm	NOF	
6	1,100	9,6	1,20	3	**702**
	0,788	11,7	2,25	3	**704**
	1,100	11,7	2,25	3	**708**
	1,190	11,7	2,25	3	**706**
7	0,788	17,7	4,20	6	**712**
	1,100	17,7	4,20	6	**714**
9	0,785	21,7	5,00	6	**720**
	1,000	21,7	5,00	6	**722**
	1,200	21,7	5,00	6	**724**
	1,400	21,7	5,00	6	**726**
	1,500	21,7	5,00	6	**728**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 82

ModuSet – Milling inserts for chamfering and deburring

Polygon



Ti500

Solid carbide

50 884 ...

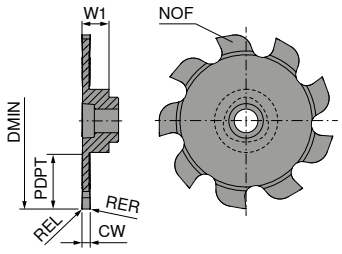
Size	PDPT mm	INSL mm	NOF	
6	1,20	9,6	3	**292**
	1,50	11,7	3	**294**
7	1,90	16,0	6	**302**
	1,30	17,7	6	**304**
9	1,90	20,0	6	**312**
	1,95	21,7	6	**314**
10	2,10	26,0	6	**322**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 82

ModuSet – Milling insert for part-off

Polygon



NEW

Ti500

Solid carbide

51 800 ...

Size	DMIN mm	PDPT mm	CW $_{+0,02}$ mm	REL mm	RER mm	W1 mm	NOF	
6	14	3,40	1,5	0,1	0,1	3,50	6	14000
7	22	6,40	1,5	0,1	0,1	3,86	9	22000
9	32	10,25	1,5	0,1	0,1	4,91	9	32000
10	37	11,50	1,5	0,1	0,1	4,86	9	37000

P	●
M	●
K	●
N	●
S	●
H	●
O	●

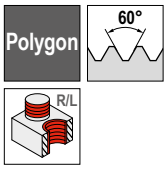
→ v_c/f_z Page 82

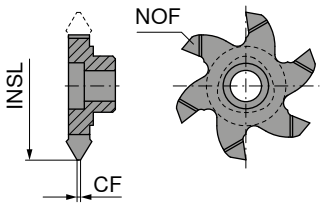
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

ModuSet – Thread milling insert – Partial profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!





Ti500

Solid carbide

50 882 ...

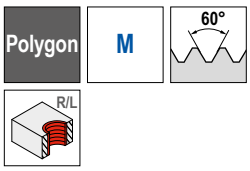
Size	TP mm	INSL mm	CF mm	NOF	TD mm	
6	1 - 3	11,7	0,10	3	≥16	**292**
7	1 - 3	17,7	0,10	6	≥22	**306**
	1 - 4	16,0	0,10	6	≥20	**302**
	2,5 - 4	16,0	0,25	6	≥22	**304**
9	1 - 2	21,7	0,10	6	≥27	**314**
	1 - 3	20,0	0,10	6	≥24	**312**
	2 - 4	21,7	0,15	6	≥30	**316**
10	1 - 3	26,0	0,10	6	≥32	**322**
	2,5 - 5	26,0	0,25	6	≥36	**324**
	3,5 - 6	26,0	0,40	6	≥52	**32600**

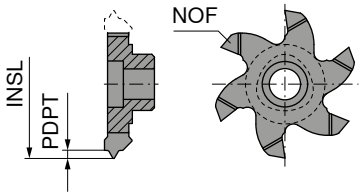
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 82

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Thread milling insert – Full profile





Ti500

Solid carbide

50 881 ...

Size	TP mm	INSL mm	PDPT mm	NOF	Thread	
6	1	9,6	0,572	3	≥ M12x1	**292**
	1,5	9,6	0,875	3	≥ M14x1,5	**293**
	2	10,5	1,157	3	≥ M18x2	**296**
7	1,5	16,0	0,875	6	≥ M20x1,5	**302**
	2	16,0	1,157	6	≥ M22x2	**304**
	2,5	16,0	1,430	6	≥ M24x2,5	**306**
	2,5	16,0	1,430	6	M20, M22	**308** 1)
	3	16,0	1,702	6	≥ M24	**310**
9	1,5	20,0	0,875	6	≥ M24x1,5	**312**
	2	20,0	1,157	6	≥ M27x2	**314**
	3	20,0	1,702	6	M24, M27	**316** 1)
10	1,5	26,0	0,875	6	≥ M30x1,5	**322**
	2	26,0	1,157	6	≥ M33x2	**324**
	3	26,0	1,702	6	≥M39x3	**330**
	3,5	26,0	1,982	6	≥ M42x3,5	**332**
	3,5	24,0	1,982	6	M30, M33	**331** 1)
	4	26,0	2,263	6	M36-M54x4	**335** 1)
	4	26,0	2,263	6	≥ M48x4	**334**
	4,5	26,0	2,553	6	≥ M42	**336**
	5	26,0	2,836	6	≥ M48	**337**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) profile corrected

→ v_c/f_z Page 82

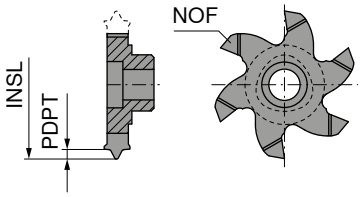
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

ModuSet – Thread milling insert – Full profile

▲ 50 883 322 for threads > 1"

Polygon | G | BSW | BSF | 55°



Ti500

Solid carbide

Size	TPI 1/"	TP mm	INSL mm	PDPT mm	NOF	50 883 ...
6	19	1,337	9,6	0,871	3	292
7	14	1,814	17,7	1,177	6	308
	14	1,814	16,0	1,177	6	304
	11	2,309	16,0	1,494	6	302
	10	2,540	16,0	1,646	6	306
9	14	1,814	20,0	1,177	6	316
	11	2,309	20,0	1,494	6	314
10	11	2,309	26,0	1,494	6	322

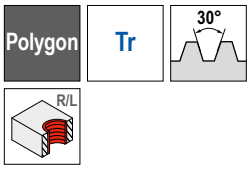
P	●
M	●
K	●
N	●
S	●
H	●
O	●

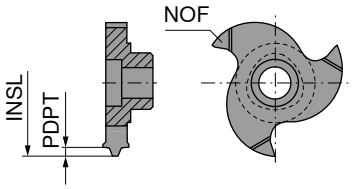
→ v_c/f_z Page 82

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Thread milling insert – Full profile

▲ DIN 103





Ti500

Solid carbide

50 872 ...

Size	TP mm	INSL mm	PDPT mm	NOF	Thread	
6	2	11,7	1,25	3	Tr 16x2 - Tr 20x2	**292**
	3	11,0	1,75	3	Tr 18x3 - Tr 20x3	**294**
	4	12,0	2,25	3	Tr 20x4	**296** 1)
7	3	14,0	1,75	3	Tr 24x3 - Tr 32x3	**302** 2)
	5	15,3	2,75	3	Tr 28x5 - Tr 36x5	**306** 3)
	5	15,3	2,75	3	Tr 26x5	**304** 3)
	6	16,2	3,50	3	Tr 34x6 - Tr 42x6	**310** 2)
	6	16,2	3,50	3	Tr 30x6 - Tr 32x6	**308** 2)
10	5	25,0	2,75	3	Tr 44x5 - Tr 48x5	**322** 4)
	7	22,0	3,75	3	Tr 38x7 - Tr 42x7	**324** 4)

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) profile corrected

2) Not suitable for the 50 805 011 and 50 805 010 holders

3) Not suitable for the 50 805 011 and 50 805 010 holders / profile corrected

4) Not suitable for the 50 805 026, 50 805 025 and 50 805 024 holders

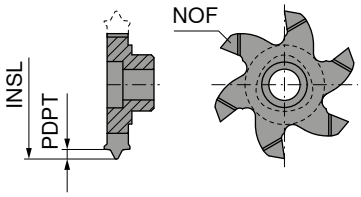
→ v_c/f_z Page 82

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Thread milling insert – Full profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!

Polygon | UNC | 60°



Ti500

Solid carbide

Size	TPI 1/"	INSL mm	PDPT mm	NOF	50 886 ...
6	12	9,6	1,228	3	202
	11	10,5	1,355	3	204
	10	11,7	1,485	3	206
7	9	16,0	1,577	6	212
9	8	18,0	1,809	6	222
	7	20,0	2,043	6	224

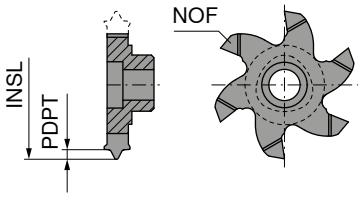
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 82

ModuSet – Thread milling insert – Full profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!

Polygon | UNF | 60°



Ti500

Solid carbide

Size	Thread	INSL mm	PDPT mm	NOF	50 886 ...
6	1/2 - 20	9,6	0,733	3	302
	9/16 - 18	10,5	0,827	3	304
	3/4 - 16	11,7	0,945	3	306
7	7/8 - 14	17,7	1,071	6	312
9	1 - 12	20,0	1,228	6	322

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 82

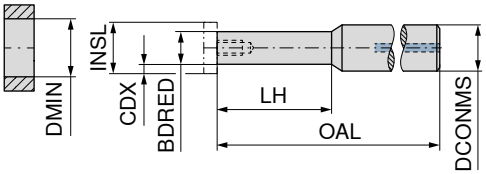
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Circular milling cutter

- ▲ For maximum machining depth, note insert width (CW)
- ▲ Size 6 = for INSL 9.6; 10.5; 11.7; 12
- ▲ Size 7 = for INSL 16; 17.7
- ▲ Size 9 = for INSL 18; 20; 21.7
- ▲ Size 10 = for INSL 24; 25; 26; 27.7
- ▲ Holder available as screw-in variant in the online shop

Scope of supply:
including key

Polygon



7

Size	LH mm	CDX mm	DCONMS $_{h6}$ mm	OAL mm	BDRED mm	DMIN mm	torque moment Nm	50 805 ...	50 805 ...
6	20,00	2,25	12	67,5	7,0	12	1,0		050 [1]
	20,00	2,25	12	67,5	7,0	12	1,0		051
	20,00	2,25	12	67,5	7,0	12	1,0	052	
	30,00	2,25	12	80,0	7,0	12	1,0		053
	30,00	2,25	12	80,0	7,0	12	1,0	054	
	40,00	2,25	12	100,0	7,0	12	1,0		055
	40,00	2,25	12	100,0	7,0	12	1,0	056	
7	20,90	4,00	12	67,4	9,0	18	1,1		002 [1]
	21,00	4,00	12	67,4	9,0	18	1,1		004
	21,00	4,00	12	67,4	9,0	18	1,1	005	
	36,00	4,00	12	82,4	9,0	18	1,1		008
	36,00	4,00	12	82,4	9,0	18	1,1	085	
		4,00	12	122,5	12,0	18	1,1	010	
		4,00	12	82,4	12,0	18	1,1	011	
9	29,75	5,00	16	80,0	11,5	22	3,8		070 [1]
	30,00	5,00	16	80,0	11,5	22	3,8		071
	30,00	5,00	16	80,0	11,5	22	3,8	072	
	50,00	5,00	16	100,0	11,5	22	3,8		073
	50,00	5,00	16	100,0	11,5	22	3,8	074	
10	20,50	5,70	16	105,0	15,5	28	5,5	025	
	20,50	6,80	16	149,7	15,5	28	5,5	024	
	20,50	6,80	20	175,4	15,5	28	5,5	026	
	30,40	6,80	16	79,6	13,6	28	5,5		012 [1]
	30,50	6,80	16	79,6	13,6	28	5,5	015	
	30,50	6,80	16	79,6	13,6	28	5,5		014
	45,50	6,80	16	94,6	13,6	28	5,5	021	
	45,50	6,80	16	94,6	13,6	28	5,5		020
	60,50	6,80	16	109,6	13,6	28	5,5		022
	60,50	6,80	16	109,6	13,6	28	5,5	023	

1) Steel version

Key D

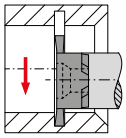
Clamping screw

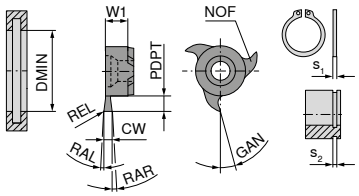
Spare parts Size	80 950 ...		70 960 ...	
6	T08 - IP	125	M2,5x7	246
7	T08 - IP	125	M3x13	231
9	T15 - IP	128	M4x13	236
10	T20 - IP	129	M5x13,5	243

ModuSet – Milling insert for circlip grooves

Mini Mill

≥ Ø 10 mm





CWX500

Solid carbide

53 006 ...

Size	DMIN mm	$s_{2\ H13}$ mm	CW $_{-0.02}$ mm	PDPT mm	W1 mm	REL mm	RAL °	RAR °	GAN °	s_1 mm	NOF	
10	10	0,70	0,74	1,5	3,50		1	1	15	0,60	3	070
	10	0,80	0,84	1,5	3,50		1	1	15	0,70	3	080
	10	0,90	0,94	1,5	3,50		1	1	15	0,80	3	090
	10	1,10	1,21	1,5	3,50		3	3	15	1,00	3	110
	10	1,30	1,41	1,5	3,50	0,10	3	3	15	1,20	3	130
	10	1,60	1,71	1,5	3,50	0,10	3	3	15	1,50	3	160
	12	1,10	1,21	2,5	3,50		3	3	15	1,00	3	112
	12	1,30	1,41	2,5	3,50	0,10	3	3	15	1,20	3	132
	12	1,60	1,71	2,5	3,50	0,10	3	3	15	1,50	3	162
18	18	0,70	0,74	1,5	5,75		1	1	15	0,60	3	270
	18	0,80	0,84	1,7	5,75		1	1	15	0,70	3	280
	18	0,90	0,94	1,9	5,75		1	1	15	0,80	3	290
	18	1,10	1,21	3,5	5,75		3	3	15	1,00	3	310
	18	1,30	1,41	3,5	5,75	0,10	3	3	15	1,20	3	330
	18	1,60	1,71	3,5	5,75	0,10	3	3	15	1,50	3	360
22	22	0,70	0,74	1,5	5,70		1	1	15	0,60	3	470
	22	0,80	0,84	1,7	5,70		1	1	15	0,70	3	480
	22	0,90	0,94	1,9	5,70		1	1	15	0,80	3	490
	22	1,00	1,04	2,1	5,70		1	1	15	0,90	3	500
	22	1,10	1,21	2,5	5,70		1	1	15	1,00	3	510
	22	1,30	1,41	4,5	5,70	0,10	3	3	15	1,20	3	530
	22	1,60	1,71	4,5	5,70	0,10	3	3	15	1,50	3	560
	22	1,85	1,96	4,5	5,70	0,15	3	3	15	1,75	3	585
	22	2,15	2,26	4,5	5,70	0,15	3	3	15	2,00	3	615
	22	2,65	2,76	4,5	5,70	0,15	3	3	15	2,50	3	665
	22	3,15	3,26	4,5	5,70	0,20	3	3	15	3,00	3	415
	22	4,15	4,26	4,5	5,70	0,20	3	3	15	4,00	3	515
	22	5,15	5,26	4,5	5,70	0,20	3	3	15	5,00	3	605

P	●
M	●
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N	●
S	○
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O	●

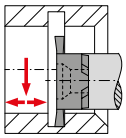
→ v_c/f_z Page 83

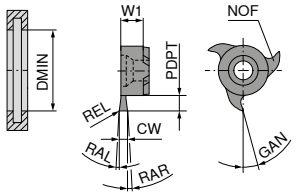
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Milling insert for groove milling

Mini Mill

≥ Ø 10 mm





CWX500

Solid carbide

53 007 ...

Size	DMIN mm	CW 0.02 mm	PDPT mm	W1 mm	REL mm	RAL °	RAR °	GAN °	NOF	
10	10	1,0	1,5	3,50	0,1	3	3	15	3	010
	10	1,5	1,5	3,50	0,2	3	3	15	3	015
	10	2,0	1,5	3,50	0,2	3	3	15	3	020
	10	2,5	1,5	3,50	0,2	3	3	15	3	025
	12	1,5	2,0	3,50	0,2	3	3	15	6	114
	12	1,5	2,5	3,50	0,2	3	3	15	3	115
	12	2,0	2,0	3,50	0,2	3	3	15	6	119
	12	2,0	2,5	3,50	0,2	3	3	15	3	120
	12	2,5	2,5	3,50	0,2	3	3	15	3	125
14	14	1,0	2,5	4,50		3	3	15	3	210
	14	1,5	2,5	4,50	0,2	3	3	15	3	215
	14	2,0	2,5	4,50	0,2	3	3	15	3	220
	14	2,5	2,5	4,50	0,2	3	3	15	3	225
	16	1,5	3,5	4,50	0,2	3	3	15	3	315
	16	2,0	3,5	4,50	0,2	3	3	15	3	320
	16	2,5	3,5	4,50	0,2	3	3	15	3	325
18	18	1,5	3,5	5,75	0,1	3	3	15	6	414
	18	1,5	3,5	5,75	0,2	3	3	15	3	415
	18	2,0	3,5	5,75	0,2	3	3	15	3	420
	18	2,0	3,5	5,75	0,2	3	3	15	6	419
	18	2,5	3,5	5,75	0,2	3	3	15	6	424
	18	2,5	3,5	5,75	0,2	3	3	15	3	425
	18	3,0	3,5	5,75	0,2	3	3	15	6	429
	18	3,0	3,5	5,75	0,2	3	3	15	3	430
	18	4,0	3,5	5,75	0,2	3	3	15	3	440
22	22	1,0	4,5	6,20	0,1	3	3	15	6	810
	22	1,5	4,5	5,70	0,2	3	3	15	3	515
	22	1,5	4,5	6,20	0,1	3	3	15	6	815
	22	2,0	4,5	6,20	0,2	3	3	15	6	820
	22	2,0	4,5	5,70	0,2	3	3	15	3	520
	22	2,5	4,5	6,20	0,2	3	3	15	6	825
	22	2,5	4,5	5,70	0,2	3	3	15	3	525
	22	3,0	4,5	5,70	0,2	3	3	15	3	530
	22	3,0	4,5	6,20	0,2	3	3	15	6	830
	22	3,5	4,5	5,70	0,2	3	3	15	3	535
	22	4,0	4,5	5,70	0,2	3	3	15	3	540
	22	4,0	4,5	6,20	0,2	3	3	15	6	840
28	25	2,0	5,0	6,50	0,2	3	3	15	3	620
	25	2,5	5,0	6,50	0,2	3	3	15	3	625
	25	3,0	5,0	6,50	0,2	3	3	15	3	630
	25	3,5	5,0	6,50	0,2	3	3	15	3	635
	25	4,0	5,0	6,50	0,2	3	3	15	3	640
	28	1,0	6,5	6,25	0,1	3	3	15	6	610
	28	1,5	6,5	6,25	0,1	3	3	15	6	615
	28	1,5	6,5	6,50	0,2	3	3	15	3	715
	28	2,0	6,5	6,25	0,2	3	3	15	6	721
	28	2,0	6,5	6,50	0,2	3	3	15	3	720
	28	2,5	6,5	6,25	0,2	3	3	15	6	726
	28	2,5	6,5	6,50	0,2	3	3	15	3	725
	28	3,0	6,5	6,50	0,2	3	3	15	3	730
	28	3,0	6,5	6,25	0,2	3	3	15	6	731
	28	3,5	6,5	6,50	0,2	3	3	15	3	735
	28	4,0	6,5	6,25	0,2	3	3	15	6	741
	28	4,0	6,5	6,50	0,2	3	3	15	3	740
	28	5,0	6,5	6,50	0,2	3	3	15	3	750
	28	6,0	6,5	6,50	0,2	3	3	15	3	760

P	●
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 83

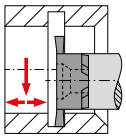
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

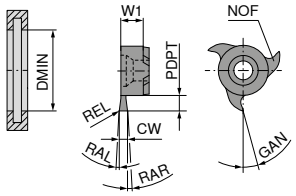
7

ModuSet – Milling insert for groove milling (Specialist for aluminium)

Mini Mill

≥ Ø 32 mm





CWX500

Solid carbide

53 007 ...

Size	DMIN mm	CW $_{0.02}$ mm	PDPT mm	W1 mm	REL mm	RAL °	RAR °	GAN °	NOF	
28	32	2,0	8,5	6,5	0,2	3	3	20	3	**920**
	32	2,5	8,5	6,5	0,2	3	3	20	3	**925**
	32	3,0	8,5	6,5	0,2	3	3	20	3	**930**

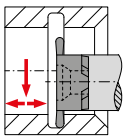
P	
M	
K	
N	●
S	
H	
O	

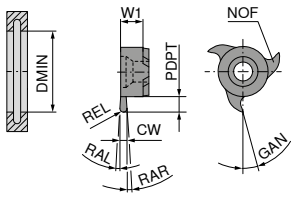
→ v_c/f_z Page 83

ModuSet – Milling insert for groove milling with full radius

Mini Mill

≥ Ø 12 mm





CWX500

Solid carbide

53 008 ...

Size	DMIN mm	CW $_{+0.03}$ mm	PDPT mm	W1 mm	REL mm	RAL °	RAR °	GAN °	NOF	
10	12	2,2	2,5	3,50	1,1	3	3	15	3	**011**
14	16	2,2	3,5	4,60	1,1	3	3	15	3	**111**
18	18	2,2	3,5	5,75	1,1	3	3	15	3	**211**
22	22	1,0	4,5	5,75	0,5	3	3	15	3	**305**
	22	1,6	4,5	5,75	0,8	3	3	15	3	**308**
	22	2,0	4,5	5,75	1,0	3	3	15	3	**310**
	22	2,4	4,5	5,75	1,2	3	3	15	3	**312**
	22	2,8	4,5	5,75	1,4	3	3	15	3	**314**
	22	3,0	4,5	5,75	1,5	3	3	15	3	**315**
	22	4,0	4,5	5,75	2,0	3	3	15	3	**320**
	22	4,4	4,5	5,75	2,2	3	3	15	3	**322**
	22	5,0	4,5	5,75	2,5	3	3	15	3	**325**

P	●
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S	○
H	
O	●

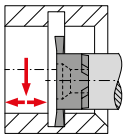
→ v_c/f_z Page 83

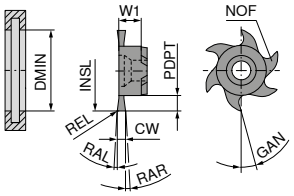
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Milling insert for groove milling, cross-pitched

Mini Mill

≥ Ø 12 mm





CWX500

Solid carbide

53 015 ...

Size	DMIN mm	INSL mm	CW +0,02 mm	PDPT mm	W1 mm	REL mm	RAL °	RAR °	GAN °	NOF	
10	12	11,7	1,5	2,0	3,5	0,2	3	3	15	6	114
	12	11,7	2,0	2,0	3,5	0,2	3	3	15	6	119
14	16	15,7	1,5	2,5	4,5	0,2	3	3	15	6	314
	16	15,7	2,0	2,5	4,5	0,2	3	3	15	6	319
	16	15,7	2,5	2,5	4,5	0,2	3	3	15	6	324
18	18	17,7	2,0	4,0	5,8	0,2	3	3	15	6	419
	18	17,7	2,5	4,0	5,8	0,2	3	3	15	6	424
	18	17,7	3,0	4,0	5,8	0,2	3	3	15	6	429
	20	19,7	2,0	5,0	5,8	0,2	3	3	15	6	469
	20	19,7	2,5	5,0	5,8	0,2	3	3	15	6	474
	20	19,7	3,0	5,0	5,8	0,2	3	3	15	6	479
22	22	21,7	2,0	4,5	6,2	0,2	3	3	15	6	820
	22	21,7	2,5	4,5	6,2	0,2	3	3	15	6	825
	22	21,7	3,0	4,5	6,2	0,2	3	3	15	6	830
	22	21,7	4,0	4,5	6,2	0,2	3	3	15	6	840
	37	36,7	1,5	12,0	6,2	0,1	3	3	15	6	865
	37	36,7	2,0	12,0	6,2	0,2	3	3	15	6	870
28	25	24,8	2,5	5,0	6,4	0,2	3	3	15	6	626
	25	24,8	3,0	5,0	6,4	0,2	3	3	15	6	631
	25	24,8	4,0	5,0	6,4	0,2	3	3	15	6	641
	25	24,8	5,0	5,0	6,4	0,2	3	3	15	6	651
	25	24,8	6,0	5,0	6,4	0,2	3	3	15	6	661
	28	27,7	2,5	6,5	6,2	0,2	3	3	15	6	726
	28	27,7	3,0	6,5	6,2	0,2	3	3	15	6	731
	28	27,7	4,0	6,5	6,2	0,2	3	3	15	6	741
	28	27,7	5,0	6,5	6,2	0,2	3	3	15	6	751
	28	27,7	6,0	6,5	6,2	0,2	3	3	15	6	761
	35	34,7	2,0	10,0	6,2	0,2	3	3	15	6	770
	35	34,7	2,5	10,0	6,2	0,2	3	3	15	6	775
	35	34,7	3,0	10,0	6,2	0,2	3	3	15	6	780

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O	●

→ v_c/f_z Page 83

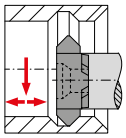
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

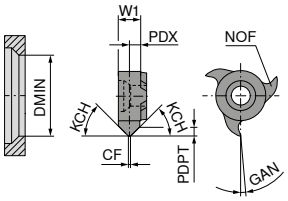
7

ModuSet – Milling insert for groove milling and chamfering

Mini Mill

≥ Ø 10 mm





CWX500

Solid carbide

53 009 ...

Size	DMIN mm	CF +0,03 mm	PDPT mm	W1 mm	KCH °	PDX mm	GAN °	NOF	
10	10	0,2	0,35	3,60	15	1,80	5	6	**015**
	10	0,2	0,45	3,60	20	1,80	5	6	**020**
	10	0,2	0,70	3,60	30	1,80	5	6	**030**
	10	0,2	1,20	3,60	45	1,80	5	6	**045**
	12	1,2	0,80	3,50	45	1,20	5	3	**035**
14	16	1,4	1,20	4,50	45	1,60	5	3	**145**
18	18	2,5	1,40	5,85	45	1,70	5	3	**258**
	18	0,2	2,20	5,75	45	3,00	5	6	**259**
22	22	2,0	1,70	5,85	45	2,00	5	3	**358**
	22	0,2	2,50	6,40	45	3,90	5	6	**463**
	22	3,0	3,00	9,40	45	3,25	5	3	**394** 1)
28	28	0,2	1,90	6,05	45	3,75	5	6	**560**

P	●
M	●
K	●
N	●
S	○
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O	●

1) Use clamping screw 73 082 006

→ v_c/f_z Page 83

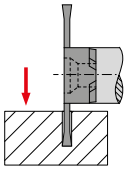
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

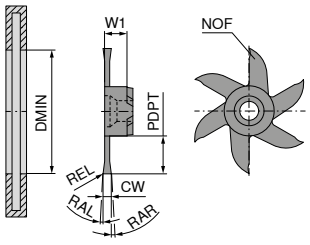
ModuSet – Milling insert for part-off

▲ PDPT = 12,0 mm in combination with holder 53 003 624
▲ reduce feed rate by 50 %

Mini Mill

≥ Ø 37 mm





CWX500

Solid carbide

Size	DMIN mm	CW +0,02 mm	PDPT mm	W1 mm	REL mm	RAL °	RAR °	NOF	53 013 ...
22	37	0,5	12	5,6		3	3	6	705 [1]
	37	0,6	12	5,7		3	3	6	706 [1]
	37	0,8	12	6,0		3	3	6	708 [1]
	37	1,0	12	6,2	0,1	3	3	6	710
	37	1,5	12	6,2	0,1	3	3	6	715

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N	●
S	○
H	
O	●

1) The end face is not ground free to the center

→ v_c/f_z Page 83

7

ModuSet – Set for cut off

▲ Size 22

Mini Mill

Tool	Designation	Article no.	Bore-Ø mm	Piece	53 014 ...
Inserts	Milling inserts for separating	53 013 715	37	2	990
Tool holder	Endmill short	53 003 624		1	
Screw	M5 x 12	73 082 005		1	
Tightening Key	T20			1	

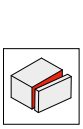
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

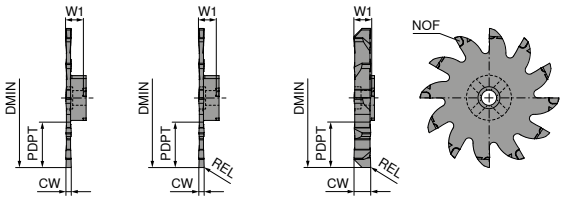
ModuSet – Milling insert for slot and multipurpose milling

▲ Interface with four driving slots
▲ CW 1,5 – 6 mm: cross-pitched

Mini Mill

≥ Ø 50 mm





NEW CWX500 — Solid carbide

NEW CWX500 — Solid carbide

NEW CWX500 — Solid carbide

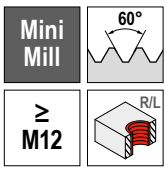
Size	DMIN mm	CW +0,02 mm	PDPT mm	W1 mm	REL mm	NOF	53 017 ...	53 017 ...	53 017 ...
50	50	0,5	16,5	6,35		12	00500		
	50	1,0	16,5	6,35		12	01000		
	50	1,5	16,5	6,35	0,1	12		01500	
	50	2,0	16,5	6,35	0,2	12		02000	
	50	2,5	16,5	6,35	0,2	12		02500	
	50	3,0	16,5	6,35	0,2	12		03000	
	50	4,0	16,5	6,35	0,2	12			04000
	50	5,0	16,5	6,35	0,2	12			05000
	50	6,0	16,5	6,35	0,2	12			06000
P							●	●	●
M							●	●	●
K							●	●	●
N							●	●	●
S							○	○	○
H									
O							●	●	●

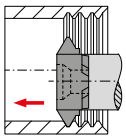
→ v_c/f_z Page 83

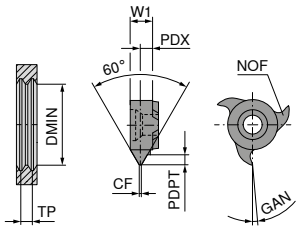
Suitable holders can be found on → **page 33.**

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Milling insert for internal thread milling – Partial profile







CWX500

Solid carbide

53 010 ...

Size	Thread$_{min}$	TP mm	DMIN mm	CF mm	PDPT mm	W1 mm	PDX mm	GAN °	NOF	
10	M12	1,0 - 1,75	9,8	0,13	1,02	3,20	2,4	5	6	017
	M14	1,0 - 1,75	11,7	0,13	1,08	3,60	2,8	5	3	010
	M14	1,0 - 2,0	10,1	0,13	1,25	3,20	2,2	5	6	021
	M14	1,0 - 2,0	11,7	0,13	1,25	3,60	2,8	5	3	020
	M16	1,5 - 2,75	11,0	0,19	1,67	3,20	2,0	5	6	027
	M16	1,5 - 2,75	11,7	0,19	1,67	3,60	2,4	5	3	015
	M16	2,0 - 3,0	11,1	0,25	1,78	3,20	1,9	5	6	029
	M16	2,0 - 3,0	11,7	0,25	1,78	3,60	2,2	5	3	030
14	M18	1,0 - 1,75	15,7	0,12	1,08	4,60	3,8	5	3	210
	M18	1,0 - 2,0	15,7	0,12	1,25	4,60	3,5	5	3	220
	M20	1,5 - 2,75	15,7	0,18	1,67	4,60	3,5	5	3	215
	M22	2,5 - 3,0	15,7	0,31	1,78	4,60	3,4	5	3	230
18	M22	1,0 - 1,75	17,7	0,12	1,03	5,85	5,0	5	3	410
	M22	1,0 - 2,0	17,7	0,12	1,19	5,85	4,7	5	3	412
	M22	1,0 - 2,0	17,7	0,12	1,19	5,85	5,0	5	6	416
	M22	1,5 - 2,75	17,7	0,19	1,62	5,85	4,6	5	3	415
	M24	2,0 - 3,0	17,7	0,25	1,73	5,85	4,4	5	3	425
	M24	2,0 - 3,5	17,7	0,25	2,06	5,85	4,2	5	3	455
	M24	2,0 - 3,5	17,7	0,25	2,06	5,85	4,3	5	6	434
	M24	2,0 - 3,75	17,7	0,25	2,22	5,85	4,2	5	3	420
	M24	2,5 - 5,0	17,7	0,31	2,98	5,85	3,8	5	3	430
	M24	3,0 - 5,5	17,7	0,38	3,25	5,85	4,2	5	3	435
22	M27	1,0 - 2,0	21,7	0,12	1,19	5,85	4,6	5	3	610
	M27	1,0 - 2,0	21,7	0,12	1,19	6,20	5,0	5	6	710
	M27	1,5 - 2,75	21,7	0,18	1,62	5,85	4,5	5	3	615
	M27	2,0 - 3,75	21,7	0,25	2,22	5,85	4,2	5	3	620
	M27	2,5 - 4,5	21,7	0,25	2,70	5,85	3,7	5	3	655
	M27	2,0 - 4,5	21,7	0,25	2,70	6,05	4,2	5	6	755
	M30	2,5 - 5,0	21,7	0,31	2,98	5,85	3,8	5	3	630
	M30	3,5 - 6,0	21,7	0,44	3,52	5,85	3,4	5	3	640
	M30	3,5 - 6,5	21,7	0,44	3,84	5,85	3,2	5	3	645
28	M33	1,0 - 2,0	27,7	0,12	1,20	6,60	4,5	5	3	820
	M33	1,5 - 2,5	27,7	0,18	1,49	6,60	4,3	5	3	825
	M33	1,5 - 2,5	27,7	0,19	1,60	6,10	5,0	5	6	826
	M36	2,5 - 5,0	27,7	0,38	2,93	6,10	2,3	5	6	850
	M36	2,5 - 5,0	27,7	0,37	2,93	6,60	4,0	5	3	840
	M39	4,0 - 6,0	27,7	0,62	3,37	6,60	3,6	5	3	860

P	●
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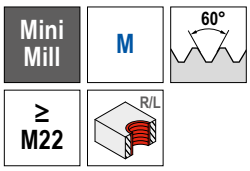
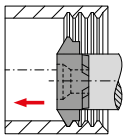
→ v_c/f_z Page 83

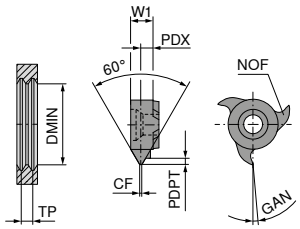
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

ModuSet – Milling insert for internal thread milling – Full profile







CWX500

Solid carbide

53 011 ...

Size	Thread$_{min}$	TP mm	DMIN mm	CF mm	PDPT mm	W1 mm	PDX mm	GAN °	NOF	
18	M22	1,50	17,7	0,18	0,81	5,85	4,8	5	3	**415**
	M22	1,75	17,7	0,20	0,95	5,85	4,7	5	3	**417**
	M22	2,00	17,7	0,25	1,08	5,85	4,6	5	3	**420**
	M24	2,50	17,7	0,31	1,35	5,85	4,4	5	3	**425**
	M27	3,00	17,7	0,37	1,62	5,85	4,3	5	3	**430**
	M27	3,50	17,7	0,43	1,89	5,85	4,0	5	3	**435**
22	M24	1,50	21,7	0,19	0,81	5,85	4,8	5	3	**615**
	M24	1,50	21,7	0,19	0,81	6,20	5,3	5	6	**715**
	M27	1,75	21,7	0,22	0,95	6,20	5,2	5	6	**717**
	M27	1,75	21,7	0,22	0,95	5,85	4,7	5	3	**617**
	M27	2,00	21,7	0,25	1,08	6,20	5,0	5	6	**720**
	M27	2,00	21,7	0,25	1,08	5,85	4,6	5	3	**620**
	M30	3,00	21,7	0,37	1,62	5,85	4,3	5	3	**630**
	M30	3,00	21,7	0,37	1,62	6,20	4,8	5	6	**730**
	M30	3,50	21,7	0,43	1,89	5,85	4,0	5	3	**635**
	M33	4,00	21,7	0,50	2,16	5,85	3,9	5	3	**640**
	M33	4,00	21,7	0,50	2,16	6,20	4,4	5	6	**740**
	M33	4,50	21,7	0,56	2,43	5,85	3,7	5	3	**645**

P	●
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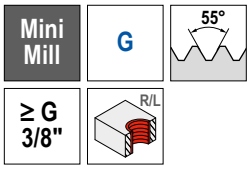
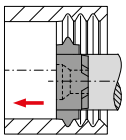
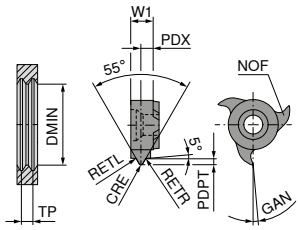
→ v_c/f_z Page 83

ModuSet – Milling insert for internal thread milling – Full profile







CWX500

Solid carbide

53 012 ...

Size	Thread$_{min}$	TP mm	DMIN mm	TPI 1/"	W1 mm	PDX mm	PDPT mm	CRE mm	RETL mm	RETR mm	GAN °	NOF	
10	G 3/8"	1,34	11,7	19	3,60	2,5	0,860	0,18	0,18	0,18	5	3	**113**
	G 1/2"	1,81	11,7	14	3,60	2,3	1,160	0,24	0,24	0,24	5	3	**118**
	G 1"	2,31	11,7	11	3,60	2,0	1,480	0,31	0,31	0,31	5	3	**123**
18		1,34	17,7	19	5,85	4,9	0,856	0,18	0,18	0,18	5	3	**219**
	G 3/4"	1,81	17,7	14	5,85	4,6	1,160	0,24	0,24	0,24	5	3	**214**
	G 1"	2,31	17,7	11	5,85	4,4	1,480	0,31	0,31	0,31	5	3	**211**
22	G 1"	2,31	21,7	11	5,85	4,0	1,480	0,31	0,31	0,31	5	3	**311**
		3,17	21,7	8	5,85	3,5	2,030	0,43	0,43	0,43	5	3	**308**
	BSW 1 1/2"	4,23	21,7	6	5,85	3,1	2,710	0,58	0,58	0,58	5	3	**306**

P	●
M	●
K	●
N	●
S	○
H	
O	●

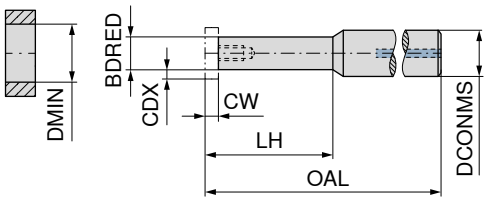
→ v_c/f_z Page 83

ModuSet – Circular milling cutter, extra short

▲ Steel Version

Scope of supply:
including key

Mini Mill



Steel

53 004 ...

Size	DCONMS h6 mm	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm	
10	10	6,0	60	15,2	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	**015**
14	10	8,0	60	17,7	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	**217**
	13	8,0	70	25,7	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	**225**
18	10	9,0	60	17,0	17,7	≤5,6	3,5	4,5	**417**
	13	9,0	70	25,0	17,7	≤5,6	3,5	4,5	**425**
22	10	11,3	60	10,7	21,7	≤9,15	4,5	7,0	**610**
	13	11,3	70	25,7	21,7	≤9,15	4	7,0	**625**
28	13	14,0	70	10,7	27,7	≤10	6,5	7,0	**810**
	20	14,0	100	35,7	27,7	≤10	6,5	7,0	**835**

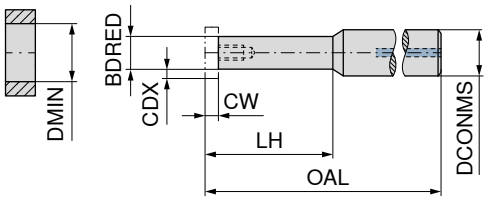
7

ModuSet – Circular milling cutter, short

▲ Steel Version

Scope of supply:
including key

Mini Mill



Steel

Steel

53 002 ... **53 003 ...**

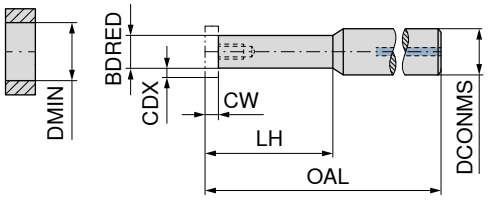
Size	DCONMS h6 mm	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm		
10	16	6	80	12,0	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	**012**	**012**
14	16	8	80	16,0	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	**216**	**216**
18	16	9	80	18,0	17,7	≤5,6	3,5	4,5	**418**	**418**
22	16	12	80	24,0	21,7	≤9,15	4,5	7,0	**624**	**624**
28	20	14	100	35,7	27,7	≤10	6,5	7,0		**835**

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Circular milling cutter, vibration-damped

Scope of supply:
including key

Mini Mill



HM

HM

Size	DCONMS h6	BDRED	OAL	LH	DMIN	CW	CDX	torque moment	53 001 ...		53 000 ...
	mm	mm	mm	mm	mm	mm	mm	Nm			
10	12	6,0	80	21	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	021		021
	12	6,0	90	30	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	030		030
	12	6,0	100	42	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	042		042
	12	7,3	90	30	9,7 / 11,7	≤3,35	0,9 / 1,85	2,0	130		130
	16	7,3	100	25	9,7 / 11,7	≤3,35	0,9 / 1,85	2,0	025		025
14	12	8,0	95	29	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	229		229
	12	8,0	110	42	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	242		242
	12	8,0	120	56	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	256		256
	12	9,5	110	42	13,7 / 15,7	≤4,35	1,65 / 2,7	3,5	342		342
	16	9,5	110	33	13,7 / 15,7	≤4,35	1,65 / 2,7	3,5	233		233
18	12	9,0	100	32	17,7	≤5,6	3,5	4,5	432		432
	12	9,0	100	45	17,7	≤5,6	3,5	4,5	445		445
	12	9,0	120	64	17,7	≤5,6	3,5	4,5	464		464
	16	9,0	93	25	17,7	≤5,6	3,5	4,5	425		425
	16	9,0	100	32	17,7	≤5,6	3,5	4,5	532		532
	16	9,0	110	45	17,7	≤5,6	3,5	4,5	545		545
	16	9,0	130	64	17,7	≤5,6	3,5	4,5	564		564
	16	13,0	110	64	17,7	≤5,6	1,5	4,5	465		465
	16	13,0	130	66	17,7	≤5,6	1,5	4,5	466		466
22	12		100	42	21,7	≤9,15	4,5	7,0	642		642
	12		130	60	21,7	≤9,15	4,5	7,0	660		660
	16	11,5	90	30	21,7	≤9,15	4,5	7,0	630		630
	16	12,0	100	42	21,7	≤9,15	4,5	7,0	742		742
	16	12,0	130	60	21,7	≤9,15	4,5	7,0	760		760
	16	12,0	160	85	21,7	≤9,15	4,5	7,0	685		685
	20	16,0	110	45	21,7	≤9,15	2,5	7,0	645		645
	20	16,0	130	65	21,7	≤9,15	2,5	7,0	665		665
28	16	14,3	100	42	27,7 / 24,8	≤10	6,5 / 5	7,0	842		842
	16	14,3	130	60	27,7 / 24,8	≤10	6,5 / 5	7,0	860		860
	16	14,3	160	85	27,7 / 24,8	≤10	6,5 / 5	7,0	885		885
	20	13,5	104	35	27,7 / 24,8	≤10	6,5 / 5	7,0	835		835
	20	14,3	160	85	27,7 / 24,8	≤10	6,5 / 5	7,0	985		985

Key D

Clamping screw

Clamping screw

Spare parts Size		80 950 ...		73 082 ...		73 082 ...
10	T08	110			M2,6	002
14	T10	112			M3,5	003
18	T15	113			M4	004
22	T20	114	M5	006	M5	005
28	T20	114			M5	005

Clamping screw 73 082 006 only for insert 53 009 394

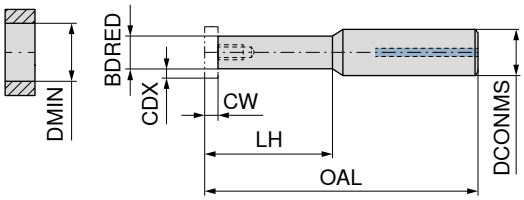
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

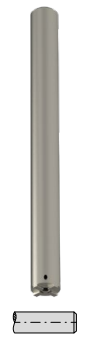
ModuSet – Circular milling cutter

▲ Steel and carbide versions
▲ Specialised cutting point with four driving slots exclusively for cutting operations in the larger diameter range

Scope of supply:
including key

Mini Mill




NEW
HM

NEW
Steel

Size	DCONMS $_{h6}$ mm	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm	53 016 ...	53 016 ...
50	16		125	60	50	≤6	16,5	7,0	06000	
	16		155	90	50	≤6	16,5	7,0	09000	
	16		185	120	50	≤6	16,5	7,0	12000	
	20	16	100	32	50	≤6	16,5	7,0		23200

Key D

Clamping screw

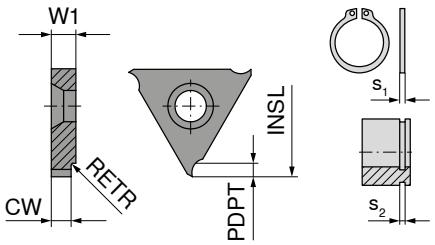
Spare parts Size		80 950 ...		73 082 ...
50	T20	114	M5	006

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

ModuSet – Milling inserts for circlip grooves without chamfer

System 300



Ti500

Solid carbide

50 853 ...

Size	$s_{2\ H13}$ mm	INSL mm	W1 mm	CW $_{-0,03}$ mm	PDPT mm	RETR mm	s_1 mm	
03	0,90	10,6	2,34	0,98	0,70	0,3	0,80	**302**
	1,10	10,6	2,34	1,18	0,90	0,3	1,00	**304**
	1,30	10,6	2,34	1,38	1,10	0,3	1,20	**306**
	1,60	10,6	2,34	1,68	1,25	0,3	1,50	**308**
	1,85	10,6	2,34	1,93	1,25	0,3	1,75	**310**
02	0,90	17,5	3,50	0,98	0,70	0,3	0,80	**312**
	1,10	17,5	3,50	1,18	0,90	0,3	1,00	**314**
	1,30	17,5	3,50	1,38	1,10	0,3	1,20	**316**
	1,60	17,5	3,50	1,68	1,25	0,3	1,50	**318**
	1,85	17,5	3,50	1,93	1,25	0,3	1,75	**320**
	2,15	17,5	3,50	2,23	1,75	0,3	2,00	**322**
	2,65	17,5	3,50	2,73	1,75	0,3	2,50	**324**
	3,15	17,5	3,50	3,23	2,20	0,3	3,00	**326**
01	0,90	23,0	4,00	0,98	0,70	0,3	0,80	**328**
	1,10	23,0	4,00	1,18	0,90	0,3	1,00	**330**
	1,30	23,0	4,00	1,38	1,10	0,3	1,20	**332**
	1,60	23,0	4,00	1,68	1,25	0,3	1,50	**334**
	1,85	23,0	4,00	1,93	1,25	0,3	1,75	**336**
	2,15	23,0	4,00	2,23	1,75	0,3	2,00	**338**
	2,65	23,0	4,00	2,73	1,75	0,3	2,50	**340**
	3,15	23,0	4,00	3,23	2,20	0,3	3,00	**342**

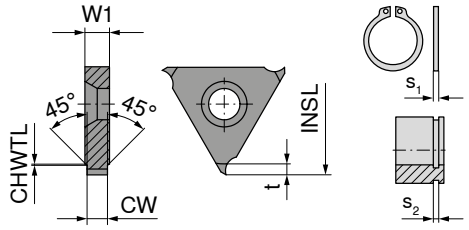
P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 82

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Milling inserts for circlip grooves with chamfer

System 300



Ti500

Solid carbide

50 852 ...

Size	$s_{2\ H13}$ mm	INSL mm	W1 mm	$CW_{-0,03}$ mm	t mm	CHWTL mm	s_1 mm	
03	1,10	10,6	2,34	1,18	0,50	0,10	1,00	**302**
02	1,10	17,5	3,50	1,18	0,50	0,10	1,00	**312**
	1,30	17,5	3,50	1,38	0,85	0,15	1,20	**314**
	1,60	17,5	3,50	1,68	1,00	0,15	1,50	**316**
	1,85	17,5	3,50	1,93	1,25	0,20	1,75	**317**
	2,15	17,5	3,50	2,23	1,50	0,20	2,00	**318**
	2,65	17,5	3,50	2,73	1,50	0,20	2,50	**319**
01	1,10	23,0	4,00	1,18	0,50	0,10	1,00	**320**
	1,30	23,0	4,00	1,38	0,70	0,15	1,20	**321**
	1,30	23,0	4,00	1,38	0,85	0,15	1,20	**322**
	1,60	23,0	4,00	1,68	1,00	0,15	1,50	**324**
	1,60	23,0	4,00	1,68	0,85	0,15	1,50	**323**
	1,85	23,0	4,00	1,93	1,25	0,20	1,75	**325**
	2,15	23,0	4,00	2,23	1,50	0,20	2,00	**326**
	2,65	23,0	4,00	2,73	1,75	0,20	2,50	**328**
	2,65	23,0	4,00	2,73	1,50	0,20	2,50	**327**
	3,15	23,0	4,00	3,32	1,75	0,20	3,00	**329**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

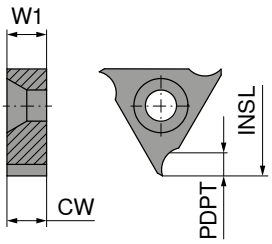
→ v_c/f_z Page 82

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

ModuSet – Milling inserts without profile, ground ready-for-use

System 300



Ti500

Solid carbide

50 851 ...

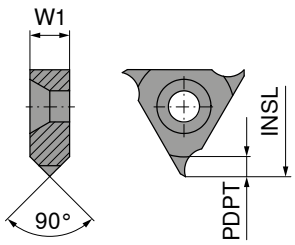
Size	CW $_{+0,02}$ mm	PDPT mm	INSL mm	W1 mm	
03	2,34	1,60	10,6	2,34	304
	3,00	1,60	10,6	3,00	306
02	3,50	2,60	17,5	3,50	312
	5,00	2,60	17,5	5,00	314
	6,00	2,60	17,5	6,00	316
01	4,00	3,45	23,0	4,00	322 1)
	6,50	3,45	23,0	6,50	324 1)
P					●
M					●
K					●
N					●
S					●
H					○
O					●

1) with circular milling cutter 50 800 090 PDPT = 3.0 mm

→ v_c/f_z Page 82

ModuSet – Milling inserts for chamfering and deburring

System 300



Ti500

Solid carbide

50 857 ...

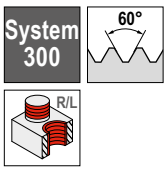
Size	PDPT mm	INSL mm	W1 mm	
03	1,50	10,6	3,0	304
02	2,50	17,5	5,0	314
01	3,25	23,0	6,5	322 1)
P				●
M				●
K				●
N				●
S				●
H				○
O				●

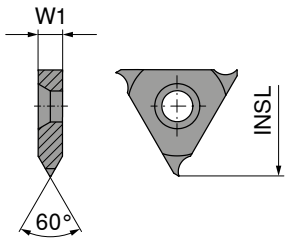
1) with circular milling cutter 50 800 090 PDPT = 3.0 mm

→ v_c/f_z Page 82

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Thread milling insert – Partial profile





Solid carbide

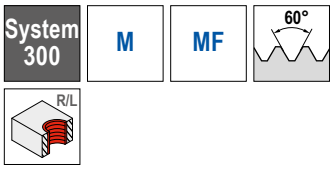
50 855 ...

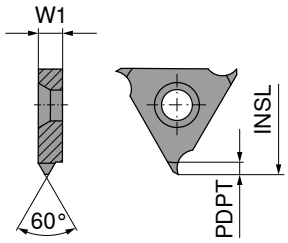
Size	TP mm	INSL mm	W1 mm	
02	1 - 3,5	17,5	3,5	314
01	1 - 4,0	23,0	4,0	324

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 82

ModuSet – Thread milling insert – Full profile





Solid carbide

50 859 ...

Size	TP mm	INSL mm	W1 mm	PDPT mm	
03	1,0	10,6	2,34	0,578	304
	1,5	10,6	2,34	0,864	308
	2,0	10,6	2,34	1,159	310
02	1,0	17,5	3,50	0,578	311
	1,5	17,5	3,50	0,864	312
	2,0	17,5	3,50	1,159	314
	2,5	16,0	3,50	1,444	317 1)
	2,5	17,5	3,50	1,444	316
	3,0	17,5	3,50	1,728	318
01	1,0	23,0	4,00	0,578	320
	1,5	23,0	4,00	0,864	322
	2,0	23,0	4,00	1,159	324
	2,5	23,0	4,00	1,444	326
	3,0	23,0	4,00	1,728	328
	3,5	23,0	4,00	2,023	330
	4,0	23,0	4,00	2,308	332
	4,5	23,0	6,50	2,602	334
	5,0	23,0	6,50	2,887	336
	6,0	23,0	6,50	3,467	338 2)

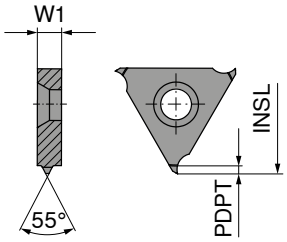
P	●
M	●
K	●
N	●
S	●
H	○
O	●

1) M20x2,5 – profile corrected
2) with circular milling cutter 50 800 090 PDPT = 3.0 mm

→ v_c/f_z Page 82

ModuSet – Thread milling insert – Full profile

System 300 | G | BSW | BSF | 55°



Ti500

Solid carbide

50 858 ...

Size	TP mm	TPI 1/"	INSL mm	W1 mm	PDPT mm	
02	1,814	14	17,5	3,5	1,162	**314**
	2,309	11	17,5	3,5	1,494	**312**
01	2,309	11	23,0	4,0	1,494	**322**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 82

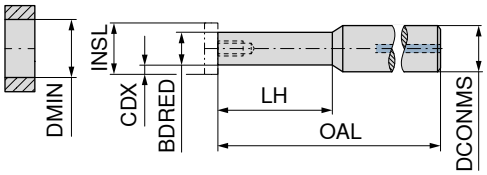
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Circular milling cutter

▲ Size refers to milling inserts

Scope of supply:
including key

System 300



50 800 ...

Size	INSL mm	CDX mm	LH mm	DCONMS $_{h6}$ mm	OAL mm	BDRED mm	DMIN mm	torque moment Nm	
03	10,6	1,60	17,2	10	57,20	7,4	11	0,9	**020** 1)
	10,6	1,60	34,2	10	74,20	7,4	11	0,9	**025** 2)
02	17,5	2,60	28,7	12	74,05	12,0	20	3,8	**030**
	17,5	2,60	63,7	12	108,70	12,0	20	3,8	**045** 2)
01	23,0	3,45	38,5	16	87,00	16,1	25	5,5	**050**
	23,0	3,45	67,5	16	116,00	16,1	25	5,5	**070**
	23,0	3,00	88,5	16	137,00	17,0	25	5,5	**090** 2)

1) Without Through Coolant
2) Carbide version

Key D

80 950 ...

Clamping screw

70 960 ...

Spare parts Size				
03	T06 - IP	**123**	M2x9	**232**
02	T15 - IP	**128**	M4x12,3	**233**
01	T20 - IP	**129**	M5x15	**234**

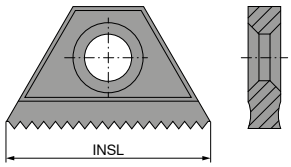
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

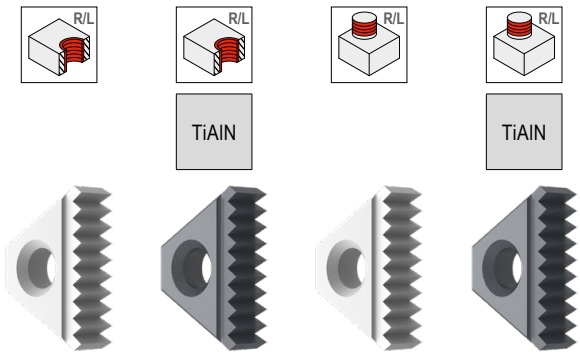
7

ModuThread – Thread milling insert

▲ Can be used on both sides (except for INSL 10.4)

MWN | M | MF | 60°





Solid carbide | Solid carbide | Solid carbide | Solid carbide

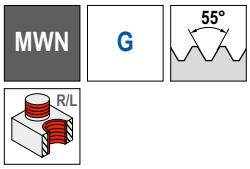
INSL mm	TP mm	50 890 ...		50 890 ...		50 891 ...		50 891 ...	
10,4	0,50		100						
	0,75		101						
	1,00		102		302				
	1,25		103						
	1,50		104		304				
11,0	0,50		120						
	0,75		121						
	1,00		122		322				
	1,25		123						
	1,50		124		324				
16,0	0,50		140						
	0,75		141						
	1,00		142		342		142		342
	1,25		143				143		
	1,50		144		344		144		344
	1,75		145				145		
	2,00		146		346		146		346
27,0	1,00		162		362		162		362
	1,25		163				163		
	1,50		164		364		164		364
	1,75		165						
	2,00		166		366		166		366
	2,50		167				167		
	3,00		168		368		168		368
	3,50		169				169		
	4,00		170				170		
P			●		●		●		●
M			○		●		○		●
K			●		●		●		●
N			●		●		●		●
S									
H									
O			●		○		●		○

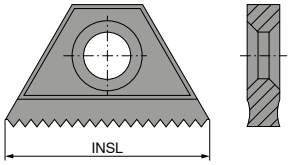
→ v_c/f_z Page 81

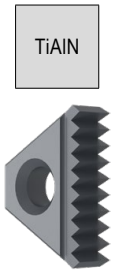
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuThread – Thread milling insert

▲ Can be used on both sides (except for INSL 10.4)







Solid carbide

50 895 ...

INSL mm	TPI 1/"	TP mm	
10,4	19	1,337	300
16,0	14	1,814	342
	11	2,309	344
27,0	11	2,309	366

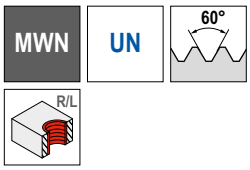
P	●
M	●
K	●
N	●
S	
H	
O	○

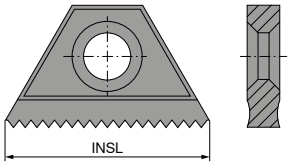
→ v_c/f_z Page 81

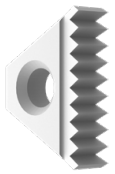
7

ModuThread – Thread milling insert

▲ Can be used on both sides (except for INSL 10.4)







Solid carbide

50 892 ...

INSL mm	TPI 1/"	TP mm	
10,4	20	1,270	100
	18	1,411	102
16,0	16	1,588	144
	12	2,117	146
27,0	12	2,117	166
	8	3,175	168

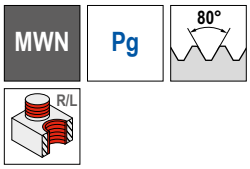
P	●
M	○
K	●
N	●
S	
H	
O	●

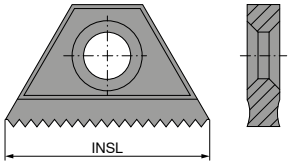
→ v_c/f_z Page 81

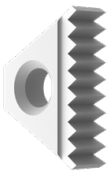
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuThread – Thread milling insert

▲ double sided







Solid carbide

50 896 ...

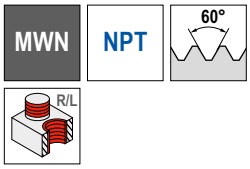
INSL mm	TPI 1/"	TP mm	
16	18	1,411	142
	16	1,588	144

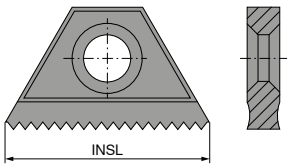
P	●
M	○
K	●
N	●
S	
H	
O	●

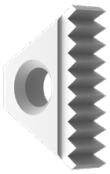
→ v_c/f_z Page 81

ModuThread – Thread milling insert

▲ double sided







Solid carbide

50 897 ...

INSL mm	TPI 1/"	TP mm	
16	14,0	1,814	142
	11,5	2,209	144
27	11,5	2,209	164
	8,0	3,175	166

P	●
M	○
K	●
N	●
S	
H	
O	●

→ v_c/f_z Page 81

Note! Thread milling inserts are marked R (right-hand thread) and L (left-hand thread). The standard tool holder cannot be used to produce a left-hand thread! Tool holder for left-hand thread available on special request.

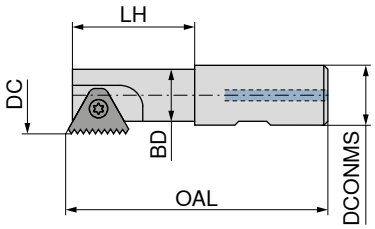
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuThread – Circular milling cutter

▲ INSL refers to milling inserts

Scope of supply:
includes key

MWN	M	MF	G
	Pg	UN	



50 843 ...

INSL mm	BD mm	LH mm	DCONMS mm	OAL mm	DC mm	torque moment Nm	
10,4	6,8	12	12	69	9,0	0,9	**101**
	6,8	17	20	84	9,0	0,9	**102**
11,0	8,9	12	12	70	11,5	1,2	**111**
	8,9	20	20	85	11,5	1,2	**112**
16,0	13,6	22	16	90	17,0	2,5	**161**
	16,6	43	20	95	20,0	2,5	**162**
	18,6	25	25	125	22,0	2,5	**163**
27,0	24,0	52	25	110	30,0	9,0	**271**
	31,0	58	32	120	37,0	9,0	**273**
	24,0	92	25	150	30,0	9,0	**272**
	31,0	98	32	160	37,0	9,0	**274**

7

Pilot hole diameter for circular end mill 50 843 ...

BD	TP in mm									
	0,5 mm 48 G/"	0,75 mm 32 G/"	1,0 mm 24 G/"	1,25 mm 20 G/"	1,5 mm 16 G/"	2,0 mm 12 G/"	2,5 mm 10 G/"	3,0 mm 8 G/"	3,5 mm 7 G/"	4,0 mm 6 G/"
6,8	9,5	10	10,7	11,4	12					
8,9	12	12,5	13,2	13,9	14,5					
13,6	17,6	18,2	19	19,6	20	21				
16,6	20,7	21,4	22	22,6	23	24				
18,6	22,7	23,4	24	24,6	25	26				
24,0	30,7	31,4	32	32,8	33,5	34,6	36,6	39	42	45
31,0	38	38,6	39,5	40,4	41	42	44	46,5	49	52

Key D

80 950 ...

Clamping screw

70 950 ...

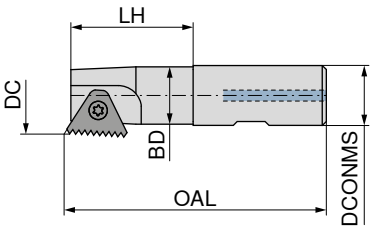
Spare parts INSL				
10,4	T07	**109**	M2,2x5,0	**200**
11	T08	**110**	M2,6x6,5	**201**
16	T10	**112**	UNC5-40 x 8	**202**
27	T25	**115**	M5x15	**203**

ModuThread – Circular milling cutter

▲ INSL refers to milling inserts

Scope of supply:
includes key

MWN | NPT



50 844 ...

INSL mm	BD mm	Thread	LH mm	DCONMS h6 mm	OAL mm	DC mm	torque moment Nm	
16	12,5	NPT 1/2	22	16	90	15,5	2,5	**161**
	15,0	NPT 3/4 - 1 1/4	23	20	85	19,0	2,5	**162**
27	24,0	NPT 1 1/2 - 2	52	25	110	30,0	9,0	**271**
	31,0	NPT > 2	58	32	120	37,0	9,0	**272**

Key D

80 950 ...

Clamping screw

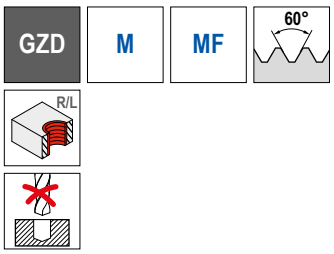
70 950 ...

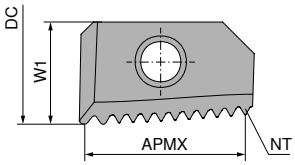
Spare parts

INSL				
16	T10	**112**	UNC5-40 x 8	**202**
27	T25	**115**	M5x15	**203**

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuThread – Thread milling insert





Ti500

Solid carbide

50 863 ...

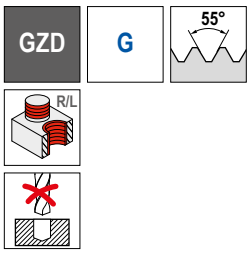
DC mm	TP mm	W1 mm	APMX mm	NT	
12	1,0	7,5	12,0	13	300
	1,5	7,5	10,5	8	302
17	1,0	11,0	16,0	17	310
	1,5	11,0	16,5	12	312
	2,0	11,0	16,0	9	314
20	1,0	7,5	12,0	13	320
	1,5	7,5	10,5	8	322
25	1,0	11,0	16,0	17	330
	1,5	11,0	16,5	12	332
	2,0	11,0	16,0	9	334

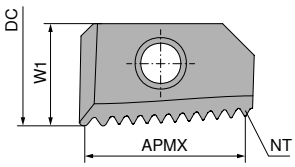
P	●
M	●
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 81

7

ModuThread – Thread milling insert





Ti500

Solid carbide

50 864 ...

DC mm	TPI 1/"	W1 mm	APMX mm	NT	
12	14	7,5	9,07	6	300
17	14	11,0	16,33	10	312 [1]
	14	11,0	16,33	10	314 [2]
	11	11,0	16,16	8	310
25	14	11,0	16,33	10	332
	11	11,0	16,16	8	330

P	●
M	●
K	●
N	●
S	
H	
O	

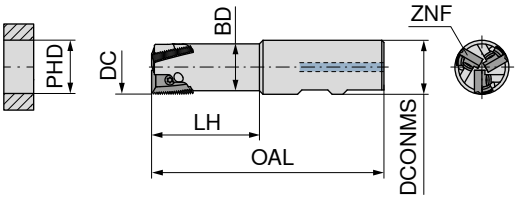
1) Thread: 5/8 – 3/4 – 7/8
2) 1/2" Profile corrected

→ v_c/f_z Page 81

ModuThread – Circular milling cutter

Scope of supply:
includes key

GZD



50 842 ...

DC mm	LH mm	DCONMS h6 mm	OAL mm	BD mm	ZNF	PHD mm	torque moment Nm	
12	18	16	74,0	9,4	1	14	1,1	121
17	30	16	79,0	13,7	1	19	3,8	171
20	32	20	83,0	17,5	3	22	1,1	201
25	50	25	107,6	21,7	3	26	3,8	251
	85	25	142,6	21,7	3	26	3,8	252 1)

1) Heavy metal version with mounted head

Key D

80 950 ...

Clamping screw

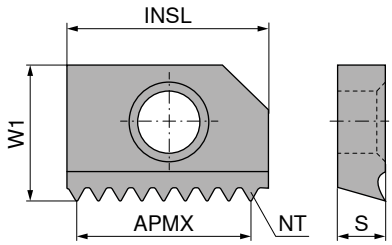
70 960 ...

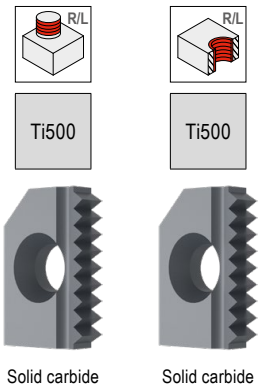
Spare parts DC				
12	T08 - IP	125	M2,5x6,5	244
17	T15 - IP	128	M4x7,5	245
20	T08 - IP	125	M2,5x6,5	244
25	T15 - IP	128	M4x7,5	245

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuThread – Thread milling insert

GZG | M | MF | 60°





Solid carbide | Solid carbide

INSL mm	TP mm	W1 mm	APMX mm	S mm	NT	50 887 ...	50 885 ...
14,5	0,50	10,0	13,50	3,18	28		350
	0,75	10,0	13,50	3,18	19		352
	1,00	10,0	13,00	3,18	14	304	354
	1,25	10,0	12,50	3,18	11		356
	1,50	10,0	12,00	3,18	9	308	358
	1,75	10,0	12,25	3,18	8		360
	2,00	10,0	12,00	3,18	7	312	362
	2,50	10,0	10,00	3,18	5		364
	2,50	10,0	10,00	3,18	5		366 1)
15,0	3,00	10,5	12,00	3,18	5		370 2)
	3,50	10,5	10,50	3,18	4		372 2)
21,0	1,00	10,0	19,00	3,18	20		380
	1,50	10,0	19,50	3,18	14		382
	1,50	10,0	18,00	3,18	13	320	
	2,00	10,0	18,00	3,18	10		384
26,0	1,50	15,0	24,00	5,00	17		390
	2,00	15,0	24,00	5,00	13		392
	3,00	15,0	21,00	5,00	8		396
	3,50	15,0	20,00	5,00	7		398
	4,00	15,0	20,00	5,00	6		400
P						●	●
M						●	●
K						●	●
N						●	●
S							
H							
O							

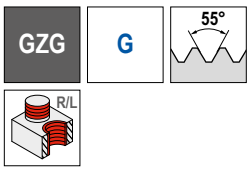
1) M20x2,5 – profile corrected
2) Without chamfer

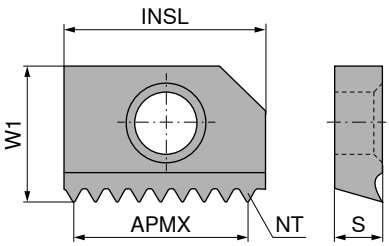
→ v_c/f_z Page 81

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

ModuThread – Thread milling insert





Ti500

Solid carbide

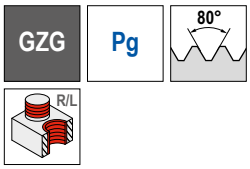
50 888 ...

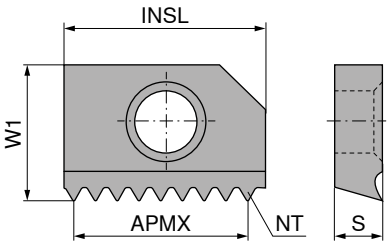
INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	
14,5	18	1,411	10	11,28	3,18	9	310
	16	1,587	10	11,11	3,18	8	312
	14	1,814	10	12,69	3,18	8	314
	12	2,116	10	10,58	3,18	6	316
	11	2,309	10	11,54	3,18	6	318
21,0	14	1,814	10	18,14	3,18	11	320
	11	2,309	10	18,47	3,18	9	322
26,0	11	2,309	15	23,09	5,00	11	330

P	●
M	●
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 81

ModuThread – Thread milling insert





Ti500

Solid carbide

50 894 ...

INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	
14,5	18	1,411	10	12,69	3,18	10	302
	16	1,587	10	11,11	3,18	8	304

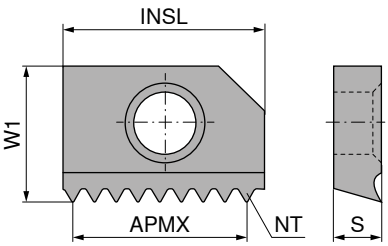
P	●
M	●
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 81

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuThread – Thread milling insert

GZG | UN | 60°



Ti500

Solid carbide

50 889 ...

INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	
14,5	18	1,411	10	12,69	3,18	10	**310**
	16	1,587	10	12,70	3,18	9	**312**
21,0	16	1,587	10	19,05	3,18	13	**320**
	14	1,814	10	18,14	3,18	11	**322**
	12	2,116	10	18,04	3,18	10	**324**

P	●
M	●
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 81

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

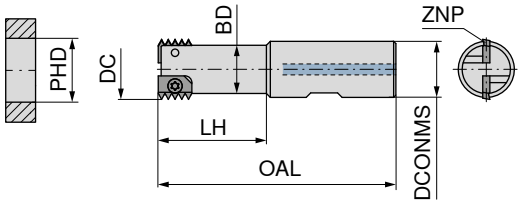
7

ModuThread – Circular milling cutter

▲ INSL refers to milling inserts

Scope of supply:
includes key

GZG



50 841 ...

INSL mm	DC mm	LH mm	DCONMS $_{h6}$ mm	OAL mm	BD mm	ZNP	PHD mm	torque moment Nm	
14,5	16	30,0	16	78	12,7	1	18,5	3,8	**016**
	16	50,0	16	98	12,7	1	18,5	3,8	**017** 1)
	20	60,0	20	110	16,8	1	23,0	3,8	**020**
	25	48,2	25	106	21,5	2	30,0	3,8	**025**
	25	92,2	25	150	21,5	2	30,0	3,8	**026** 1)
15,0	18	30,0	16	79	12,7	1	20,0	3,8	**218**
	22	60,0	20	110	16,8	1	26,0	3,8	**222**
	27	48,2	25	106	21,5	2	32,0	3,8	**227**
21,0	16	31,3	20	85	12,7	1	18,5	3,8	**316**
	22	32,8	25	92	18,7	1	26,0	3,8	**322**
	22	62,8	25	122	18,7	1	26,0	3,8	**323** 1)
	28	38,3	32	102	24,7	2	35,0	3,8	**328**
	28	78,3	32	142	24,5	2	35,0	3,8	**327** 1)
26,0	25	48,5	25	107	20,0	1	30,0	3,8	**125**

1) Heavy metal version

Key D

80 950 ...

Clamping screw

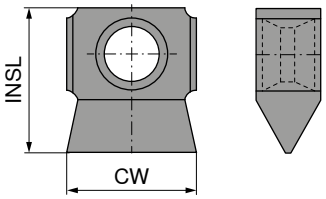
70 960 ...

Spare parts for Article no.				
50 841 016	T15 - IP	**128**	M4x6,9	**237**
50 841 017	T15 - IP	**128**	M4x6,9	**237**
50 841 020	T15 - IP	**128**	M4x7,5	**245**
50 841 025	T15 - IP	**128**	M4x8	**242**
50 841 026	T15 - IP	**128**	M4x8	**242**
50 841 218	T15 - IP	**128**	M4x6,9	**237**
50 841 222	T15 - IP	**128**	M4x6,9	**237**
50 841 227	T15 - IP	**128**	M4x8	**242**
50 841 316	T15 - IP	**128**	M4x6,9	**237**
50 841 322	T15 - IP	**128**	M4x6,9	**237**
50 841 323	T15 - IP	**128**	M4x8	**242**
50 841 328	T15 - IP	**128**	M4x8	**242**
50 841 327	T15 - IP	**128**	M4x8	**242**
50 841 125	T15 - IP	**128**	M4x11,5	**241**

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuThread – Thread milling insert – partial profile

EAW | M | UN | 60° | R/L



TiN

Solid carbide

50 867 ...

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	
16,5	1,5 - 3,0	16 - 10	5	7,0	**115**
18	2,5 - 3,5	10 - 7	5	7,8	**225**

G | 55°

Solid carbide

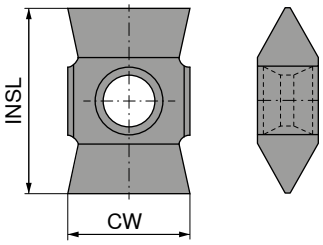
50 868 ...

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	
16,5	1,814	14	5	7	**114**

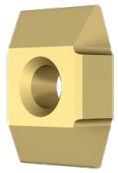
7

ModuThread – Thread milling insert – partial profile

EAW | M | UN | 60° | R/L



TiN



Solid carbide

50 860 ...

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	
23,85	1,5 - 2,5	16 - 10	6,35	9,52	**315**
23,85	2,5 - 4,0	10 - 6	6,35	9,52	**325**
32,85	1,5 - 2,5	16 - 10	8,50	13,50	**415**
32,85	2,5 - 5,5	10 - 4,5	8,50	13,50	**425**

G | 55°

Solid carbide

50 861 ...

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	
23,85	2,309	11	6,35	9,52	**311**
32,85	2,309	11	8,50	13,50	**411**

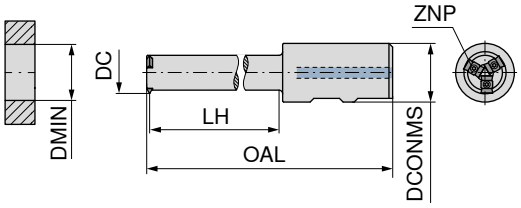
P	●
M	●
K	●
N	●
S	●
H	○
O	○

→ v_c/f_z Page 81

ModuThread – Circular milling cutter

Scope of supply:
including key

EAW



50 848 ...

DC mm	DMIN mm	TP mm	TPI 1/"	LH mm	DCONMS $_{h6}$ mm	OAL mm	ZNP	torque moment Nm	
16,5 / 18,0	17,5 / 19,0	1,5 - 3,5	16 - 10	60	20	114	2	0,9	**020**
23,85	25,5	1,5 - 4,0	24 - 6	90	32	154	3	0,9	**030**
32,85	35,0	1,5 - 5,5	16 - 4,5	115	32	179	3	2,5	**040**

Key D

80 950 ...

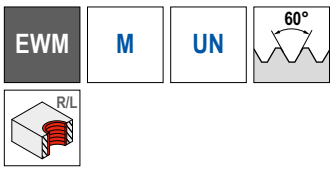
Clamping screw

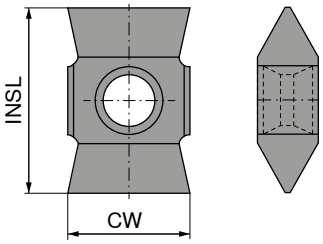
70 950 ...

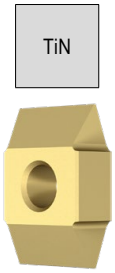
Spare parts for Article no.				
50 848 020	T07 - IP	**124**	M2,5x8,5	**739**
50 848 030	T07 - IP	**124**	M2,5x8,5	**739**
50 848 040	T09 - IP	**126**	M3x11	**740**

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuThread – Thread milling insert – partial profile







Solid carbide

50 870 ...

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	
40,25	1,5 - 3,0	16 - 9	9,5	15,50	**515**
40,25	3,0 - 6,0	9 - 4	9,5	15,50	**530**
52,55 / 66,55	1,5 - 3,0	16 - 9	12,5	19,00	**615**
52,55 / 66,55	3,0 - 6,0	9 - 4	12,5	19,00	**630**
92	6,0 - 8,0	4	14,3	28,58	**760**

P	●
M	●
K	●
N	●
S	●
H	○
O	○

→ v_c/f_z Page 81

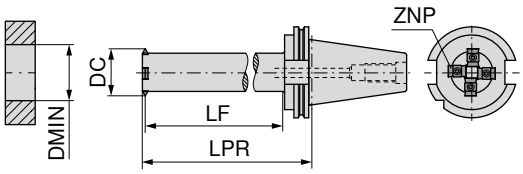
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

ModuThread – Circular milling cutter

Scope of supply:
including key

EWM



DIN 69871

50 849 ...

DC mm	DMIN mm	TP mm	TPI 1/"	LF mm	LPR mm	Adapter	ZNP	torque moment Nm	
40,25	43,0	1,5 - 6,0	16 - 4,0	145	178,7	SK 50	4	5,5	**148**
40,25	43,0	1,5 - 6,0	16 - 4,0	145	178,7	SK 40	4	5,5	**048**
52,55	56,0	1,5 - 6,0	16 - 4,0	195	229,2	SK 50	4	8,0	**164**
66,55	70,5	1,5 - 6,0	16 - 4,0	260	296,2	SK 50	7	8,0	**080**
92,00	100,0	6,0 - 8,0	4,0	360	395,0	SK 50	7	8,0	**115**

Key D

80 950 ...

Clamping screw

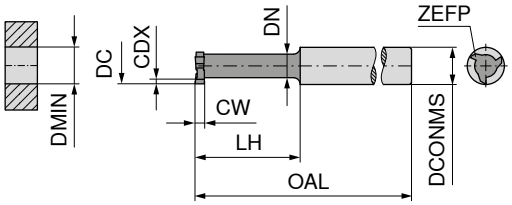
70 950 ...

Spare parts DC				
40,25	T15 - IP	**128**	M4x13	**741**
52,55 - 92	T20 - IP	**129**	M5x15	**742**

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Solid Carbide Circular End Milling Cutter

Micro Mill



CWX500

Solid carbide

53 050 ...

DC mm	CW ±0,02 mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	
5,8	0,7	0,8	15,2	58	3,8	6	3	6	070
	0,8	0,8	15,2	58	3,8	6	3	6	080
	0,9	0,8	15,2	58	3,8	6	3	6	090
	1,0	0,8	15,2	58	3,8	6	3	6	100
	1,5	0,8	15,2	58	3,8	6	3	6	150
7,8	0,7	1,2	25,4	68	5,0	8	3	8	170
	0,8	1,2	25,4	68	5,0	8	3	8	180
	0,9	1,2	25,4	68	5,0	8	3	8	190
	1,0	1,2	25,4	68	5,0	8	3	8	200
	1,5	1,2	25,4	68	5,0	8	3	8	250
	2,0	1,2	25,4	68	5,0	8	3	8	300

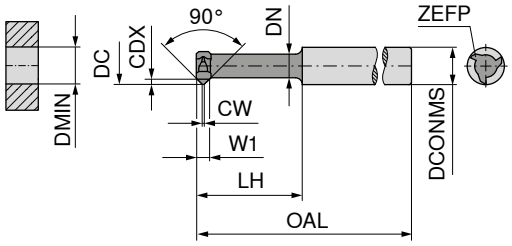
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 83

7

MonoThread – Solid Carbide Circular End Milling Cutter

Micro Mill



CWX500

Solid carbide

53 051 ...

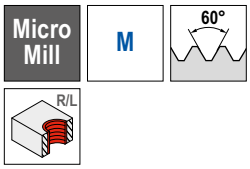
DC mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	
5,8	2	0,2	0,8	15	58	4,2	6	3	6	010
	2	0,2	0,8	25	68	4,2	6	3	6	020
7,8	2	0,2	1,2	25	68	5,0	8	3	8	110
	2	0,2	1,2	35	78	5,0	8	3	8	120

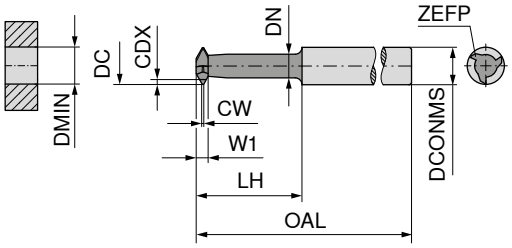
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 83

MonoThread – Solid Carbide Circular Thread Milling Cutter – Full profile

▲ Profile corrected





CWX500

Solid carbide

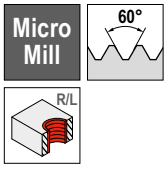
53 052 ...

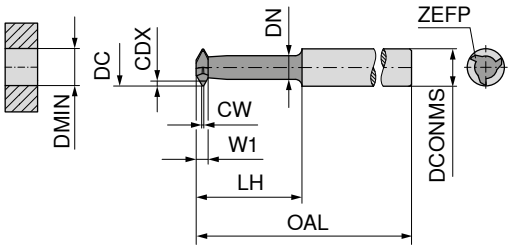
DC mm	Thread	TP mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	
1,18	M1,6	0,35	0,40	0,04	0,19	4,0	32	0,64	3	3	1,38	**160**
1,38	M1,8	0,35	0,50	0,04	0,19	5,0	32	0,70	3	3	1,58	**180**
1,50	M2	0,40	0,56	0,05	0,22	5,0	32	0,90	3	4	1,70	**200**
1,95	M2,5	0,45	0,60	0,06	0,25	6,0	32	1,15	3	4	2,15	**250**
2,40	M3	0,50	0,60	0,06	0,27	7,0	32	1,60	3	4	2,60	**300**
2,80	M3,5	0,60	0,74	0,08	0,33	8,0	32	1,80	3	4	3,00	**350**
3,10	M4	0,70	0,82	0,09	0,38	9,0	44	1,98	5	4	3,30	**400**
3,60	M5	0,80	0,98	0,10	0,43	10,0	44	2,20	5	4	3,80	**500**
4,10	M6	1,00	0,98	0,13	0,54	12,2	44	2,70	5	4	4,30	**600**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 83

MonoThread – Solid Carbide Circular Thread Milling Cutter – Partial profile





CWX500

Solid carbide

53 053 ...

DC mm	TP mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	
5,8	0,5 - 1,5	2	0,06	0,91	15,2	58	3,5	6	3	6	**010**
7,8	0,5 - 1,5	2	0,06	0,91	25,4	68	5,5	8	3	8	**110**
7,8	1,0 - 2,0	2	0,12	1,19	25,4	68	5,0	8	3	8	**120**

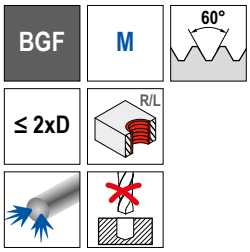
P	●
M	●
K	●
N	●
S	●
H	●
O	●

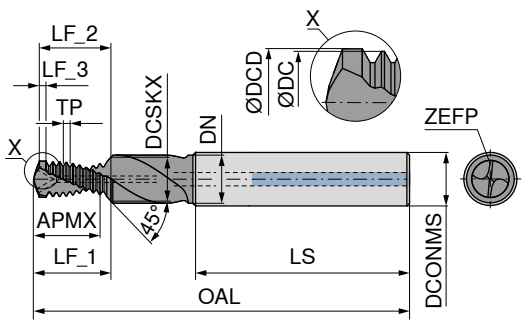
→ v_c/f_z Page 83

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Drill thread milling cutter with chamfer facet

▲ Profile corrected





Ti601

Solid carbide | Solid carbide

															50 869 ...		50 854 ...	
DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCD mm	DCSKX mm	DN mm	LF_1 mm	LF_2 mm	LF_3 mm	ZEFP				
2,45	M3	88901001000013	0,50	49	5,8	36	6	2,5	3,3	4,5	6,8	6,4	0,5	2		**03000**[1)]		
2,45	M3	88906001000013	0,50	49	5,8	36	6	2,5	3,3	4,5	6,8	6,4	0,5	2				**03000**[1)]
3,24	M4	88941001000015	0,70	49	7,3	36	6	3,3	4,3	4,5	9,4	8,9	0,7	2		**04000**		
3,24	M4	88935001000015	0,70	49	7,3	36	6	3,3	4,3	4,5	9,4	8,9	0,7	2				**04000**
4,10	M5	88941001000017	0,80	55	9,2	36	6	4,2	5,3	5,5	11,7	11,0	0,8	2		**05000**		
4,10	M5	88935001000017	0,80	55	9,2	36	6	4,2	5,3	5,5	11,7	11,0	0,8	2				**05000**
4,85	M6	88941001000018	1,00	62	11,4	36	8	5,0	6,3	6,6	14,5	13,7	1,0	2		**06000**		
4,85	M6	88935001000018	1,00	62	11,4	36	8	5,0	6,3	6,6	14,5	13,7	1,0	2				**06000**
6,45	M8	88941001000020	1,25	74	14,2	40	10	6,8	8,3	9,0	18,2	17,1	1,3	2		**08000**		
6,45	M8	88935001000020	1,25	74	14,2	40	10	6,8	8,3	9,0	18,2	17,1	1,3	2				**08000**
8,08	M10	88941001000022	1,50	79	18,5	45	12	8,5	10,3	11,0	23,4	22,1	1,5	2		**10000**		
8,08	M10	88935001000022	1,50	79	18,5	45	12	8,5	10,3	11,0	23,4	22,1	1,5	2				**10000**
9,74	M12	88941001000024	1,75	89	21,6	45	14	10,3	12,3	13,5	27,1	25,5	1,5	2		**12000**		
9,74	M12	88935001000024	1,75	89	21,6	45	14	10,3	12,3	13,5	27,1	25,5	1,5	2				**12000**
11,35	M14	88941001000025	2,00	102	26,6	48	16	12,0	14,3	15,5	32,8	30,9	1,5	2		**14000**		
11,35	M14	88935001000025	2,00	102	26,6	48	16	12,0	14,3	15,5	32,8	30,9	1,5	2				**14000**
13,28	M16	88941001000026	2,00	102	30,6	48	18	14,0	16,3	17,5	37,1	35,0	1,5	2		**16000**		
13,28	M16	88935001000026	2,00	102	30,6	48	18	14,0	16,3	17,5	37,1	35,0	1,5	2				**16000**

1) Without Through Coolant

															50 869 ...		50 854 ...	
DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCD mm	DCSKX mm	DN mm	LF_1 mm	LF_2 mm	LF_3 mm	ZEFP				
6,79	M8x1	88935002000070	1,0	74	15,40	40	10	7,0	8,3	9,0	18,8	17,7	1,0	2				**08100**
6,79	M8x1	88941002000070	1,0	74	15,40	40	10	7,0	8,3	9,0	18,8	17,7	1,0	2		**08100**		
8,75	M10x1	88941002000094	1,0	79	19,40	45	12	9,0	10,3	11,0	23,2	21,8	1,0	2		**10100**		
8,75	M10x1	88935002000094	1,0	79	19,40	45	12	9,0	10,3	11,0	23,2	21,8	1,0	2				**10100**
10,74	M12x1	88935002000111	1,0	89	22,40	45	14	11,0	12,3	13,5	26,4	24,8	1,0	2				**12100**
10,06	M12x1,5	88935002000113	1,5	89	23,01	45	14	10,5	12,3	13,5	28,2	26,6	1,5	2				**12200**
10,06	M12x1,5	88941002000113	1,5	89	23,01	45	14	10,5	12,3	13,5	28,2	26,6	1,5	2		**12200**		

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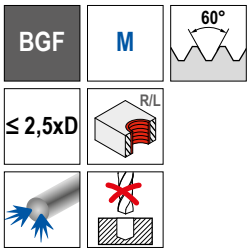
→ v_c/f_z Page 78

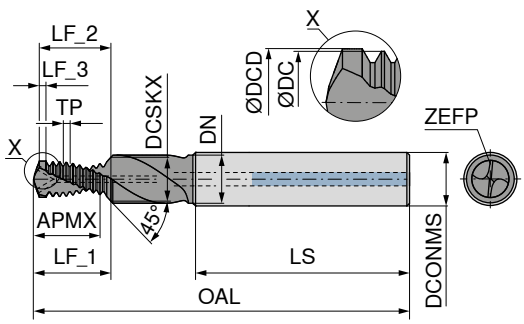
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

MonoThread – Drill thread milling cutter with chamfer facet

▲ Profile corrected





Ti601

Solid carbide | Solid carbide

															50 898 ...		50 862 ...	
DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCD mm	DCSKX mm	DN mm	LF_1 mm	LF_2 mm	LF_3 mm	ZEFP				
4,10	M5	88961001000017	0,80	55	11,57	36	6	4,2	5,3	5,5	14,1	13,4	0,8	2		**05000**		
4,85	M6	88961001000018	1,00	62	13,40	36	8	5,0	6,3	6,6	16,5	15,7	1,0	2		**06000**		
4,85	M6	88956001000018	1,00	62	13,40	36	8	5,0	6,3	6,6	16,5	15,7	1,0	2				**06000**
6,45	M8	88961001000020	1,25	74	19,20	40	10	6,8	8,3	9,0	23,2	22,1	1,3	2		**08000**		
6,45	M8	88956001000020	1,25	74	19,20	40	10	6,8	8,3	9,0	23,2	22,1	1,3	2				**08000**
8,08	M10	88961001000022	1,50	79	23,00	45	12	8,5	10,3	11,0	27,9	26,6	1,5	2		**10000**		
8,08	M10	88956001000022	1,50	79	23,00	45	12	8,5	10,3	11,0	27,9	26,6	1,5	2				**10000**
9,74	M12	88961001000024	1,75	89	28,60	45	14	10,3	12,3	13,5	34,1	32,5	1,5	2		**12000**		
9,74	M12	88956001000024	1,75	89	28,60	45	14	10,3	12,3	13,5	34,1	32,5	1,5	2				**12000**
P																		
M																		
K																○		●
N																●		○
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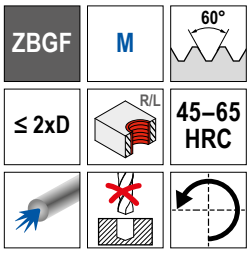
O																●		○

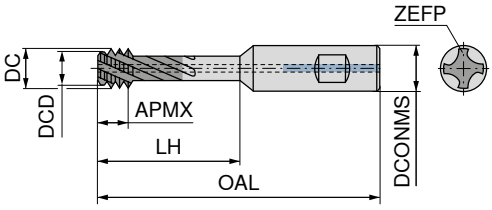
→ v_c/f_z Page 78

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Circular Thread Milling Cutter

▲ Note: left-hand cutting (M04)
▲ Profile corrected





Solid carbide

50 840 ...

DC mm	Thread	TP mm	APMX mm	LH mm	DCONMS mm	DCD mm	OAL mm	ZEFP	
2,3	M3x0,5	0,50	2,0	7,0	6	2,10	51	4	**030** 1)
3,0	M4x0,7	0,70	2,8	9,4	6	2,60	51	4	**040** 1)
3,8	M5x0,8	0,80	3,2	11,6	6	3,40	51	4	**050** 1)
4,6	M6x1 - M7x1	1,00	4,0	14,0	8	4,10	60	4	**060** 1)
6,2	M8x1,25 - M10x1,25	1,25	5,0	19,0	10	5,60	71	4	**080**
7,8	M10x1,5 - M12x1,5	1,50	6,0	25,0	10	7,00	76	4	**100**
9,2	M12x1,75	1,75	7,0	31,0	12	8,30	86	4	**120**
11,1	M14x2 - M16x2	2,00	8,0	36,0	16	10,04	98	4	**140**

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O	○

1) Without Through Coolant

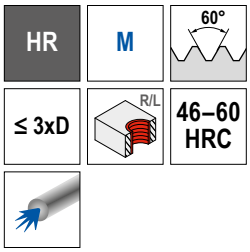
→ v_c/f_z Page 78

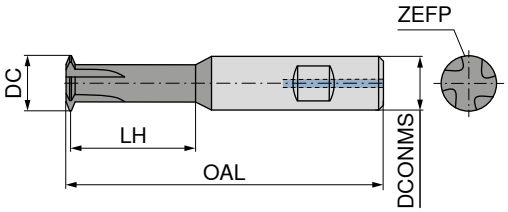
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

Caution: left-hand cutting (M04) → spindle rotation left!

MonoThread – Thread Milling Cutter

▲ Available on request from M3





NEW NEW

TiCN TiCN

Solid carbide Solid carbide

DC mm	Thread	TP mm	LH mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	50 546 ...	50 547 ...
3,14	M4	0,70	9	6	55	3	**04000**	**04000**
3,95	M5	0,80	11	6	55	3	**05000**	**05000**
4,68	M6 - M7	1,00	16	8	60	3	**06000**	**06000**
6,22	M8 - M9	1,25	22	10	71	4	**08000**	**08000**
7,79	M10 - M12	1,50	26	10	76	4	**10000**	**10000**
9,38	M12	1,75	27	12	86	4	**12000**	**12000**

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N	○	○
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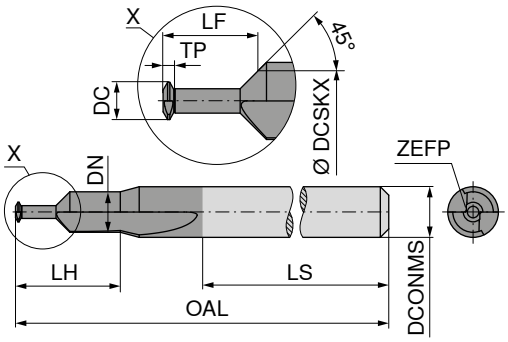
→ v_c/f_z Page 78

Other dimensions are available on request.

MonoThread – Shank thread milling cutter with shank-end countersink

▲ Note: left-hand cutting
▲ Profile corrected

SFSE Micro | M | 60° | ≤ 1,5xD | 46–60 HRC



Ti602

Solid carbide

50 804 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	DN mm	LS mm	LH mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	
0,75	M1	88977001000001	0,25	40	1,8	28	5,2	3	1,5	2,1	2	**01000**
1,10	M1,4	88977001000004	0,30	40	2,0	28	5,7	3	1,7	2,6	2	**01400**
1,25	M1,6	88977001000005	0,35	40	2,4	28	6,0	3	2,1	3,1	2	**01600**
1,60	M2	88977001000008	0,40	40	3,0	28		3	2,6	3,7	2	**02000**
1,75	M2,2	88977001000009	0,45	40	3,0	28		3	2,5	3,9	2	**02200**
2,05	M2,5	88977001000011	0,45	40	3,0	28		3	2,9	4,5	2	**02500**

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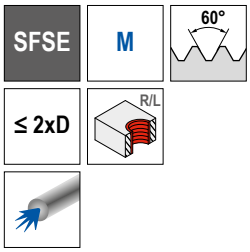
→ v_c/f_z Page 80

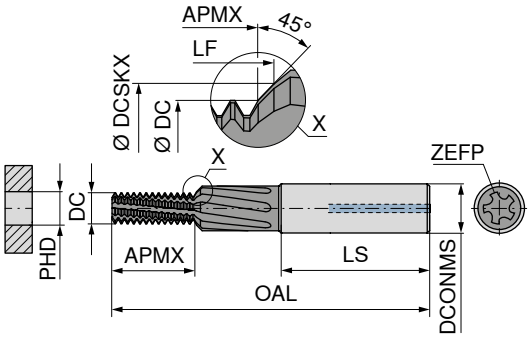
Caution: left-hand cutting (M04) → spindle rotation left!

7

MonoThread – Thread Milling Cutter with Chamfer Facet

▲ Profile corrected





Solid carbide

HPC – High Perfomance Cutting

50 806 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	PHD mm	
3,14	M4	88296001000015	0,70	49	8,0	36	6	4,3	8,6	5	3,3	**04000**
3,95	M5	88296001000017	0,80	55	9,9	36	6	5,3	10,6	5	4,2	**05000**
4,68	M6	88296001000018	1,00	62	12,3	36	8	6,3	13,2	6	5,0	**06000**
6,22	M8	88296001000020	1,25	74	16,6	40	10	8,3	17,8	7	6,8	**08000**
7,79	M10	88296001000022	1,50	79	19,9	45	12	10,3	21,3	7	8,5	**10000**
9,38	M12	88296001000024	1,75	89	24,9	45	14	12,3	26,6	7	10,2	**12000**
10,92	M14	88296001000025	2,00	102	28,5	48	16	14,3	30,4	7	12,0	**14000**
12,83	M16	88296001000026	2,00	102	32,4	48	18	16,3	34,4	8	14,0	**16000**

50 807 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	PHD mm	
3,95	M5x0,5	88296002000037	0,50	55	10,2	36	6	5,3	10,8	5	4,5	**05100**
4,68	M6x0,75	88296002000048	0,75	62	12,2	36	8	6,3	13,0	5	5,2	**06200**
6,22	M8x1	88296002000070	1,00	74	16,2	40	10	8,3	17,3	6	7,0	**08300**
7,79	M10x1	88296002000094	1,00	79	20,1	45	12	10,3	21,5	7	9,0	**10300**
9,38	M12x1	88296002000111	1,00	89	24,0	45	14	12,3	25,6	7	11,0	**12300**
9,38	M12x1,5	88296002000113	1,50	89	24,3	45	14	12,3	25,9	7	10,5	**12500**
10,92	M14x1,5	88296002000131	1,50	102	28,7	48	16	14,3	30,6	7	12,5	**14500**
12,82	M16X1,5	88296002000147	1,50	102	31,7	48	18	16,3	33,6	8	14,5	**16500**

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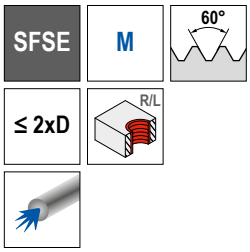
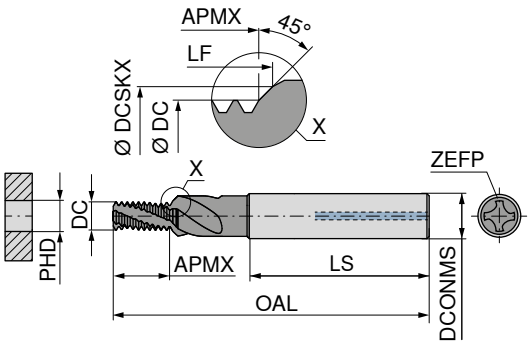
→ v_c/f_z Page 80

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Thread Milling Cutter with Chamfer Facet

▲ Profile corrected





NEW

AlTiN

Solid carbide

50 552 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	PHD mm	
3,95	M5	0,80	55	10,05	36	6	5,3	10,60	3	4,2	**05000**
4,68	M6	1,00	62	12,56	36	8	6,3	13,20	4	5,0	**06000**
6,22	M8	1,25	74	16,99	40	10	8,3	17,76	4	6,8	**08000**
7,79	M10	1,50	79	20,41	45	12	10,3	21,30	4	8,5	**10000**
9,38	M12	1,75	89	25,57	45	14	12,3	26,60	5	10,2	**12000**
12,83	M16	2,00	102	33,27	48	18	16,3	34,42	5	14,0	**16000**

NEW

50 553 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	PHD mm	
6,22	M8x1	1,00	74	16,69	40	10	8,3	17,34	4	7,0	**08200**
7,79	M10x1	1,00	79	20,81	45	12	10,3	21,46	4	9,0	**10200**
7,79	M10x1,25	1,25	79	20,85	45	12	12,3	21,63	4	8,8	**10300**
9,38	M12x1,25	1,25	89	24,72	45	14	12,3	25,49	5	10,8	**12300**
9,38	M12x1,5	1,50	89	25,02	45	14	12,3	25,92	5	10,5	**12400**
10,92	M14x1	1,00	102	29,06	48	16	14,3	29,71	5	13,0	**14200**
10,92	M14x1,5	1,50	102	29,65	48	16	14,3	30,55	5	12,5	**14400**
12,82	M16x1,5	1,50	102	32,67	48	18	14,3	33,57	5	14,5	**16400**

P	●
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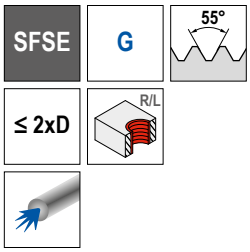
→ v_c/f_z Page 79

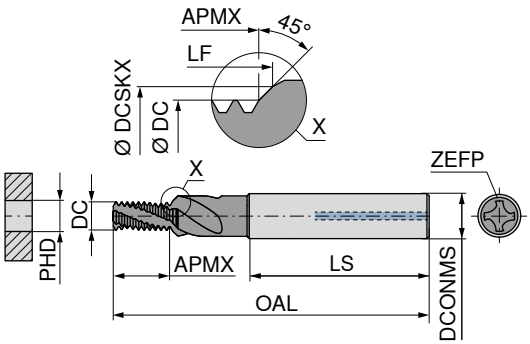
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

MonoThread – Thread Milling Cutter with Chamfer Facet

▲ Profile corrected





NEW

AlTiN

Solid carbide

50 551 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	PHD mm	
7,79	G 1/8-28	0,907	79	20,59	45	12	10,03	21,25	4	8,80	**01800**
10,92	G 1/4-19	1,337	102	27,53	48	16	13,46	28,43	5	11,80	**01400**
13,92	G 3/8-19	1,337	102	34,34	48	18	16,96	35,24	5	15,25	**03800**
15,98	G1/2-14	1,814	127	43,27	56	25	21,25	44,45	5	19,00	**01200**

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K	●
N	●
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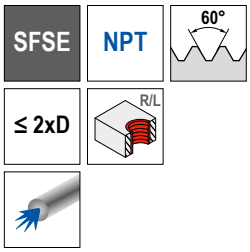
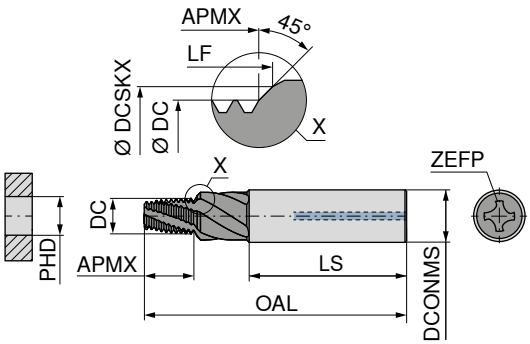
→ v_c/f_z Page 79

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Thread Milling Cutter with Chamfer Facet

▲ Profile corrected





NEW

AlTiN

Solid carbide

50 554 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	PHD mm	
5,45	NPT 1/16-27	0,941	64	9,86	40	10	8,70	11,33	4	6,15	**11600**
7,87	NPT 1/8-27	0,941	74	9,86	45	12	11,10	11,33	4	8,50	**01800**
10,10	NPT 1/4-18	1,411	80	14,78	48	16	14,50	16,76	5	11,10	**01400**
16,42	NPT 1/2-14	1,814	94	18,98	48	18			5	17,90	**01200**[1)]

P	●
M	●
K	●
N	●
S	●
H	
O	●

1) Chamfer section at the front of the tool

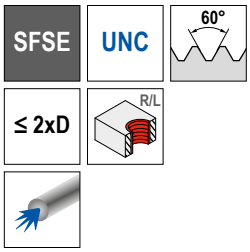
→ v_c/f_z Page 79

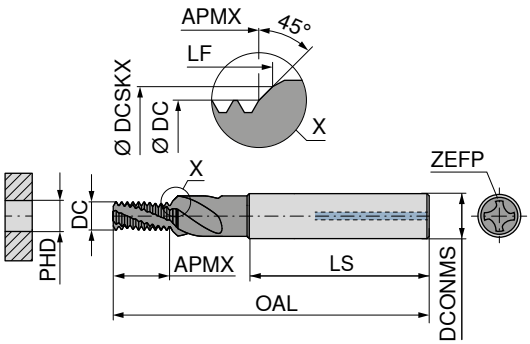
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

MonoThread – Thread Milling Cutter with Chamfer Facet

▲ Profile corrected





NEW

AlTiN

Solid carbide

50 555 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	PHD mm	
4,70	UNC 1/4-20	1,270	62	14,68	36	8	6,65	15,46	4	5,1	**01400**
6,22	UNC 5/16-18	1,411	74	16,28	40	10	8,24	17,14	4	6,6	**51600**
7,34	UNC 3/8-16	1,588	79	19,98	45	12	9,83	20,92	4	8,0	**03800**
8,57	UNC 7/16-14	1,814	79	22,83	45	12	11,41	23,89	4	9,4	**71600**
9,38	UNC 1/2-13	1,954	89	26,71	45	14	13,00	27,83	5	10,8	**01200**
10,92	UNC 9/16-12	2,117	102	30,99	48	16	14,60	32,20	5	12,2	**91600**
12,50	UNC 5/8-11	2,309	102	33,72	48	18	16,18	35,03	5	13,5	**05800**
15,21	UNC 3/4-10	2,540	110	39,68	50	20	19,35	41,10	5	16,5	**03400**

NEW

50 556 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	PHD mm	
4,70	UNF 1/4-28	0,907	62	14,24	36	8	6,65	14,84	4	5,5	**01400**
6,22	UNF 5/16-24	1,058	74	16,56	40	10	8,24	17,23	4	6,9	**51600**
7,79	UNF 3/8-24	1,058	79	19,73	45	12	9,83	20,41	4	8,5	**03800**
9,32	UNF 7/16-20	1,270	89	22,34	45	14	11,40	23,13	5	9,9	**71600**
9,38	UNF 1/2-20	1,270	89	26,57	45	14	13,00	27,36	5	11,5	**01200**
10,92	UNF 9/16-18	1,411	102	29,43	48	16	14,59	30,29	5	12,9	**91600**
12,82	UNF 5/8-18	1,411	102	33,58	48	18	16,18	34,43	5	14,5	**05800**
15,82	UNF 3/4-16	1,587	110	39,29	50	20	19,35	40,23	5	17,5	**03400**

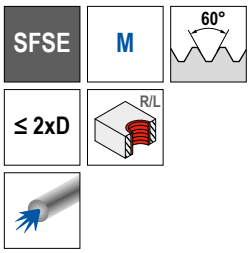
P	●
M	●
K	●
N	●
S	●
H	
O	●

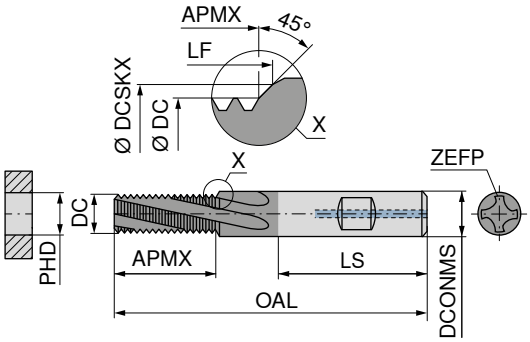
→ v_c/f_z Page 79

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Thread milling cutter with chamfer facet

▲ Profile-corrected
▲ Hard machining from Ø DC = 4 mm possible
▲ Chamfer section at end of shank





Ti500

Solid carbide

54 815 ...

DC mm	Thread	TP mm	OAL mm	LS mm	APMX mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	PHD mm	
4,00	M5	0,80	62	36	12,3	8	5,3	12,98	3	4,20	**05000**[1]
4,80	M6	1,00	62	36	14,4	8	6,3	15,18	3	5,00	**06000**[1]
6,50	M8	1,25	74	40	19,0	10	8,3	20,19	3	6,80	**08000**
7,95	M10	1,50	80	45	23,0	12	10,3	24,25	3	8,50	**10000**
9,90	M12	1,75	90	45	28,6	14	12,3	29,94	4	10,25	**12000**
11,60	M14	2,00	100	48	32,6	16	14,3	34,20	4	12,00	**14000**
11,95	M16	2,00	90	45	36,6	12			4	14,00	**16000**[2]
13,95	M18	2,50	110	50	38,0	20	18,3	40,50	4	15,50	**18000**
15,95	M20	2,50	100	48	43,3	16			4	17,50	**20000**[2]

1) Without Through Coolant
2) Chamfer section at the front of the tool

54 816 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	PHD mm	
6,0	M8x1	1,00	74	19,2	40	10	8,3	20,41	3	7,0	**08000**
8,0	M10x1	1,00	80	22,2	45	12	10,3	23,41	3	9,0	**10000**
8,0	M10x1,25	1,25	80	22,8	45	12	10,3	24,09	3	8,8	**10100**
9,9	M12x1	1,00	90	27,2	45	14	12,3	28,42	4	11,0	**12000**
9,9	M12x1,25	1,25	90	27,8	45	14	12,3	29,10	4	10,8	**12100**
9,9	M12x1,5	1,50	90	27,5	45	14	12,3	28,77	4	10,5	**12200**
11,6	M14x1	1,00	100	31,0	48	16	14,3	32,51	4	13,0	**14000**
11,6	M14x1,5	1,50	100	32,0	48	16	14,3	33,35	4	12,5	**14100**
12,0	M16x1,5	1,50	90	35,0	45	12			4	14,5	**16000**[1]
14,0	M18x1,5	1,50	110	39,0	50	20	18,3	41,30	4	16,5	**18000**
16,0	M20x1,5	1,50	100	44,0	48	16			4	18,5	**20000**[1]

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) Chamfer section at the front of the tool

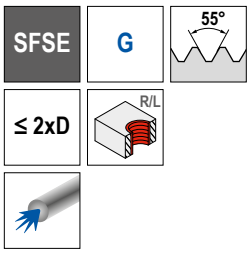
→ v_c/f_z Page 79

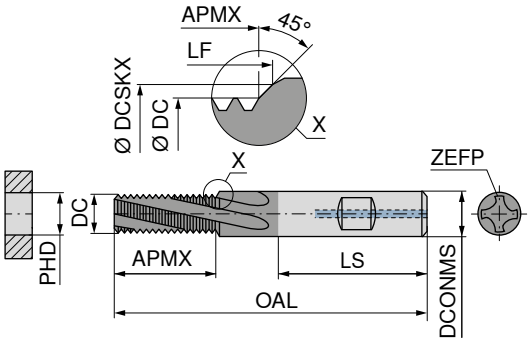
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

MonoThread – Thread milling cutter with chamfer facet

- ▲ Profile-corrected
- ▲ Hard machining from Ø DC = 4 mm possible
- ▲ Chamfer section at end of shank





Solid carbide

54 817 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	PHD mm	
6,00	G 1/16-28	0,907	74	16,5	40	10	8,02	17,54	3	6,80	**11600**
7,95	G 1/8-28	0,907	80	22,0	45	12	10,03	23,00	3	8,80	**01800**
9,90	G 1/4-19	1,337	100	28,0	48	16	13,46	29,98	4	11,80	**01400**
13,95	G 3/8-19	1,337	90	36,5	45	14			4	15,25	**03800**[1)]
15,95	G 1/2-14	1,814	100	46,0	48	16			5	19,00	**01200**[1)]
17,95	G 5/8-14	1,814	110	49,5	48	18			5	21,00	**05800**[1)]

1) Chamfer section at the front of the tool

54 820 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	ZEFP	PHD mm	
10,1	NPT 1/4-18	1,411	90	16,0	45	14	3	11,1	**01400**[1)]
12,8	NPT 3/8-18	1,411	90	16,0	48	16	4	14,5	**03800**[1)]
16,0	NPT 1/2-14	1,814	110	20,5	50	20	5	17,9	**01200**[1)]
18,5	NPT 3/4-14	1,814	110	20,5	50	20	5	23,2	**03400**[1)]

P	●
M	●
K	●
N	●
S	●
H	●
O	●

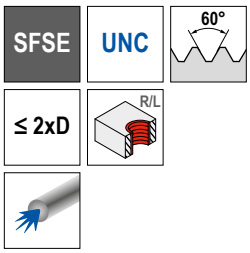
1) Chamfer section at the front of the tool

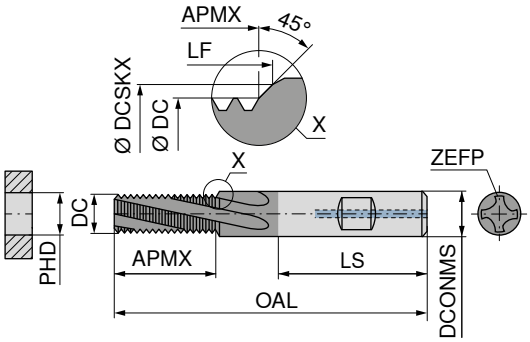
→ v_c/f_z Page 79

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Thread milling cutter with chamfer facet

▲ Profile-corrected
▲ Hard machining from Ø DC = 4 mm possible
▲ Chamfer section at end of shank





Solid carbide

54 818 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	PHD mm	
4,80	UNC 1/4-20	1,270	62	14,4	36	8	6,65	15,43	3	5,1	**01400**[1)]
5,95	UNC 5/16-18	1,411	74	20,2	40	10	8,24	21,44	3	6,6	**51600**
7,60	UNC 3/8-16	1,588	80	24,3	45	12	9,83	25,62	3	8,0	**03800**
7,95	UNC 7/16-14	1,814	90	24,0	45	14	11,41	25,86	3	9,4	**71600**
9,90	UNC 1/2-13	1,954	90	29,8	45	14	13,00	31,59	4	10,8	**01200**
11,80	UNC 9/16-12	2,117	100	34,5	48	16	14,59	36,19	4	12,2	**91600**
12,70	UNC 5/8-11	2,309	90	37,7	45	14			4	13,5	**05800**[2)]
15,20	UNC 3/4-10	2,540	110	41,2	50	20	19,35	43,63	5	16,5	**03400**

1) Without Through Coolant
2) Chamfer section at the front of the tool

54 819 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	PHD mm	
4,80	UNF 1/4-28	0,907	62	14,7	36	8	6,65	15,72	3	5,5	**01400**[1)]
5,95	UNF 5/16-24	1,058	74	19,3	40	10	8,24	20,48	3	6,9	**51600**
8,00	UNF 3/8-24	1,058	80	22,5	45	12	9,83	23,54	3	8,5	**03800**
7,95	UNF 7/16-20	1,270	90	23,0	45	14	11,41	24,76	3	9,9	**71600**
9,90	UNF 1/2-20	1,270	90	28,0	45	14	13,00	29,75	4	11,5	**01200**
12,00	UNF 9/16-18	1,411	100	31,4	48	16	15,59	32,81	4	12,9	**91600**
13,50	UNF 5/8-18	1,411	90	35,7	45	14			4	14,5	**05800**[2)]
17,00	UNF 3/4-16	1,588	110	40,2	50	20	19,35	41,53	5	17,5	**03400**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

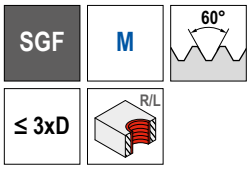
1) Without Through Coolant
2) Chamfer section at the front of the tool

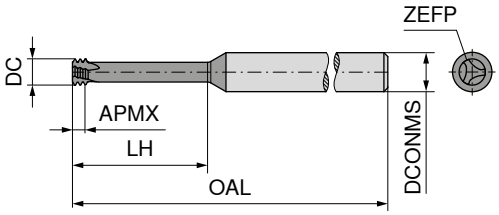
→ v_c/f_z Page 79

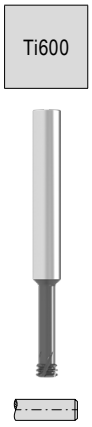
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Circular shank thread milling cutter

▲ Available on request from M1
▲ Profile corrected







50 802 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS $_{h6}$ mm	ZEFP	
1,53	M2	0,40	39	0,80	6,0	3	3	**02000**
2,37	M3	0,50	58	1,35	9,5	6	3	**03000**
3,10	M4	0,70	58	1,95	12,5	6	3	**04000**
3,80	M5	0,80	58	2,30	16,0	6	3	**05000**
4,65	M6	1,00	58	2,70	20,0	6	3	**06000**
6,00	M8	1,25	58	3,20	24,0	6	3	**08000**
7,80	M10	1,50	64	3,80	31,5	8	3	**10000**
9,00	M12	1,75	73	4,55	37,8	10	3	**12000**

50 803 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS $_{h6}$ mm	ZEFP	
1,53	M2	0,40	39	1,00	10,4	3	3	**02000**
2,40	M3	0,50	39	1,30	12,5	3	3	**03000**
3,10	M4	0,70	58	1,80	16,7	6	3	**04000**
4,00	M5	0,80	58	2,10	20,8	6	3	**05000**
4,80	M6	1,00	58	2,55	25,0	6	3	**06000**
6,40	M8	1,25	64	3,15	33,5	8	3	**08000**
8,00	M10	1,50	76	3,85	41,5	8	3	**10000**

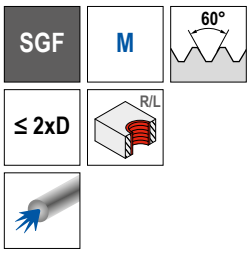
P	●
M	●
K	●
N	●
S	●
H	
O	●

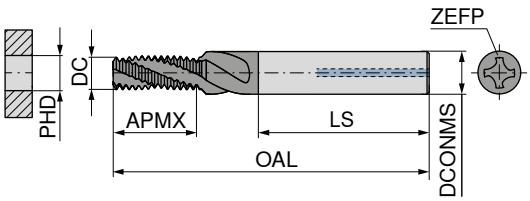
→ v_c/f_z Page 80

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Thread Milling Cutter

▲ Profile corrected





NEW

AlTiN

Solid carbide

50 531 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	ZEFP	PHD mm	
2,44	M3	0,50	42	6,24	36	4	3	2,5	**03000**[1)]
3,14	M4	0,70	49	8,00	36	6	3	3,3	**04000**
3,95	M5	0,80	55	10,00	36	6	3	4,2	**05000**
4,68	M6	1,00	55	12,47	36	6	4	5,0	**06000**
6,22	M8	1,25	62	16,83	36	8	4	6,8	**08000**
7,79	M10	1,50	74	20,20	40	10	4	8,5	**10000**
9,38	M12	1,75	79	25,32	45	12	5	10,2	**12000**
10,92	M14	2,00	89	28,93	45	14	5	12,0	**14000**
12,83	M16	2,00	102	32,94	48	16	5	14,0	**16000**
13,93	M18	2,50	102	36,17	48	16	5	15,5	**18000**
15,83	M20	2,50	110	41,17	50	20	5	17,5	**20000**

1) Without Through Coolant

NEW

50 532 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	ZEFP	PHD mm	
3,14	M4x0,5	0,50	49	8,00	36	6	3	3,5	**04000**
3,95	M5x0,5	0,50	55	10,00	36	6	3	4,5	**05000**
4,68	M6x0,75	0,75	55	12,34	36	6	4	5,2	**06100**
6,22	M8x0,75	0,75	62	16,09	36	8	4	7,2	**08100**
6,22	M8x1	1,00	62	16,46	36	8	4	7,0	**08200**
7,79	M10x1	1,00	74	20,46	40	10	4	9,0	**10200**
9,38	M12x1	1,00	79	24,45	45	12	5	11,0	**12200**
9,38	M12x1,5	1,50	79	24,69	45	12	5	10,5	**12400**
10,92	M14x1,5	1,50	89	29,19	45	14	5	12,5	**14400**
12,82	M16x1,5	1,50	102	32,19	48	16	5	14,5	**16400**
13,93	M18x1,5	1,50	102	36,68	48	16	5	16,5	**18400**
15,83	M20x1,5	1,50	110	41,18	50	20	5	18,5	**20400**

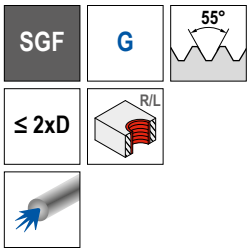
P	●
M	●
K	●
N	●
S	●
H	
O	●

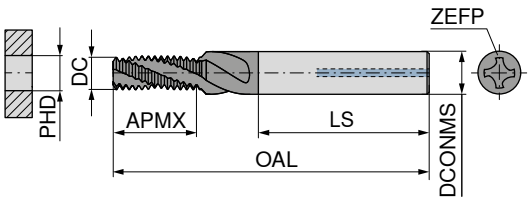
→ v_c/f_z Page 79

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Thread Milling Cutter

▲ Profile corrected





NEW

AlTiN

Solid carbide

50 530 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	ZEFP	PHD mm	
7,79	G 1/8-28	0,907	74	20,35	40	10	4	8,80	**01800**
10,92	G 1/4-19	1,337	89	27,34	45	14	5	11,80	**01400**
13,92	G 3/8-19	1,337	102	35,36	48	16	5	15,25	**03800**
15,90	G 1-11	2,309	102	33,29	48	16	5	30,75	**10000**
15,98	G 1/2-14	1,814	110	42,51	50	20	5	19,00	**01200**

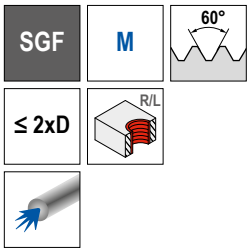
P	●
M	●
K	●
N	●
S	●
H	
O	●

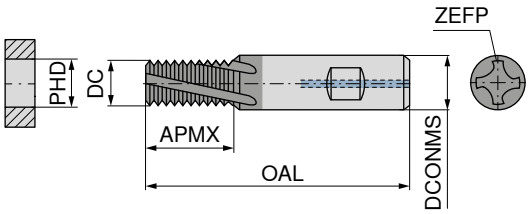
→ v_c/f_z Page 79

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Thread milling cutter

▲ Profile corrected
▲ Hard machining from Ø DC = 4 mm possible





Solid carbide

54 821 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	
2,40	M3	0,50	7,0	4	42	2	2,50	**03000**[1)]
3,15	M4	0,70	10,0	6	55	3	3,30	**04000**[2)]
4,00	M5	0,80	12,2	6	55	3	4,20	**05000**[2)]
4,80	M6	1,00	14,3	6	55	3	5,00	**06000**[2)]
6,00	M8	1,25	19,0	6	60	3	6,75	**08000**
8,00	M10	1,50	23,0	8	70	3	8,50	**10000**
9,90	M12	1,75	28,6	10	75	4	10,25	**12000**
11,60	M14	2,00	32,6	12	85	4	12,00	**14000**
12,00	M16	2,00	36,6	12	85	4	14,00	**16000**
14,00	M18	2,50	43,3	14	90	4	15,50	**18000**
16,00	M20	2,50	43,3	16	90	4	17,50	**20000**

1) DIN 6535 HA Shank / Without Through Coolant
2) Without Through Coolant

54 822 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	
4,0	M 5x0,5	0,50	11,6	6	55	3	4,50	**05000**[1)]
4,8	M 6x0,75	0,75	14,5	6	55	3	5,25	**06000**[1)]
6,0	M 8x1	1,00	19,3	6	60	3	7,00	**08000**
8,0	M 10x1,25	1,25	21,6	8	70	3	8,75	**10000**
9,9	M 12x1	1,00	27,3	10	75	4	11,00	**12000**
9,9	M 12x1,25	1,25	27,9	10	75	4	10,75	**12100**
9,9	M 12x1,5	1,50	27,5	10	75	4	10,50	**12200**
11,6	M 14x1	1,00	31,3	12	85	4	13,00	**14000**
11,6	M 14x1,5	1,50	32,0	12	85	4	12,50	**14100**
12,0	M 16x1,5	1,50	35,0	12	85	4	14,50	**16000**
14,0	M 18x1,5	1,50	42,5	14	90	4	16,50	**18000**
16,0	M 20x1,5	1,50	42,5	16	90	4	18,50	**20000**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) DIN 6535 HA Shank / Without Through Coolant

→ v_c/f_z Page 79

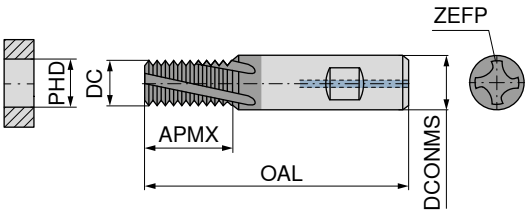
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

MonoThread – Thread milling cutter

▲ Profile corrected
▲ Hard machining from Ø DC = 4 mm possible

SGF | G | 55° | ≤ 2xD | R/L



Ti500

Solid carbide

54 823 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	
8,0	G 1/8-28	0,907	22,0	8	70	3	8,80	**01800**
9,9	G 1/4-19	1,337	28,5	10	75	4	11,80	**01400**
14,0	G 3/8-19	1,337	42,0	14	90	4	15,25	**03800**
16,0	G 1/2-14	1,814	44,0	16	90	4	19,00	**01200**

≤ 2xD | BSW | 55°

54 824 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	
6,0	BSW 5/16 - 18	1,411	20,0	6	60	3	6,50	**51600**
6,0	BSW 3/8 - 16	1,588	21,0	6	60	3	7,90	**03800**
8,0	BSW 7/16 - 14	1,814	24,0	8	70	3	9,25	**71600**
8,0	BSW 1/2 - 12	2,117	24,0	8	70	3	10,50	**01200**
9,9	BSW 5/8 - 11	2,309	30,5	10	75	4	13,50	**05800**

≤ 2xD | BSF | 55°

54 825 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	
6,0	BSF 5/16 - 22	1,155	20,0	6	60	3	6,8	**51600**
6,0	BSF 3/8 - 20	1,270	19,4	6	60	3	8,3	**03800**
8,0	BSF 7/16 - 18	1,411	23,0	8	70	3	9,7	**71600**
8,0	BSF 1/2 - 16	1,588	24,2	8	70	3	11,1	**01200**
9,9	BSF 5/8 - 14	1,814	29,5	10	75	4	14,0	**05800**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

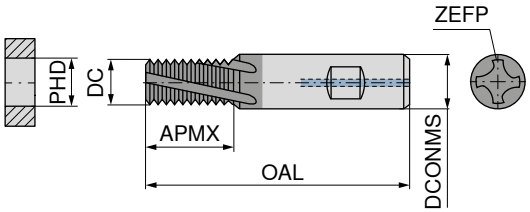
→ v_c/f_z Page 79

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Thread milling cutter

▲ Profile corrected

SGF | UNC | 60° | ≤ 2xD | R/L



Ti500

Solid carbide

54 826 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	
4,80	UNC 1/4-20	1,270	14,4	6	55	3	5,1	**01400**[1)]
6,00	UNC 5/16-18	1,411	20,2	6	60	3	6,6	**51600**
7,60	UNC 3/8-16	1,588	24,3	8	70	3	8,0	**03800**
7,95	UNC 7/16-14	1,814	24,0	8	70	3	9,4	**71600**
9,90	UNC 1/2-13	1,954	29,0	10	75	4	10,8	**01200**

1) DIN 6535 HA Shank / Without Through Coolant

≤ 2xD | UNF | 60°

54 827 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	
4,8	UNF 1/4-28	0,907	14,8	6	55	3	5,5	**01400**[1)]
6,0	UNF 5/16-24	1,058	19,3	6	60	3	6,9	**51600**
8,0	UNF 3/8-24	1,058	22,5	8	70	3	8,5	**03800**
8,0	UNF 7/16-20	1,270	23,2	8	70	3	9,9	**71600**
9,9	UNF 1/2-20	1,270	28,3	10	75	4	11,5	**01200**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

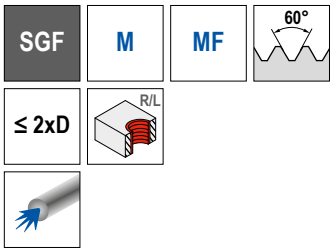
1) Without Through Coolant

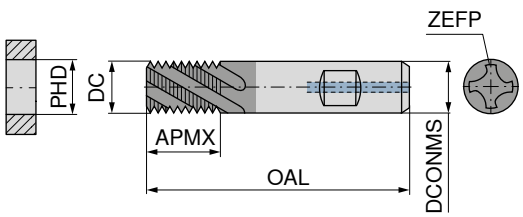
→ v_c/f_z Page 79

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Thread milling cutter

▲ Intra-dimensional, pitch-dependent





Solid carbide

54 828 ...

DC mm	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	
8	0,50	12,0	8	70	3	10	**00800**
8	0,75	12,0	8	70	3	11	**08000**
10	1,00	16,0	10	75	4	14	**10000**
10	1,50	16,5	10	75	4	14	**10100**
12	1,00	20,0	12	85	4	16	**12000**
12	1,50	21,0	12	85	4	16	**12100**
12	2,00	20,0	12	85	4	18	**12200**
16	1,00	25,0	16	90	5	22	**16000**
16	1,50	25,5	16	90	5	22	**16100**
16	2,00	26,0	16	90	5	22	**16200**
16	3,00	27,0	16	90	5	24	**16400**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 79

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

Material examples for cutting data tables

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

* Tensile strength

7

Cutting data standard values

Index	50 854 ..., 50 862 ..., 50 869 ..., 50 898 ...						50 840 ...				50 546 ..., 50 547 ...		
	BGF		Feed rate Drilling		Feed rate Thread milling		ZBGF	TiCN Solid carbide			HR	TiCN Solid carbide	
	Ti601	uncoated	≤ Ø 6	≤ Ø 12	≤ Ø 6	≤ Ø 12		Ø 3–5	Ø 6–10	Ø 12–16		< Ø 10	> Ø 10
	v_c (m/min)		f (mm/rev)		f_z (mm/tooth)		v_c (m/min)	f_z (mm/tooth)			v_c (m/min)	f_z (mm/tooth)	
P.1.1											100	0,025	0,05
P.1.2											100	0,025	0,05
P.1.3											100	0,025	0,05
P.1.4											80	0,015	0,035
P.1.5											80	0,015	0,035
P.2.1											100	0,025	0,05
P.2.2											80	0,015	0,035
P.2.3											80	0,015	0,035
P.2.4											80	0,015	0,035
P.3.1											100	0,025	0,05
P.3.2											80	0,015	0,035
P.3.3											80	0,02	0,04
P.4.1											80	0,02	0,04
P.4.2											80	0,02	0,04
M.1.1											80	0,02	0,04
M.2.1											80	0,02	0,04
M.3.1											80	0,02	0,04
K.1.1	**80–120**	50–80	0,10–0,15	0,15–0,22	0,02–0,05	0,05–0,10					120	0,03	0,09
K.1.2	**80–120**	50–80	0,10–0,15	0,15–0,22	0,02–0,05	0,05–0,10					120	0,03	0,09
K.2.1											100	0,02	0,05
K.2.2											100	0,02	0,05
K.3.1											100	0,02	0,05
K.3.2											100	0,02	0,05
N.1.1	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					350	0,05	0,1
N.1.2	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					350	0,05	0,1
N.2.1	100–300		0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					350	0,05	0,1
N.2.2	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					250	0,05	0,1
N.2.3	100–160		0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					250	0,05	0,1
N.3.1	100–300	**100–300**	0,10–0,30	0,25–0,30	0,03–0,06	0,06–0,10					350	0,05	0,1
N.3.2											350	0,05	0,1
N.3.3											350	0,05	0,1
N.4.1	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					350	0,05	0,1
S.1.1											40	0,02	0,05
S.1.2							80	0,01	0,03	0,03	20	0,02	0,05
S.2.1							60	0,01	0,02	0,02	20	0,02	0,05
S.2.2							60	0,01	0,02	0,02			
S.2.3							60	0,01	0,02	0,02			
S.3.1											100	0,02	0,05
S.3.2							80	0,01	0,03	0,03	80	0,02	0,05
S.3.3							60	0,01	0,02	0,02	80	0,02	0,05
H.1.1							**80**	0,01	0,03	0,03	**40**	0,008	0,017
H.1.2							**60**	0,01	0,02	0,02	**25**	0,005	0,012
H.1.3							**40**	0,005	0,01	0,01			
H.1.4													
H.2.1							**100**	0,03	0,04	0,04	**60**	0,02	0,04
H.3.1							**60**	0,01	0,02	0,02	**25**	0,005	0,012
O.1.1	60–100	**60–100**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					120	0,04	0,1
O.1.2											120	0,04	0,1
O.2.1											80	0,04	0,1
O.2.2											80	0,04	0,1
O.3.1							180	0,04	0,05	0,08	130	0,04	0,1

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

Index	54 815 ..., 54 816 ..., 54 817 ..., 54 818 ..., 54 819 ..., 54 820 ... / 54 821 ..., 54 822 ..., 54 823 ..., 54 824 ..., 54 825 ..., 54 826 ..., 54 827 ..., 54 828 ...				50 552 ..., 50 553 ..., 50 551 ..., 50 554 ... , 50 555 ... , 50 556 ... / 50 531 ..., 50 532 ..., 50 530 ...			
	SFSE	SGF	Ti500 – Standard Solid carbide			SFSE	SGF	AlTiN –Performance Solid carbide		
			Ø 2,4 – 6,0	Ø 6,0 – 10,0	Ø 10,0 – 20,0			Ø 2,4 – 5,9	Ø 6,0 – 11,9	Ø 12,0 – 20,0
	v_c (m/min)		f_z (mm/tooth)			v_c (m/min)		f_z (mm/tooth)		
P.1.1	150		0,01–0,04	0,04–0,06	0,08–0,15	80–150		0,015–0,04	0,04–0,08	0,08–0,15
P.1.2	120		0,01–0,04	0,04–0,06	0,08–0,15	80–120		0,015–0,04	0,04–0,08	0,08–0,15
P.1.3	120		0,007–0,03	0,03–0,05	0,05–0,10	80–120		0,015–0,04	0,04–0,08	0,08–0,15
P.1.4	120		0,007–0,03	0,03–0,05	0,05–0,10	80–120		0,015–0,04	0,04–0,08	0,08–0,15
P.1.5	100		0,006–0,02	0,02–0,04	0,04–0,06	60–100		0,01–0,04	0,04–0,06	0,04–0,10
P.2.1	120		0,007–0,04	0,04–0,06	0,08–0,15	80–120		0,015–0,04	0,04–0,08	0,08–0,15
P.2.2	100		0,007–0,03	0,03–0,05	0,05–0,10	80–100		0,015–0,04	0,04–0,08	0,08–0,15
P.2.3	80		0,006–0,02	0,02–0,04	0,04–0,06	80–100		0,010–0,04	0,04–0,08	0,08–0,15
P.2.4	70		0,006–0,02	0,02–0,04	0,04–0,06	80–100		0,010–0,04	0,04–0,08	0,08–0,15
P.3.1	80		0,01–0,03	0,03–0,05	0,06–0,12	70–90		0,01–0,03	0,03–0,05	0,06–0,12
P.3.2	70		0,006–0,02	0,02–0,04	0,04–0,06	60–80		0,006–0,02	0,02–0,04	0,04–0,06
P.3.3	60		0,006–0,02	0,02–0,04	0,04–0,06	50–70		0,006–0,02	0,02–0,04	0,04–0,06
P.4.1	60		0,006–0,02	0,02–0,04	0,04–0,06	70–90		0,006–0,02	0,02–0,04	0,04–0,06
P.4.2	60		0,006–0,02	0,02–0,04	0,04–0,06	60–80		0,006–0,02	0,02–0,04	0,04–0,06
M.1.1	100		0,008–0,03	0,03–0,05	0,05–0,10	60–100		0,01–0,04	0,04–0,08	0,08–0,10
M.2.1	100		0,008–0,03	0,03–0,05	0,05–0,10	60–100		0,01–0,03	0,03–0,06	0,06–0,10
M.3.1	100		0,008–0,03	0,03–0,05	0,05–0,10	60–100		0,01–0,03	0,03–0,06	0,06–0,10
K.1.1	120		0,01–0,04	0,04–0,06	0,08–0,15	80–120		0,02–0,06	0,06–0,12	0,10–0,15
K.1.2	100		0,007–0,03	0,03–0,05	0,05–0,10	80–120		0,02–0,05	0,05–0,10	0,10–0,12
K.2.1	120		0,01–0,04	0,04–0,06	0,08–0,15	80–100		0,02–0,05	0,05–0,10	0,08–0,15
K.2.2	100		0,007–0,03	0,03–0,05	0,05–0,10	80–100		0,02–0,05	0,05–0,10	0,08–0,12
K.3.1	130		0,01–0,04	0,04–0,06	0,08–0,15	80–100		0,015–0,05	0,05–0,08	0,08–0,12
K.3.2	100		0,007–0,03	0,03–0,05	0,05–0,10	80–100		0,015–0,03	0,03–0,08	0,08–0,12
N.1.1	400		0,03–0,06	0,08–0,12	0,14–0,20	100–400		0,04–0,09	0,08–0,15	0,12–0,20
N.1.2	400		0,03–0,06	0,08–0,12	0,14–0,20	100–400		0,04–0,09	0,08–0,15	0,12–0,20
N.2.1	300		0,03–0,06	0,08–0,12	0,14–0,20	100–400		0,04–0,09	0,08–0,15	0,12–0,20
N.2.2	300		0,03–0,06	0,08–0,12	0,14–0,20	100–400		0,04–0,09	0,08–0,15	0,12–0,20
N.2.3	200		0,03–0,06	0,08–0,12	0,14–0,20	100–250		0,04–0,09	0,08–0,15	0,12–0,20
N.3.1	160		0,03–0,06	0,08–0,12	0,14–0,20	100–400		0,04–0,09	0,08–0,15	0,12–0,20
N.3.2	160		0,03–0,06	0,08–0,12	0,14–0,20	100–400		0,04–0,09	0,08–0,15	0,12–0,20
N.3.3	160		0,03–0,06	0,08–0,12	0,14–0,20	100–400		0,04–0,09	0,08–0,15	0,12–0,20
N.4.1	300		0,03–0,06	0,08–0,12	0,14–0,20	100–400		0,04–0,09	0,08–0,15	0,12–0,20
S.1.1	80		0,008–0,03	0,03–0,05	0,05–0,10	40–100		0,01–0,04	0,04–0,07	0,07–0,12
S.1.2	60		0,006–0,02	0,02–0,04	0,04–0,06					
S.2.1	40		0,006–0,02	0,02–0,04	0,04–0,06					
S.2.2	40		0,006–0,02	0,02–0,04	0,04–0,06					
S.2.3	40		0,006–0,02	0,02–0,04	0,04–0,06					
S.3.1	100		0,01–0,03	0,03–0,05	0,06–0,12	40–100		0,01–0,04	0,04–0,07	0,07–0,15
S.3.2	80		0,006–0,02	0,02–0,04	0,04–0,06					
S.3.3	60		0,006–0,02	0,02–0,04	0,04–0,06					
H.1.1	50		0,003–0,006	0,008–0,012	0,014–0,02					
H.1.2	40			0,006–0,01	0,01–0,015					
H.1.3										
H.1.4										
H.2.1	60			0,006–0,01	0,01–0,015					
H.3.1	40			0,006–0,01	0,01–0,015					
O.1.1	100		0,02–0,06	0,06–0,10	0,12–0,20	100–400		0,03–0,08	0,08–0,15	0,15–0,20
O.1.2	100		0,02–0,06	0,06–0,10	0,12–0,20	100–400		0,03–0,08	0,08–0,15	0,15–0,20
O.2.1	80		0,01–0,04	0,04–0,06	0,08–0,15	50–80		0,03–0,08	0,08–0,15	0,15–0,20
O.2.2	80		0,01–0,04	0,04–0,06	0,08–0,15	50–80		0,03–0,08	0,08–0,15	0,15–0,20
O.3.1	200		0,01–0,04	0,04–0,06	0,08–0,15					

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Cutting data standard values

Index	50 802 ..., 50 803 ...					50 806 ..., 50 807 ...				50 804 ...	
	SGF	Ti600 – Circular shank thread milling cutter Solid carbide				SFSE	AlCrN – Performance HPC Solid carbide			SFSE Micro	Ti602 Solid carbide
		Ø 1–2	Ø 3–5	Ø 6–8	Ø 9–12		Ø 3–5	Ø 6–10	Ø 10–13		Ø 0,7–2,1
	v_c (m/min)	f_z (mm/tooth)				v_c (m/min)	f_z (mm/tooth)			v_c (m/min)	f_z (mm/tooth)
P.1.1	110	0,05	0,09	0,14	0,16	100–140	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.1.2	110	0,05	0,09	0,14	0,16	100–120	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.1.3	110	0,05	0,09	0,14	0,16	80–100	0,015–0,02	0,03–0,05	0,03–0,07	20–40	0,01–0,02
P.1.4	110	0,05	0,09	0,14	0,16	80–100	0,015–0,02	0,02–0,04	0,03–0,05	20–40	0,01–0,02
P.1.5	110	0,05	0,09	0,14	0,16	80–100	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.2.1	80	0,04	0,08	0,12	0,14	100–120	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.2.2	80	0,04	0,08	0,12	0,14	80–100	0,015–0,03	0,02–0,05	0,03–0,07	20–40	0,01–0,02
P.2.3	80	0,04	0,08	0,12	0,14	80–100	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.2.4	80	0,04	0,08	0,12	0,14	80–100	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.3.1	60	0,04	0,08	0,12	0,14	100–120	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.3.2	60	0,04	0,08	0,12	0,14	80–100	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.3.3	60	0,04	0,08	0,12	0,14	80–100	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.4.1	60	0,04	0,08	0,12	0,14	60–80	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.4.2	80	0,04	0,08	0,12	0,14	60–80	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
M.1.1	80	0,04	0,05	0,07	0,10	60–80	0,015–0,03	0,04–0,06	0,06–0,10	20–30	0,01–0,02
M.2.1	80	0,04	0,05	0,07	0,10	60–80	0,015–0,03	0,04–0,06	0,06–0,10	20–30	0,01–0,02
M.3.1	80	0,04	0,05	0,07	0,10	60–80	0,015–0,03	0,04–0,06	0,06–0,10	20–30	0,01–0,02
K.1.1	50	0,05	0,09	0,14	0,16	100–120	0,02–0,04	0,04–0,08	0,06–0,10		
K.1.2	50	0,05	0,09	0,14	0,16	100–120	0,02–0,04	0,04–0,08	0,06–0,10		
K.2.1	50	0,05	0,09	0,14	0,16	100–120	0,02–0,04	0,04–0,08	0,06–0,10		
K.2.2	50	0,05	0,09	0,14	0,16	80–100	0,02–0,04	0,04–0,08	0,06–0,10		
K.3.1	50	0,05	0,09	0,14	0,16	80–100	0,02–0,04	0,04–0,08	0,06–0,08		
K.3.2	50	0,05	0,09	0,14	0,16	80–100	0,02–0,04	0,04–0,08	0,06–0,08		
N.1.1	130	0,05	0,09	0,14	0,16					30–50	0,02–0,03
N.1.2	130	0,05	0,09	0,14	0,16					30–50	0,02–0,03
N.2.1	120	0,04	0,05	0,07	0,10					30–50	0,02–0,03
N.2.2	100	0,04	0,05	0,07	0,10					30–50	0,02–0,03
N.2.3	100	0,04	0,05	0,07	0,10					30–50	0,02–0,03
N.3.1	130	0,05	0,09	0,14	0,16					30–50	0,02–0,03
N.3.2	130	0,05	0,09	0,14	0,16					30–50	0,02–0,03
N.3.3	130	0,05	0,09	0,14	0,16					30–50	0,02–0,03
N.4.1	110	0,04	0,05	0,07	0,10					30–50	0,02–0,03
S.1.1	30	0,03	0,04	0,06	0,07					20–30	0,01–0,02
S.1.2	30	0,03	0,04	0,06	0,07					20–30	0,01–0,02
S.2.1	30	0,03	0,04	0,06	0,07					20–30	0,01–0,02
S.2.2	30	0,03	0,04	0,06	0,07					20–30	0,01–0,015
S.2.3	30	0,03	0,04	0,06	0,07					20–30	0,01–0,015
S.3.1	30	0,03	0,04	0,06	0,07	60–80	0,015–0,02	0,02–0,03	0,03–0,04	20–30	0,01–0,02
S.3.2	30	0,03	0,04	0,06	0,07	60–80	0,01–0,015	0,015–0,02	0,025–0,035	20–30	0,01–0,015
S.3.3	30	0,03	0,04	0,06	0,07					20–30	0,01–0,015
H.1.1										**20–30**	0,01–0,015
H.1.2										**20–30**	0,01–0,015
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1	150	0,06	0,12	0,19	0,19						
O.1.2	150	0,06	0,12	0,19	0,19						
O.2.1	150	0,06	0,12	0,19	0,19						
O.2.2	150	0,06	0,12	0,19	0,19						
O.3.1	100	0,05	0,09	0,14	0,14						

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

Index	50 890 ..., 50 891 ..., 50 892 ..., 50 896 ..., 50 897 ...		50 890 ..., 50 891 ..., 50 895 ...		50 863 ..., 50 864 ... / 50 885 ..., 50 887 ..., 50 888 ..., 50 889 ..., 50 894 ...			50 860 ..., 50 861 ..., 50 867 ..., 50 868 ... / 50 870 ...		
	MWN	uncoated Solid carbide	MWN	TiAlN Solid carbide	GZD	GZG	Ti500 Solid carbide Ø 12–17 / Ø 20–26		EAW	EWM
	v_c (m/min)	f_z (mm/tooth)	v_c (m/min)	f_z (mm/tooth)	v_c (m/min)		f_z (mm/tooth)	v_c (m/min)	f_z (mm/tooth)	
P.1.1	85	0,10	170	0,10	220		0,10–0,30 / 0,05–0,30	280	0,20	0,20
P.1.2	75	0,10	150	0,10	220		0,10–0,30 / 0,05–0,30	240	0,20	0,20
P.1.3	65	0,10	130	0,10	190		0,10–0,30 / 0,05–0,30	200	0,20	0,20
P.1.4	65	0,07	130	0,07	160		0,10–0,30 / 0,05–0,30	200	0,15	0,15
P.1.5	60	0,07	120	0,07	160		0,10–0,30 / 0,05–0,30	180	0,15	0,15
P.2.1	70	0,10	140	0,10	150		0,10–0,30 / 0,05–0,30	220	0,20	0,20
P.2.2	65	0,07	130	0,07	120		0,10–0,30 / 0,05–0,30	200	0,15	0,15
P.2.3	60	0,07	120	0,07	100		0,10–0,30 / 0,05–0,30	180	0,15	0,15
P.2.4	45	0,06	90	0,06	90		0,10–0,30 / 0,05–0,30	150	0,12	0,12
P.3.1	45	0,10	90	0,10	100		0,10–0,20 / 0,05–0,20	150	0,20	0,20
P.3.2	40	0,07	80	0,07	90		0,10–0,20 / 0,05–0,20	130	0,10	0,10
P.3.3	35	0,06	70	0,06	80		0,10–0,20 / 0,05–0,20	110	0,10	0,10
P.4.1	45	0,10	90	0,10	70		0,10–0,20 / 0,05–0,20	150	0,20	0,20
P.4.2	40	0,10	80	0,10	60		0,10–0,20 / 0,05–0,20	130	0,20	0,20
M.1.1	40	0,06	80	0,06	130		0,10–0,30 / 0,05–0,30	130	0,10	0,10
M.2.1	30	0,05	60	0,05	120		0,10–0,30 / 0,05–0,30	90	0,08	0,08
M.3.1	30	0,05	60	0,05	120		0,10–0,30 / 0,05–0,30	90	0,08	0,08
K.1.1	85	0,12	170	0,12	140		0,10–0,30 / 0,05–0,30	280	0,25	0,25
K.1.2	75	0,12	150	0,12	100		0,10–0,30 / 0,05–0,30	240	0,25	0,25
K.2.1	75	0,07	150	0,07	140		0,10–0,30 / 0,05–0,30	240	0,15	0,15
K.2.2	65	0,07	130	0,07	120		0,10–0,30 / 0,05–0,30	200	0,15	0,15
K.3.1	70	0,10	140	0,10	140		0,10–0,30 / 0,05–0,30	220	0,20	0,20
K.3.2	60	0,10	120	0,10	100		0,10–0,30 / 0,05–0,30	190	0,20	0,20
N.1.1	120	0,15	240	0,15	700		0,10–0,40 / 0,05–0,40	390	0,30	0,30
N.1.2	105	0,12	210	0,12	400		0,10–0,40 / 0,05–0,40	330	0,25	0,25
N.2.1	75	0,12	150	0,12	400		0,10–0,40 / 0,05–0,40	240	0,25	0,25
N.2.2	75	0,12	150	0,12	300		0,10–0,40 / 0,05–0,40	240	0,25	0,25
N.2.3	70	0,12	140	0,12	200		0,10–0,40 / 0,05–0,40	220	0,25	0,25
N.3.1	105	0,15	210	0,15	160		0,10–0,40 / 0,05–0,40	330	0,30	0,30
N.3.2	105	0,15	210	0,15	160		0,10–0,40 / 0,05–0,40	330	0,30	0,30
N.3.3	75	0,15	150	0,15	160		0,10–0,40 / 0,05–0,40	240	0,30	0,30
N.4.1	85	0,15	170	0,15	160		0,10–0,40 / 0,05–0,40	280	0,30	0,30
S.1.1								110	0,10	0,10
S.1.2								90	0,07	0,07
S.2.1								70	0,05	0,05
S.2.2								70	0,05	0,05
S.2.3								70	0,05	0,05
S.3.1								130	0,10	0,10
S.3.2								90	0,07	0,07
S.3.3								70	0,05	0,05
H.1.1								80	0,05	0,05
H.1.2								60	0,04	0,04
H.1.3										
H.1.4										
H.2.1								80	0,05	0,05
H.3.1								60	0,04	0,04
O.1.1	140	0,16								
O.1.2	140	0,16								
O.2.1	75	0,07								
O.2.2	75	0,07								
O.3.1			130	0,07				200	0,14	0,14

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

Index	50 872 …, 50 875 …, 50 876 …, 50 879 …, 50 880 …, 50 881 …, 50 882 …, 50 883 …, 50 884 …, 50 886 …		51 800 …	50 851 …, 50 852 …, 50 853 …, 50 855 …, 50 857 …, 50 858 …, 50 859 …	
	Polygon		Multipurpose milling	System 300	
	v_c (m/min)	f_z (mm/tooth)	f_z (mm/tooth)	v_c (m/min)	f_z (mm/tooth)
P.1.1	220	0,05–0,25	0,03–0,10	220	0,05–0,15
P.1.2	220	0,05–0,25	0,03–0,10	220	0,05–0,15
P.1.3	190	0,05–0,25	0,03–0,10	190	0,05–0,15
P.1.4	160	0,05–0,25	0,03–0,09	160	0,05–0,15
P.1.5	160	0,05–0,25	0,03–0,09	160	0,05–0,15
P.2.1	150	0,05–0,25	0,03–0,10	150	0,05–0,15
P.2.2	120	0,05–0,25	0,03–0,09	120	0,05–0,15
P.2.3	100	0,05–0,25	0,03–0,09	100	0,05–0,15
P.2.4	90	0,05–0,25	0,03–0,09	90	0,05–0,15
P.3.1	100	0,05–0,20	0,03–0,10	100	0,05–0,12
P.3.2	90	0,05–0,20	0,03–0,08	90	0,05–0,12
P.3.3	80	0,05–0,20	0,03–0,08	80	0,05–0,12
P.4.1	70	0,05–0,20	0,03–0,08	70	0,05–0,12
P.4.2	60	0,05–0,20	0,03–0,08	60	0,05–0,12
M.1.1	130	0,05–0,25	0,03–0,08	130	0,05–0,15
M.2.1	120	0,05–0,25	0,03–0,08	120	0,05–0,15
M.3.1	120	0,05–0,25	0,03–0,08	120	0,05–0,15
K.1.1	140	0,05–0,25	0,03–0,11	140	0,05–0,15
K.1.2	100	0,05–0,25	0,03–0,10	100	0,05–0,15
K.2.1	140	0,05–0,25	0,03–0,11	140	0,05–0,15
K.2.2	120	0,05–0,25	0,03–0,10	120	0,05–0,15
K.3.1	140	0,05–0,25	0,03–0,11	140	0,05–0,15
K.3.2	100	0,05–0,25	0,03–0,10	100	0,05–0,15
N.1.1	700	0,15–0,40	0,04–0,15	700	0,10–0,25
N.1.2	400	0,15–0,40	0,04–0,15	400	0,10–0,25
N.2.1	400	0,15–0,40	0,04–0,15	400	0,10–0,25
N.2.2	300	0,15–0,40	0,04–0,15	300	0,10–0,25
N.2.3	200	0,15–0,40	0,04–0,15	200	0,10–0,25
N.3.1	160	0,15–0,40	0,04–0,15	160	0,10–0,25
N.3.2	160	0,15–0,40	0,04–0,15	160	0,10–0,25
N.3.3	160	0,15–0,40	0,04–0,15	160	0,10–0,25
N.4.1	160	0,15–0,40	0,04–0,15	160	0,10–0,25
S.1.1	100	0,01–0,15	0,01–0,11	100	0,01–0,12
S.1.2	80	0,01–0,15	0,01–0,11	80	0,01–0,12
S.2.1	60	0,01–0,15	0,01–0,11	60	0,01–0,12
S.2.2	40	0,01–0,15	0,01–0,11	40	0,01–0,12
S.2.3	40	0,01–0,15	0,01–0,11	40	0,01–0,12
S.3.1	100	0,01–0,15	0,01–0,11	100	0,01–0,12
S.3.2	80	0,01–0,15	0,01–0,11	80	0,01–0,12
S.3.3	60	0,01–0,15	0,01–0,11	60	0,01–0,12
H.1.1	60	0,01–0,10	0,01–0,06	60	0,01–0,10
H.1.2	50	0,01–0,10	0,01–0,06	50	0,01–0,10
H.1.3	40	0,01–0,10	0,01–0,06	40	0,01–0,10
H.1.4	30	0,01–0,10	0,01–0,06	30	0,01–0,10
H.2.1	60	0,01–0,10	0,01–0,06	60	0,01–0,10
H.3.1	50	0,01–0,10	0,01–0,06	50	0,01–0,10
O.1.1	180	0,05–0,25	0,04–0,15	180	0,05–0,15
O.1.2	220	0,05–0,25	0,04–0,15	220	0,05–0,15
O.2.1	120	0,05–0,25	0,04–0,15	120	0,05–0,15
O.2.2	120	0,05–0,25	0,04–0,15	120	0,05–0,15
O.3.1	800	0,05–0,25	0,04–0,15	800	0,05–0,15

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

Index	53 006 ..., 53 007 ..., 53 008 ..., 53 009 ..., 53 010 ..., 53 011 ..., 53 012 ..., 53 013 ..., 53 015 ..., 53 016 ..., 53 017 ...				53 050 ..., 53 051 ..., 53 052 ..., 53 053 ...	
	Mini Mill	hole (Circular milling)	Thread (Thread milling)	Parting (multipurpose milling)	Micro Mill	
	v_c (m/min)	f_z (mm/tooth)			v_c (m/min)	f_z (mm/tooth)
P.1.1	**120** (80–200)	0,03–0,10	0,05–0,20	0,015–0,05	**70** (40–120)	0,01–0,05
P.1.2	**110** (70–190)	0,03–0,10	0,05–0,20	0,015–0,05	**60** (40–110)	0,01–0,05
P.1.3	**90** (60–150)	0,03–0,10	0,05–0,20	0,015–0,05	**50** (30–80)	0,01–0,05
P.1.4	**90** (60–150)	0,03–0,08	0,05–0,18	0,015–0,04	**50** (30–80)	0,01–0,05
P.1.5	**70** (50–120)	0,03–0,08	0,05–0,18	0,015–0,04	**40** (30–70)	0,01–0,05
P.2.1	**90** (60–150)	0,03–0,10	0,05–0,20	0,015–0,05	**50** (30–80)	0,01–0,05
P.2.2	**70** (50–120)	0,03–0,08	0,05–0,18	0,015–0,04	**40** (30–70)	0,01–0,05
P.2.3	**60** (40–110)	0,02–0,07	0,05–0,16	0,015–0,035	**40** (20–70)	0,01–0,05
P.2.4	**60** (40–100)	0,03–0,07	0,05–0,16	0,015–0,035	**30** (20–60)	0,01–0,04
P.3.1	**60** (40–100)	0,03–0,10	0,05–0,20	0,015–0,05	**30** (20–60)	0,01–0,05
P.3.2	**50** (30–80)	0,02–0,07	0,05–0,16	0,015–0,035	**30** (20–50)	0,01–0,04
P.3.3	**30** (20–60)	0,02–0,07	0,05–0,16	0,015–0,035	**20** (10–40)	0,005–0,03
P.4.1	**80** (50–130)	0,03–0,08	0,05–0,18	0,015–0,04	**40** (30–70)	0,01–0,05
P.4.2	**60** (40–110)	0,02–0,07	0,05–0,16	0,015–0,035	**40** (20–70)	0,01–0,05
M.1.1	**90** (60–150)	0,02–0,07	0,05–0,16	0,015–0,035	**50** (30–80)	0,01–0,03
M.2.1	**60** (40–110)	0,02–0,07	0,05–0,16	0,015–0,035	**40** (20–70)	0,01–0,03
M.3.1	**50** (30–90)	0,02–0,07	0,05–0,16	0,015–0,035	**30** (20–50)	0,01–0,03
K.1.1	**110** (70–190)	0,03–0,10	0,05–0,20	0,015–0,05	**60** (40–110)	0,008–0,06
K.1.2	**80** (50–140)	0,03–0,10	0,05–0,20	0,015–0,05	**50** (30–80)	0,008–0,06
K.2.1	**70** (50–120)	0,03–0,10	0,05–0,20	0,015–0,05	**40** (30–70)	0,008–0,06
K.2.2	**60** (40–100)	0,03–0,10	0,05–0,20	0,015–0,05	**30** (20–60)	0,008–0,06
K.3.1	**110** (70–190)	0,03–0,10	0,05–0,20	0,015–0,05	**60** (40–110)	0,008–0,06
K.3.2	**90** (60–160)	0,03–0,10	0,05–0,20	0,015–0,05	**50** (30–90)	0,008–0,06
N.1.1	**230** (150–390)	0,04–0,15	0,06–0,25	0,02–0,075	**150** (90–260)	0,01–0,06
N.1.2	**220** (140–370)	0,04–0,15	0,06–0,25	0,02–0,075	**140** (90–240)	0,01–0,06
N.2.1	**190** (120–320)	0,04–0,15	0,06–0,25	0,02–0,075	**120** (70–210)	0,01–0,06
N.2.2	**160** (110–270)	0,04–0,15	0,06–0,25	0,02–0,075	**100** (60–180)	0,01–0,06
N.2.3	**90** (60–160)	0,04–0,15	0,06–0,25	0,02–0,075	**60** (40–110)	0,01–0,06
N.3.1	**170** (110–280)	0,04–0,15	0,06–0,25	0,02–0,075	**110** (70–180)	0,01–0,06
N.3.2	**140** (90–240)	0,04–0,15	0,06–0,25	0,02–0,075	**80** (50–150)	0,01–0,06
N.3.3	**120** (80–210)	0,04–0,15	0,06–0,25	0,02–0,075	**80** (50–140)	0,01–0,06
N.4.1	**170** (110–280)	0,04–0,15	0,06–0,25	0,02–0,075	**70** (40–120)	0,01–0,06
S.1.1	60 (40–100)	0,04–0,15	0,06–0,25	0,02–0,075	**30** (20–50)	0,01–0,06
S.1.2	40 (30–70)	0,04–0,15	0,06–0,25	0,02–0,075	**20** (10–30)	0,01–0,06
S.2.1	60 (40–100)	0,04–0,15	0,06–0,25	0,02–0,075	**30** (20–50)	0,01–0,06
S.2.2	50 (30–80)	0,04–0,15	0,06–0,25	0,02–0,075	**20** (10–40)	0,01–0,06
S.2.3	30 (20–60)	0,04–0,15	0,06–0,25	0,02–0,075	**20** (10–30)	0,01–0,06
S.3.1	60 (40–100)	0,04–0,15	0,06–0,25	0,02–0,075	**20** (10–40)	0,01–0,06
S.3.2	30 (20–60)	0,04–0,15	0,06–0,25	0,02–0,075	**20** (10–30)	0,01–0,06
S.3.3	30 (20–50)	0,04–0,15	0,06–0,25	0,02–0,075	**10** (10–20)	0,01–0,06
H.1.1	50 (30–90)	0,02–0,06	0,04–0,14	0,02–0,037	**20** (10–40)	0,005–0,03
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1	40 (30–70)	0,02–0,10		0,015–0,05	**20** (10–40)	0,005–0,03
O.1.1	**180** (120–310)	0,04–0,15	0,06–0,25	0,02–0,037	**80** (50–130)	0,02–0,09
O.1.2	**170** (110–280)	0,04–0,15	0,06–0,25	0,02–0,037	**70** (40–120)	0,02–0,09
O.2.1	**140** (90–230)	0,04–0,15	0,06–0,25	0,02–0,037	**50** (30–100)	0,02–0,09
O.2.2	**100** (70–170)	0,04–0,15	0,06–0,25	0,02–0,037	**40** (30–70)	0,02–0,09
O.3.1	**140** (90–230)	0,005–0,05	0,06–0,25	0,0025–0,025	**60** (40–110)	0,02–0,09

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

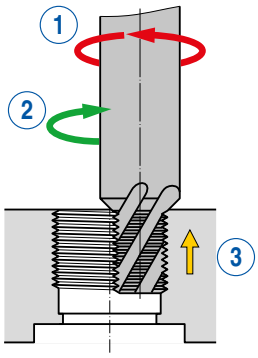
Milling Procedures

Climb milling

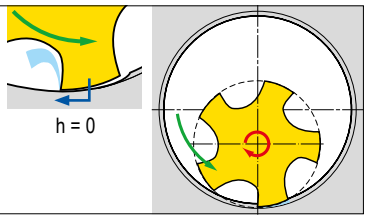
Characteristics:

1. Tool rotation direction „right“
2. Toolpath counter clockwise
3. Feed direction „outwards“

▶ Right hand thread



When climb milling, the chip thickness at the end of cut is always 0 (h=0)

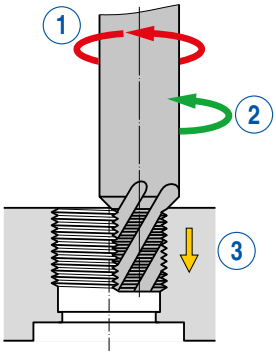


Conventional milling

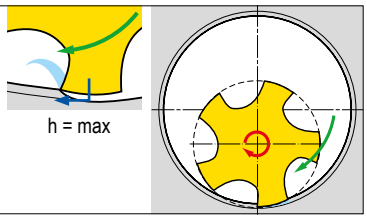
Characteristics:

1. Tool rotation direction „right“
2. Toolpath clockwise
3. Feed direction „inwards“

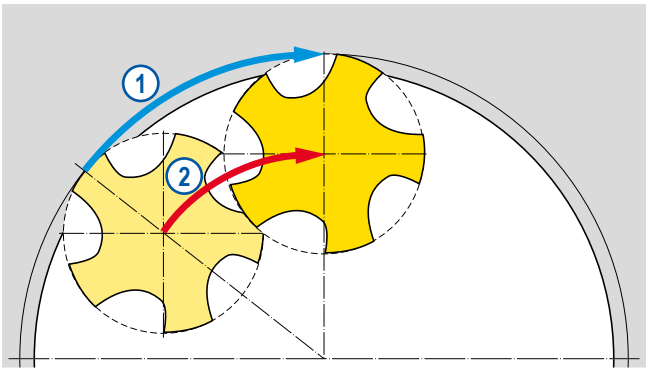
▶ Right hand thread



When conventional milling, the chip thickness at the end of cut is always at maximum (h=max)

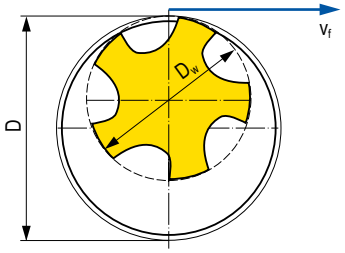


Feed rate calculation



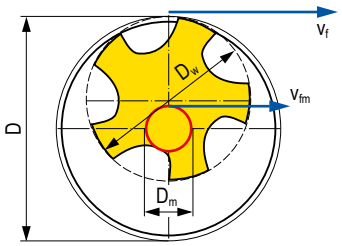
D_w = Effective diameter in mm
n = RPM in min^{-1}
f_z = Feed per tooth in mm
z = Number of cutting edges (radial)
D = Nominal thread diameter = external profile diameter in mm
D_m = Centre path diameter ($D-D_w$) in mm

1 Peripheral feedrate v_f



$$v_f = n \times f_z \times z \quad \text{mm/min.}$$

2 Centerline feedrate v_{fm}



$$v_{fm} = \frac{v_f \times (D - D_w)}{D} \quad \text{mm/min.}$$

Tips for the User

With thread milling there are two different programme possibilities with the feed motion of the tool.

On the one hand the machine controls the feed at the diameter of the tool, on the other hand the feed control is the tool center line.
In order to ascertain which method the machine control uses, the following method should be employed:

- ▲ Enter the thread milling routine into the control.
- ▲ Enter a safety margin into the program, so that the tool runs in air.
- ▲ Run the program through and check the operating time.
- ▲ Compare the actual time with the calculated theoretical time.

If the time is longer than the calculated time the feed is controlling the tool center line.
If the time is shorter than the calculated time the feed is controlling the diameter of the tool.

Numeric calculation of cutting data for thread milling

$$n = \frac{v_c \times 1000}{d \times \pi}$$

$$v_c = \frac{d \times \pi \times n}{1000}$$

$$v_f = f_z \times z \times n$$

$$n = \frac{v_f}{f_z \times z}$$

$$f_z = \frac{v_f}{z \times n}$$

Milling – external contour

$$v_{fm} = \frac{v_f \times (D + d)}{D}$$

$$v_f = \frac{D \times v_{fm}}{(D + d)}$$

Milling – internal contour

$$v_{fm} = \frac{v_f \times (D - d)}{D}$$

$$v_f = \frac{D \times v_{fm}}{(D - d)}$$

Helical plunging

$$U_{arc} = 0{,}25 \times v_{fm}$$

Ramping in the arc

$$U_{arc} = v_{fm}$$

n	rev./min.	=	rpm
v_c	m/min	=	Cutting speed
d	mm	=	Tool diameter
D	mm	=	Nominal thread-Ø
v_f	mm/min.	=	Feed rate at the diameter

v_{fm}	mm/min.	=	Feed rate at the centre
U_{arc}	mm/min.	=	programmed ramping feed rate
f_z	mm	=	Feed per tooth
z	Piece	=	number of cutting edges of the cutter

7

Correction values for the internal thread milling

The milling radius correction which is entered into the machine control, can be calculated as follows:

half the cutter Ø – 0.05 x pitch P

Example:
M30x3
Cutter-Ø:
20 mm

$$\frac{Ø20}{2} - (0{,}05 \times 3) = \underline{9{,}85\ mm}$$

9,85 mm is the milling radius to be entered into the machine control

Coatings

AlCrN
- ▲ High-performance AlCrN multilayer coating
- ▲ max.application temperature: > 1100 °C

CWX 500
- ▲ Carbide, TiAlN-coated
- ▲ The universal carbide grade for almost all materials

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

TiCN
- ▲ TiCN multilayer coating
- ▲ Maximum application temperature: 450 °C

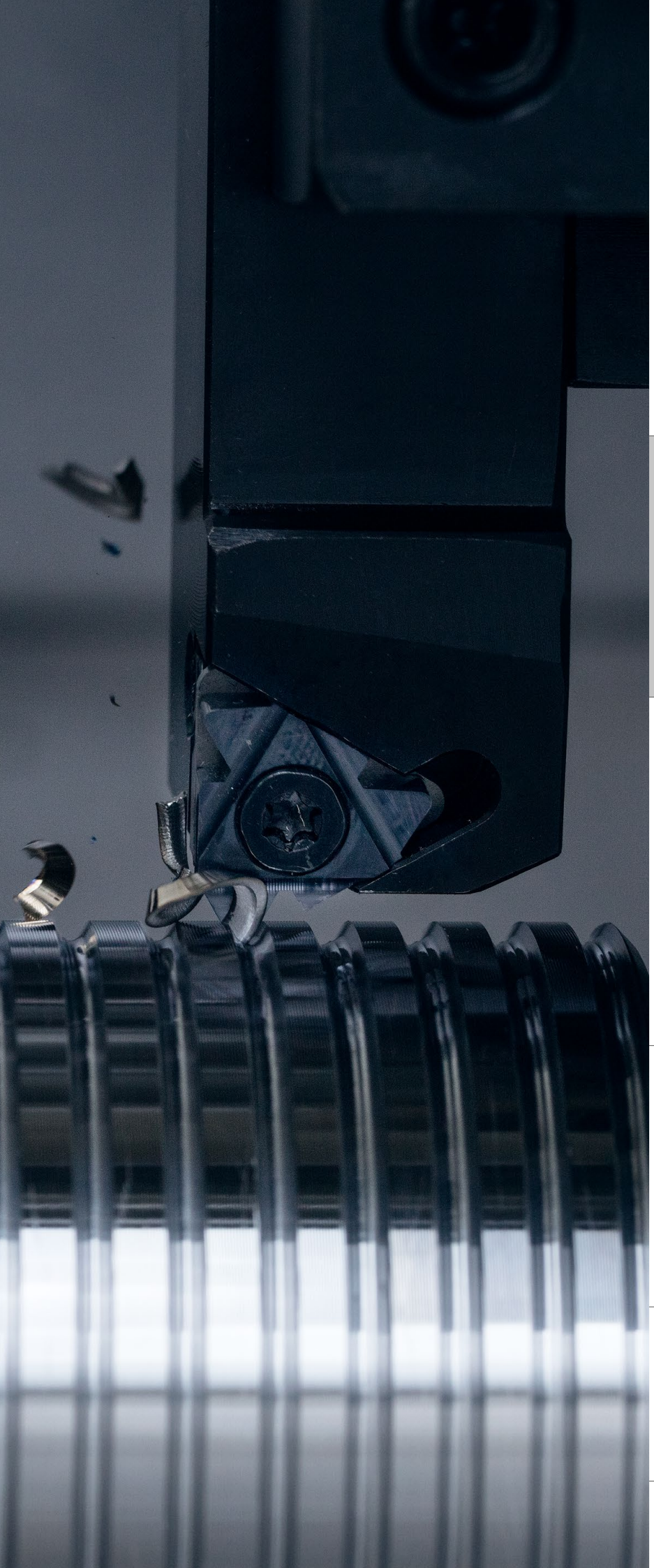
TiN
- ▲ TiN coating
- ▲ Maximum application temperature: 450 °C

Ti 500
- ▲ TiAlN-coating
- ▲ Maximum application temperature: 500 °C

Ti 600
- ▲ TiAlN multilayer coating
- ▲ Maximum application temperature: 650 °C

Ti 601
- ▲ High-performance TiAlN multilayer coating
- ▲ Maximum application temperature: 900 °C

Ti 602
- ▲ TiCN multilayer coating
- ▲ Maximum application temperature: 400 °C



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

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Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

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17 Workpiece clamping

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WNT \ Performance

Premium quality tools for high performance.

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

Toolfinder

MiniCut

M	G	Tr
Full profile Partial profile	Partial profile	Partial profile

→ **Chapter 12 – Miniature turning tools**

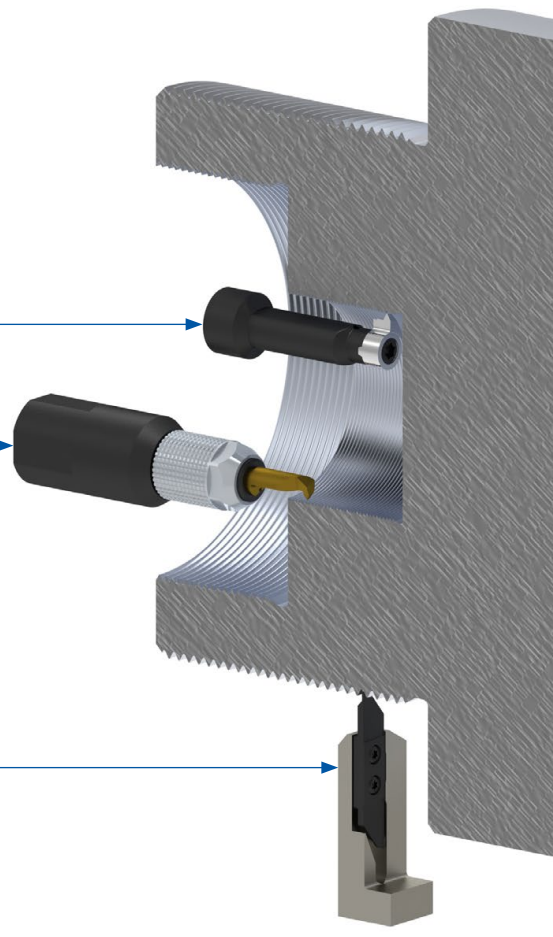
UltraMini

M	MF	G	Tr
Full profile Partial profile	Full profile Partial profile	Partial profile	Partial profile

→ **Chapter 12 – Miniature turning tools**

VertiClamp

→ **Sliding head tooling catalogue**



Symbol explanation

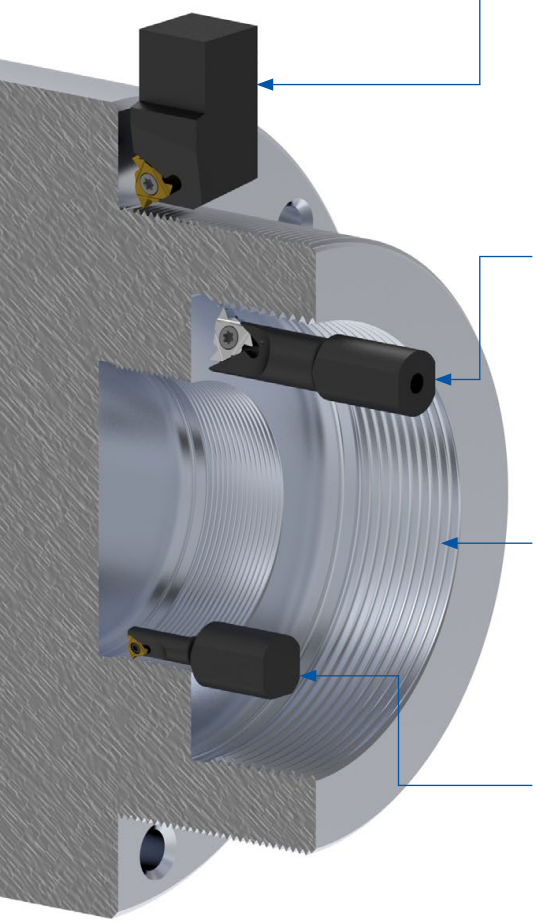
Flank angle

- 30° — Flank angle 30° (Trapezoidal thread)
- 30° — Flank angle 30° (Round thread)
- 55° — Flank angle 55°
- 60° — Flank angle 60°
- 80° — Flank angle 80° (Conduit thread)

TP / TPI = Pitch
NT = Number of flutes
● = **Main Application**
○ = Extended application

Thread

- **M** — ISO metric coarse thread DIN 13
- **MF** — ISO Metric fine thread DIN 13
- **BSW** — British Whitworth thread BS 84
- **UN** — American unified thread BS 1580 (ASME B 1.1)
- **UNC** — American unified thread (coarse) BS 1580 (ASME B 1.1)
- **UNF** — American unified thread (fine) BS 1580 (ASME B 1.1)
- **UNEF** — American unified thread (extra fine) BS 1580 (ASME B 1.1)
- **NPT** — American pipe thread ANSI/ASME B 1.20.3
- **Tr** — Trapezoidal thread DIN 103
- **Rd** — Round Thread DIN 405
- **Pg** — Conduit Threads DIN 40430



Standard external thread turning

Full profile

M	BSW	UN	UNC	UNF	UNEF	NPT	Tr	Rd	Pg
6+7	11+12	15+16	15+16	15+16	15+16	19	21	24	26

Partial profile

60°	55°
28	30

Multi-cutting edge

M
10

Suitable holders can be found on → page 32+33

Standard internal thread turning

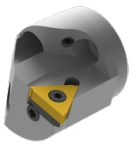
Full profile

M	BSW	UN	UNC	UNF	UNEF	NPT	Tr	Rd	Pg
8+9	13+14	17+18	17+18	17+18	17+18	20	22	25	27

Partial profile

60°	55°
29	31

Suitable holders can be found on → page 34–36



Internal threading with MaxiChange – our exchangeable head system

→ Chapter 9 – Turning Tools

Mini 06

Full profile

M	BSW
37	37

Partial profile

60°	55°
38	38

Mini 08

Full profile

M
39

Partial profile

60°	55°
39+40	40+41

Suitable holders can be found on → page 42

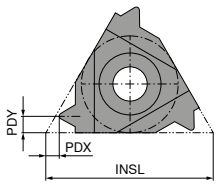
Information on the different thread profiles can be found on → **Page 51.**

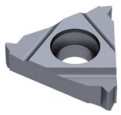
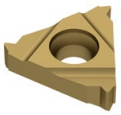
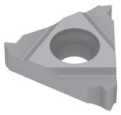
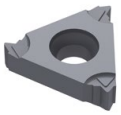
8

Right hand external thread turning insert

▲ Full profile
▲ CCN7525 grade with sintered chip breaker for universal application

M | MF | 60°



CCN20	CWN1525	HCN2525	CWK20	CCN7525
				

Designation	TP	INSL	PDX	PDY	ER 71 220 ...		ER 71 220 ...		ER 71 220 ...		ER 71 220 ...		ER 71 220 ...	
	mm	mm	mm	mm										
11 ER 0,35	0,35	11	0,8	0,4	**204**									
11 ER 0,4	0,40	11	0,7	0,4	**206**									
11 ER 0,45	0,45	11	0,7	0,4	**208**									
11 ER 0,5	0,50	11	0,6	0,6	**209**									
11 ER 0,6	0,60	11	0,6	0,6	**210**									
11 ER 0,7	0,70	11	0,6	0,6	**211**									
11 ER 0,75	0,75	11	0,6	0,6	**212**									
11 ER 0,8	0,80	11	0,6	0,6	**213**									
11 ER 1,0	1,00	11	0,7	0,7	**214**									
11 ER 1,25	1,25	11	0,8	0,9	**216**									
11 ER 1,5	1,50	11	0,8	1,0	**218**									
11 ER 1,75	1,75	11	0,8	1,1	**220**									
16 ER 0,35	0,35	16	0,8	0,4	**234**				**734**		**634**			
16 ER 0,4	0,40	16	0,7	0,4	**236**				**736**		**636**			
16 ER 0,45	0,45	16	0,7	0,4	**238**						**638**			
16 ER 0,5	0,50	16	0,6	0,6	**240**		**140**		**740**		**640**		**940**	
16 ER 0,7	0,70	16	0,6	0,6	**241**		**141**		**741**		**641**			
16 ER 0,75	0,75	16	0,6	0,6	**242**		**142**		**742**		**642**		**942**	
16 ER 0,8	0,80	16	0,6	0,6	**243**		**143**		**743**		**643**		**943**	
16 ER 1,0	1,00	16	0,7	0,7	**244**		**144**		**744**		**644**		**944**	
16 ER 1,25	1,25	16	0,8	0,9	**246**		**146**		**746**		**646**		**946**	
16 ER 1,5	1,50	16	0,8	1,0	**248**		**148**		**748**		**648**		**948**	
16 ER 1,75	1,75	16	0,9	1,2	**250**		**150**		**750**		**650**			
16 ER 2,0	2,00	16	1,0	1,3	**252**		**152**		**752**		**652**		**952**	
16 ER 2,5	2,50	16	1,1	1,5	**254**		**154**		**754**		**654**		**954**	
16 ER 3,0	3,00	16	1,2	1,6	**256**		**156**		**756**		**656**		**956**	
22 ER 3,5	3,50	22	1,6	2,3	**270**		**170**		**770**					
22 ER 4,0	4,00	22	1,6	2,3	**272**		**172**		**772**					
22 ER 4,5	4,50	22	1,7	2,4	**274**		**174**		**774**					
22 ER 5,0	5,00	22	1,7	2,5	**276**		**176**		**776**					
22 ER 5,5	5,50	22	1,7	2,6			**178**							
22 ER 5,5	5,50	22	1,9	2,7	**278**									
22 EN 5,5	5,50	22	2,3	11,0	**282**	1)								
22 ER 6,0	6,00	22	1,9	2,7			**180**		**780**					
22 ER 6,0	6,00	22	2,0	2,9	**280**									
22 EN 6,0	6,00	22	2,6	11,0	**284**	1)								

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

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

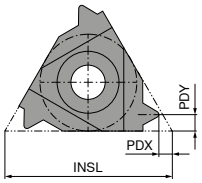
→ v_c Page 45

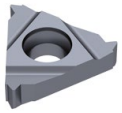
Left hand external thread turning insert

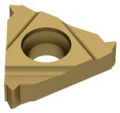
▲ Full profile

M | MF | 60°

CCN20 | CWN1525







Designation	TP mm	INSL mm	PDX mm	PDY mm	EL 71 222 ...	EL 71 222 ...
11 EL 0,35	0,35	11	0,8	0,4	**204**	
11 EL 0,4	0,40	11	0,7	0,4	**206**	
11 EL 0,45	0,45	11	0,7	0,4	**208**	
11 EL 0,5	0,50	11	0,6	0,6	**209**	
11 EL 0,6	0,60	11	0,6	0,6	**210**	
11 EL 0,7	0,70	11	0,6	0,6	**211**	
11 EL 0,75	0,75	11	0,6	0,6	**212**	
11 EL 0,8	0,80	11	0,6	0,6	**213**	
11 EL 1,0	1,00	11	0,7	0,7	**214**	
11 EL 1,25	1,25	11	0,8	0,9	**216**	
11 EL 1,5	1,50	11	0,8	1,0	**218**	
11 EL 1,75	1,75	11	0,8	1,1	**220**	
16 EL 0,35	0,35	16	0,8	0,4	**234**	
16 EL 0,4	0,40	16	0,7	0,4	**236**	
16 EL 0,45	0,45	16	0,7	0,4	**238**	
16 EL 0,5	0,50	16	0,6	0,6	**240**	
16 EL 0,7	0,70	16	0,6	0,6	**241**	
16 EL 0,75	0,75	16	0,6	0,6	**242**	
16 EL 0,8	0,80	16	0,6	0,6	**243**	
16 EL 1,0	1,00	16	0,7	0,7	**244**	**144**
16 EL 1,25	1,25	16	0,8	0,9	**246**	**146**
16 EL 1,5	1,50	16	0,8	1,0	**248**	**148**
16 EL 1,75	1,75	16	0,9	1,2	**250**	
16 EL 2,0	2,00	16	1,0	1,3	**252**	**152**
16 EL 2,5	2,50	16	1,1	1,5	**254**	
16 EL 3,0	3,00	16	1,2	1,6	**256**	**156**
22 EL 3,5	3,50	22	1,6	2,3	**270**	
22 EL 4,0	4,00	22	1,6	2,3	**272**	
22 EL 4,5	4,50	22	1,7	2,4	**274**	
22 EL 5,0	5,00	22	1,7	2,5	**276**	
22 EL 5,5	5,50	22	1,9	2,7	**278**	
22 EL 6,0	6,00	22	2,0	2,9	**280**	

P	●	●
M	●	○
K	●	●
N		●
S	○	
H	○	
O		○

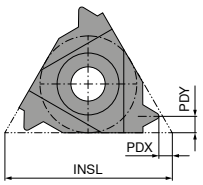
→ v_c Page 45

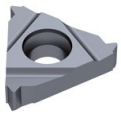
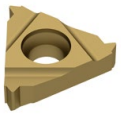
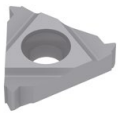
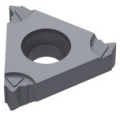
8

Right hand internal thread turning insert

▲ Full profile
▲ CCN7525 grade with sintered chip breaker for universal application

M | MF | 60°



CCN20	CWN1525	HCN2525	CWK20	CCN7525
				

Designation	TP	INSL	PDX	PDY	IR 71 224 ...	IR 71 224 ...	IR 71 224 ...	IR 71 224 ...	IR 71 224 ...
	mm	mm	mm	mm					
11 IR 0,35	0,35	11	0,8	0,3	**204**				
11 IR 0,4	0,40	11	0,8	0,4	**206**				
11 IR 0,45	0,45	11	0,8	0,4	**208**				
11 IR 0,5	0,50	11	0,6	0,6	**210**				
11 IR 0,7	0,70	11	0,6	0,6	**211**				
11 IR 0,75	0,75	11	0,6	0,6	**212**				**912**
11 IR 0,8	0,80	11	0,6	0,6	**213**		**713**		
11 IR 1,0	1,00	11	0,6	0,6					**914**
11 IR 1,0	1,00	11	0,6	0,7	**214**	**114**	**714**		
11 IR 1,25	1,25	11	0,8	0,9	**216**				
11 IR 1,5	1,50	11	0,8	0,9					**918**
11 IR 1,5	1,50	11	0,8	1,0	**218**	**118**	**718**		
11 IR 1,75	1,75	11	0,9	1,1	**220**				
11 IR 2,0	2,00	11	0,8	0,9		**122**	**722**		
11 IR 2,0	2,00	11	0,9	1,1	**222**				
11 IR 2,5	2,50	11	0,8	1,2		**124**	**724**		
11 IR 2,5	2,50	11	0,9	1,1	**224**				
16 IR 0,35	0,35	16	0,8	0,4	**234**			**634**	
16 IR 0,4	0,40	16	0,7	0,4	**236**			**636**	
16 IR 0,45	0,45	16	0,7	0,4	**238**			**638**	
16 IR 0,5	0,50	16	0,6	0,6	**240**			**640**	
16 IR 0,7	0,70	16	0,6	0,6	**241**			**641**	
16 IR 0,75	0,75	16	0,6	0,6	**242**	**142**	**742**	**642**	
16 IR 0,8	0,80	16	0,6	0,6	**243**			**643**	
16 IR 1,0	1,00	16	0,6	0,7		**144**	**744**		**944**
16 IR 1,0	1,00	16	0,7	0,7	**244**			**644**	
16 IR 1,25	1,25	16	0,8	0,9	**246**		**746**	**646**	**946**
16 IR 1,5	1,50	16	0,8	1,0	**248**	**148**	**748**	**648**	**948**
16 IR 1,75	1,75	16	0,9	1,2	**250**		**750**	**650**	
16 IR 2,0	2,00	16	1,0	1,3	**252**	**152**	**752**	**652**	**952**
16 IR 2,5	2,50	16	1,1	1,5	**254**	**154**	**754**	**654**	**954**
16 IR 3,0	3,00	16	1,1	1,5	**256**	**156**	**756**	**656**	**956**
22 IR 3,5	3,50	22	1,6	2,3	**270**	**170**	**770**		
22 IR 4,0	4,00	22	1,6	2,3	**272**	**172**	**772**		
22 IR 4,5	4,50	22	1,6	2,4		**174**	**774**		
22 IR 4,5	4,50	22	1,7	2,4	**274**				
22 IR 5,0	5,00	22	1,6	2,3		**176**			
22 IR 5,0	5,00	22	1,7	2,5	**276**				
22 IR 5,5	5,50	22	1,6	2,3		**178**			
22 IR 5,5	5,50	22	1,9	2,7	**278**				
22 IN 5,5	5,50	22	2,3	11,0	**282** [1]				
22 IR 6,0	6,00	22	1,6	2,4		**180**			
22 IR 6,0	6,00	22	2,0	2,9	**280**				
22 IN 6,0	6,00	22	2,6	11,0	**284** [1]				

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

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

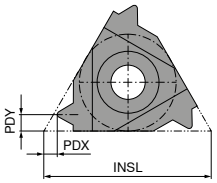
→ v_c Page 45

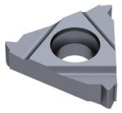
Left hand internal thread turning insert

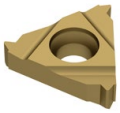
▲ Full profile

M | MF | 60°

CCN20 | CWN1525







Designation	TP mm	INSL mm	PDX mm	PDY mm	IL 71 226 ...	IL 71 226 ...
11 IL 0,35	0,35	11	0,8	0,3	**204**	
11 IL 0,4	0,40	11	0,8	0,4	**206**	
11 IL 0,45	0,45	11	0,8	0,4	**208**	
11 IL 0,5	0,50	11	0,6	0,6	**210**	
11 IL 0,7	0,70	11	0,6	0,6	**211**	
11 IL 0,75	0,75	11	0,6	0,6	**212**	
11 IL 0,8	0,80	11	0,6	0,6	**213**	
11 IL 1,0	1,00	11	0,6	0,7	**214**	
11 IL 1,25	1,25	11	0,8	0,9	**216**	
11 IL 1,5	1,50	11	0,8	1,0	**218**	
11 IL 1,75	1,75	11	0,9	1,1	**220**	
11 IL 2,0	2,00	11	0,9	1,1	**222**	
11 IL 2,5	2,50	11	0,9	1,1	**224**	
16 IL 0,35	0,35	16	0,8	0,4	**234**	
16 IL 0,4	0,40	16	0,7	0,4	**236**	
16 IL 0,45	0,45	16	0,7	0,4	**238**	
16 IL 0,5	0,50	16	0,6	0,6	**240**	
16 IL 0,7	0,70	16	0,6	0,6	**241**	
16 IL 0,75	0,75	16	0,6	0,6	**242**	
16 IL 0,8	0,80	16	0,6	0,6	**243**	
16 IL 1,0	1,00	16	0,6	0,7		**144**
16 IL 1,0	1,00	16	0,7	0,7	**244**	
16 IL 1,25	1,25	16	0,8	0,9	**246**	
16 IL 1,5	1,50	16	0,8	1,0	**248**	**148**
16 IL 1,75	1,75	16	0,9	1,2	**250**	
16 IL 2,0	2,00	16	1,0	1,3	**252**	**152**
16 IL 2,5	2,50	16	1,1	1,5	**254**	
16 IL 3,0	3,00	16	1,2	1,6	**256**	
22 IL 3,5	3,50	22	1,6	2,3	**270**	
22 IL 4,0	4,00	22	1,6	2,3	**272**	
22 IL 4,5	4,50	22	1,7	2,4	**274**	
22 IL 5,0	5,00	22	1,7	2,5	**276**	
22 IL 5,5	5,50	22	1,9	2,7	**278**	
22 IL 6,0	6,00	22	2,0	2,9	**280**	

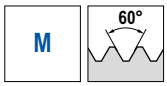
P	●	●
M	●	○
K	●	●
N		●
S	○	
H	○	
O		○

→ v_c Page 45

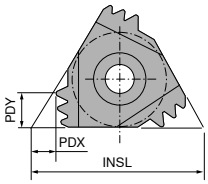
8

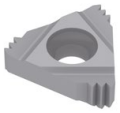
Right hand external thread turning insert

▲ Multi edge insert



HCN2525





Designation	TP mm	INSL mm	PDX mm	PDY mm	NT	ER 71 221 ...
16 ER 1,0 3M	1,0	16	1,7	2,5	3	**700**
16 ER 1,5 2M	1,5	16	1,5	2,3	2	**702**

P	○
M	●
K	○
N	○
S	○
H	○
O	

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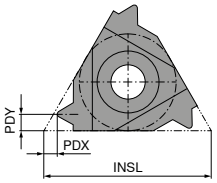
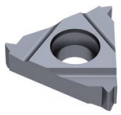
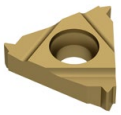
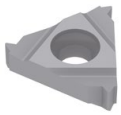
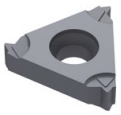
Right hand external thread turning insert

▲ Full profile
▲ CCN7525 grade with sintered chip breaker for universal application

BSW | 55°



	CCN20	CWN1525	HCN2525	CWK20	CCN7525
					
	ER	ER	ER	ER	ER
	71 228 ...	71 228 ...	71 228 ...	71 228 ...	71 228 ...

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm									
11 ER 72	72,0	11	0,7	0,4	202								
11 ER 60	60,0	11	0,7	0,4	204								
11 ER 56	56,0	11	0,7	0,4	206								
11 ER 48	48,0	11	0,6	0,6	208								
11 ER 40	40,0	11	0,6	0,6	210								
11 ER 36	36,0	11	0,6	0,6	212								
11 ER 32	32,0	11	0,6	0,6	214								
11 ER 28	28,0	11	0,6	0,7	216								
11 ER 26	26,0	11	0,7	0,8	218								
11 ER 24	24,0	11	0,7	0,8	220								
11 ER 22	22,0	11	0,8	0,9	222								
11 ER 20	20,0	11	0,8	0,9	224								
11 ER 19	19,0	11	0,8	1,0	226								
11 ER 18	18,0	11	0,8	1,0	228								
11 ER 16	16,0	11	0,9	1,1	230								
11 ER 14	14,0	11	0,9	1,1	232								
16 ER 40	40,0	16	0,6	0,6	240						640		
16 ER 36	36,0	16	0,6	0,6	242						642		
16 ER 32	32,0	16	0,6	0,6	244						644		
16 ER 28	28,0	16	0,6	0,7	246		146		746		646		
16 ER 26	26,0	16	0,7	0,7					748				
16 ER 26	26,0	16	0,7	0,8	248						648		
16 ER 24	24,0	16	0,7	0,8	250						650		
16 ER 22	22,0	16	0,8	0,9	252						652		
16 ER 20	20,0	16	0,8	0,9	254				754		654		
16 ER 19	19,0	16	0,8	1,0	256		156		756		656		956
16 ER 18	18,0	16	0,8	1,0	258						658		
16 ER 16	16,0	16	0,9	1,1	260		160		760		660		
16 ER 14	14,0	16	1,0	1,2	262		162		762		662		962
16 ER 12	12,0	16	1,1	1,4	264		164		764		664		
16 ER 11	11,0	16	1,1	1,5	266		166		766		666		966
16 ER 10	10,0	16	1,1	1,5	268						668		
16 ER 9	9,0	16	1,2	1,7	270						670		
16 ER 8	8,0	16	1,2	1,5	272						672		
22 ER 7	7,0	22	1,6	2,3	280								
22 ER 6	6,0	22	1,6	2,3	282								
22 ER 5	5,0	22	1,7	2,4	284								
22 EN 4,5	4,5	22	2,3	11,0	290 [1]								
22 EN 4	4,0	22	1,8	11,0	292 [1]								

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

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

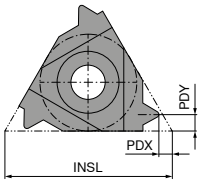
→ v_c Page 45

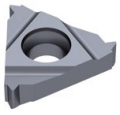
8

Left hand external thread turning insert

▲ Full profile

CCN20





EL

71 229 ...

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	
11 EL 72	72	11	0,7	0,4	**202**
11 EL 60	60	11	0,7	0,4	**204**
11 EL 56	56	11	0,7	0,4	**206**
11 EL 48	48	11	0,6	0,6	**208**
11 EL 40	40	11	0,6	0,6	**210**
11 EL 36	36	11	0,6	0,6	**212**
11 EL 32	32	11	0,6	0,6	**214**
11 EL 28	28	11	0,6	0,7	**216**
11 EL 26	26	11	0,7	0,8	**218**
11 EL 24	24	11	0,7	0,8	**220**
11 EL 22	22	11	0,8	0,9	**222**
11 EL 20	20	11	0,8	0,9	**224**
11 EL 19	19	11	0,8	1,0	**226**
11 EL 18	18	11	0,8	1,0	**228**
11 EL 16	16	11	0,9	1,1	**230**
11 EL 14	14	11	0,9	1,1	**232**
16 EL 40	40	16	0,6	0,6	**240**
16 EL 36	36	16	0,6	0,6	**242**
16 EL 32	32	16	0,6	0,6	**244**
16 EL 28	28	16	0,6	0,7	**246**
16 EL 26	26	16	0,7	0,8	**248**
16 EL 24	24	16	0,7	0,8	**250**
16 EL 22	22	16	0,8	0,9	**252**
16 EL 20	20	16	0,8	0,9	**254**
16 EL 19	19	16	0,8	1,0	**256**
16 EL 18	18	16	0,8	1,0	**258**
16 EL 16	16	16	0,9	1,1	**260**
16 EL 14	14	16	1,0	1,2	**262**
16 EL 12	12	16	1,1	1,4	**264**
16 EL 11	11	16	1,1	1,5	**266**
16 EL 10	10	16	1,1	1,5	**268**
16 EL 9	9	16	1,2	1,7	**270**
16 EL 8	8	16	1,2	1,5	**272**
22 EL 7	7	22	1,6	2,3	**280**
22 EL 6	6	22	1,6	2,3	**282**
22 EL 5	5	22	1,7	2,4	**284**

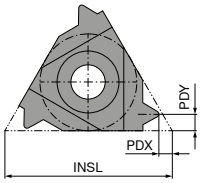
P	●
M	●
K	●
N	
S	○
H	○
O	

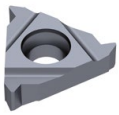
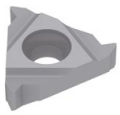
→ v_c Page 45

Right hand internal thread turning insert

▲ Full profile
▲ CCN7525 grade with sintered chip breaker for universal application

BSW | 55°



	CCN20	CWN1525	HCN2525	CCN7525
				
	IR	IR	IR	IR
	71 230 ...	71 230 ...	71 230 ...	71 230 ...

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm							
11 IR 48	48	11	0,6	0,6	206						
11 IR 40	40	11	0,6	0,6	208						
11 IR 36	36	11	0,6	0,6	210						
11 IR 32	32	11	0,6	0,6	212						
11 IR 28	28	11	0,6	0,7	214						
11 IR 26	26	11	0,7	0,8	216						
11 IR 24	24	11	0,7	0,8	218						
11 IR 22	22	11	0,8	0,9	220						
11 IR 20	20	11	0,8	0,9	222						
11 IR 19	19	11	0,8	1,0	224		124		724		
11 IR 19	19	11	0,8	0,9							924
11 IR 18	18	11	0,8	1,0	226						
11 IR 16	16	11	0,9	1,1	228						
11 IR 14	14	11	0,9	1,1	230		130		730		
11 IR 14	14	11	0,8	0,9							930
16 IR 40	40	16	0,6	0,6	240						
16 IR 36	36	16	0,6	0,6	242						
16 IR 32	32	16	0,6	0,6	244						
16 IR 28	28	16	0,6	0,7	246						
16 IR 26	26	16	0,7	0,8	248						
16 IR 24	24	16	0,7	0,8	250						
16 IR 22	22	16	0,8	0,9	252						
16 IR 20	20	16	0,8	0,9	254						
16 IR 19	19	16	0,8	1,0	256						
16 IR 18	18	16	0,8	1,0	258						
16 IR 16	16	16	0,9	1,1	260				760		
16 IR 14	14	16	1,0	1,2	262		162		762		962
16 IR 12	12	16	1,1	1,4	264						
16 IR 11	11	16	1,1	1,5	266		166		766		966
16 IR 10	10	16	1,1	1,5	268						
16 IR 9	9	16	1,2	1,7	270						
16 IR 8	8	16	1,2	1,5	272						
22 IR 7	7	22	1,6	2,3	280						
22 IR 6	6	22	1,6	2,3	282						
22 IR 5	5	22	1,7	2,4	284						

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

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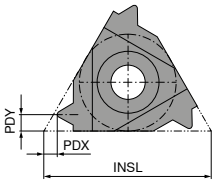
8

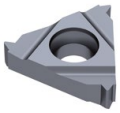
Left hand internal thread turning insert

▲ Full profile

BSW

CCN20





Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 231 ...
11 IL 48	48	11	0,6	0,6	**206**
11 IL 40	40	11	0,6	0,6	**208**
11 IL 36	36	11	0,6	0,6	**210**
11 IL 32	32	11	0,6	0,6	**212**
11 IL 28	28	11	0,6	0,7	**214**
11 IL 26	26	11	0,7	0,8	**216**
11 IL 24	24	11	0,7	0,8	**218**
11 IL 22	22	11	0,8	0,9	**220**
11 IL 20	20	11	0,8	0,9	**222**
11 IL 19	19	11	0,8	1,0	**224**
11 IL 18	18	11	0,8	1,0	**226**
11 IL 16	16	11	0,9	1,1	**228**
11 IL 14	14	11	0,9	1,1	**230**
16 IL 40	40	16	0,6	0,6	**240**
16 IL 36	36	16	0,6	0,6	**242**
16 IL 32	32	16	0,6	0,6	**244**
16 IL 28	28	16	0,6	0,7	**246**
16 IL 26	26	16	0,7	0,8	**248**
16 IL 24	24	16	0,7	0,8	**250**
16 IL 22	22	16	0,8	0,9	**252**
16 IL 20	20	16	0,8	0,9	**254**
16 IL 19	19	16	0,8	1,0	**256**
16 IL 18	18	16	0,8	1,0	**258**
16 IL 16	16	16	0,9	1,1	**260**
16 IL 14	14	16	1,0	1,2	**262**
16 IL 12	12	16	1,1	1,4	**264**
16 IL 11	11	16	1,1	1,5	**266**
16 IL 10	10	16	1,1	1,5	**268**
16 IL 9	9	16	1,2	1,7	**270**
16 IL 8	8	16	1,2	1,5	**272**
22 IL 7	7	22	1,6	2,3	**280**
22 IL 6	6	22	1,6	2,3	**282**
22 IL 5	5	22	1,7	2,4	**284**

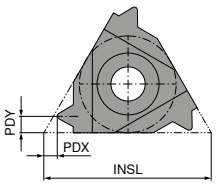
P	●
M	●
K	●
N	
S	○
H	○
O	

→ v_c Page 45

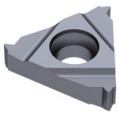
Right hand external thread turning insert

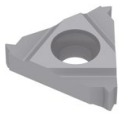
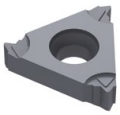
▲ Full profile
▲ CCN7525 grade with sintered chip breaker for universal application

UN | UNC | UNF | UNEF | 60°



CCN20 | CWN1525 | HCN2525 | CCN7525



Designation	TPI	INSL	PDX	PDY	ER 71 264 ...		ER 71 264 ...		ER 71 264 ...		ER 71 264 ...	
	1/"	mm	mm	mm								
11 ER 72	72,0	11	0,8	0,4	**202**							
11 ER 64	64,0	11	0,8	0,4	**204**							
11 ER 56	56,0	11	0,7	0,4	**206**							
11 ER 48	48,0	11	0,6	0,6	**208**							
11 ER 44	44,0	11	0,6	0,6	**210**							
11 ER 40	40,0	11	0,6	0,6	**212**							
11 ER 36	36,0	11	0,6	0,6	**214**							
11 ER 32	32,0	11	0,6	0,6	**216**							
11 ER 28	28,0	11	0,6	0,7	**218**							
11 ER 27	27,0	11	0,7	0,8	**220**							
11 ER 24	24,0	11	0,7	0,8	**222**							
11 ER 20	20,0	11	0,8	0,9	**224**							
11 ER 18	18,0	11	0,8	1,0	**226**							
11 ER 16	16,0	11	0,9	1,1	**228**							
11 ER 14	14,0	11	0,9	1,1	**230**							
16 ER 72	72,0	16	0,8	0,4	**232**							
16 ER 64	64,0	16	0,8	0,4	**234**							
16 ER 56	56,0	16	0,7	0,4	**236**							
16 ER 48	48,0	16	0,6	0,6	**238**							
16 ER 44	44,0	16	0,6	0,6	**240**							
16 ER 40	40,0	16	0,6	0,6	**242**							
16 ER 36	36,0	16	0,6	0,6	**244**							
16 ER 32	32,0	16	0,6	0,6	**246**				**746**			
16 ER 28	28,0	16	0,6	0,7	**248**				**748**			
16 ER 27	27,0	16	0,7	0,8	**250**							
16 ER 24	24,0	16	0,7	0,8	**252**		**152**		**752**			
16 ER 20	20,0	16	0,8	0,9	**254**		**154**		**754**		**954**	
16 ER 18	18,0	16	0,8	1,0	**256**		**156**		**756**			
16 ER 16	16,0	16	0,9	1,1	**258**		**158**		**758**		**958**	
16 ER 14	14,0	16	1,0	1,2	**260**		**160**		**760**			
16 ER 13	13,0	16	1,0	1,3	**262**							
16 ER 12	12,0	16	1,1	1,4	**264**		**164**		**764**			
16 ER 11,5	11,5	16	1,1	1,5	**266**							
16 ER 11	11,0	16	1,1	1,5	**268**		**168**					
16 ER 10	10,0	16	1,1	1,5	**270**							
16 ER 9	9,0	16	1,2	1,7	**272**							
16 ER 8	8,0	16	1,2	1,6	**274**							
16 ER 8	8,0	16	1,1	1,1							**974**	
16 ER 8	8,0	16	1,1	1,5			**174**					
22 ER 7	7,0	22	1,6	2,3	**276**							
22 ER 6	6,0	22	1,6	2,3	**278**							
22 ER 5	5,0	22	1,7	2,5	**280**							
22 EN 4,5	4,5	22	2,0	11,0	**282** [1)]							
22 EN 4	4,0	22	2,0	11,0	**284** [1)]							
P					●		●		○		●	
M					●		○		●		●	
K					●		●		○		●	
N							●		○			
S					○				○		●	
H					○				○		○	
O							○					

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

→ v_c Page 45

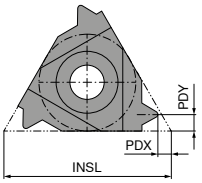
8

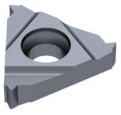
Left hand external thread turning insert

▲ Full profile

UN | UNC | UNF | UNEF | 60°

CCN20





EL

71 266 ...

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	
11 EL 72	72,0	11	0,8	0,4	**202**
11 EL 64	64,0	11	0,8	0,4	**204**
11 EL 56	56,0	11	0,7	0,4	**206**
11 EL 48	48,0	11	0,6	0,6	**208**
11 EL 44	44,0	11	0,6	0,6	**210**
11 EL 40	40,0	11	0,6	0,6	**212**
11 EL 36	36,0	11	0,6	0,6	**214**
11 EL 32	32,0	11	0,6	0,6	**216**
11 EL 28	28,0	11	0,6	0,7	**218**
11 EL 27	27,0	11	0,7	0,8	**220**
11 EL 24	24,0	11	0,7	0,8	**222**
11 EL 20	20,0	11	0,8	0,9	**224**
11 EL 18	18,0	11	0,8	1,0	**226**
11 EL 16	16,0	11	0,9	1,1	**228**
11 EL 14	14,0	11	0,9	1,1	**230**
16 EL 72	72,0	16	0,8	0,4	**232**
16 EL 64	64,0	16	0,8	0,4	**234**
16 EL 56	56,0	16	0,7	0,4	**236**
16 EL 48	48,0	16	0,6	0,6	**238**
16 EL 44	44,0	16	0,6	0,6	**240**
16 EL 40	40,0	16	0,6	0,6	**242**
16 EL 36	36,0	16	0,6	0,6	**244**
16 EL 32	32,0	16	0,6	0,6	**246**
16 EL 28	28,0	16	0,6	0,7	**248**
16 EL 27	27,0	16	0,7	0,8	**250**
16 EL 24	24,0	16	0,7	0,8	**252**
16 EL 20	20,0	16	0,8	0,9	**254**
16 EL 18	18,0	16	0,8	1,0	**256**
16 EL 16	16,0	16	0,9	1,1	**258**
16 EL 14	14,0	16	1,0	1,2	**260**
16 EL 13	13,0	16	1,0	1,3	**262**
16 EL 12	12,0	16	1,1	1,4	**264**
16 EL 11,5	11,5	16	1,1	1,5	**266**
16 EL 11	11,0	16	1,1	1,5	**268**
16 EL 10	10,0	16	1,1	1,5	**270**
16 EL 9	9,0	16	1,2	1,7	**272**
16 EL 8	8,0	16	1,2	1,6	**274**
22 EL 7	7,0	22	1,6	2,3	**276**
22 EL 6	6,0	22	1,6	2,3	**278**
22 EL 5	5,0	22	1,7	2,5	**280**

P	●
M	●
K	●
N	
S	○
H	○
O	

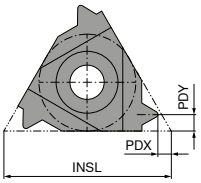
→ v_c Page 45

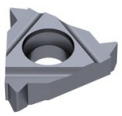
Right hand internal thread turning insert

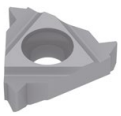
▲ Full profile

UN | UNC | UNF | UNEF | 60°

CCN20 | HCN2525







Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 268 ...	IR 71 268 ...
11 IR 72	72,0	11	0,8	0,3	**202**	
11 IR 64	64,0	11	0,8	0,4	**204**	
11 IR 56	56,0	11	0,7	0,4	**206**	
11 IR 48	48,0	11	0,6	0,6	**208**	
11 IR 44	44,0	11	0,6	0,6	**210**	
11 IR 40	40,0	11	0,6	0,6	**212**	
11 IR 36	36,0	11	0,6	0,6	**214**	
11 IR 32	32,0	11	0,6	0,6	**216**	
11 IR 28	28,0	11	0,6	0,7	**218**	
11 IR 27	27,0	11	0,7	0,8	**220**	
11 IR 24	24,0	11	0,7	0,8	**222**	
11 IR 20	20,0	11	0,8	0,9	**224**	
11 IR 18	18,0	11	0,8	1,0	**226**	
11 IR 16	16,0	11	0,9	1,1	**228**	
11 IR 14	14,0	11	1,0	1,1	**230**	
16 IR 72	72,0	16	0,8	0,3	**232**	
16 IR 64	64,0	16	0,8	0,4	**234**	
16 IR 56	56,0	16	0,7	0,4	**236**	
16 IR 48	48,0	16	0,6	0,6	**238**	
16 IR 44	44,0	16	0,6	0,6	**240**	
16 IR 40	40,0	16	0,6	0,6	**242**	
16 IR 36	36,0	16	0,6	0,6	**244**	
16 IR 32	32,0	16	0,6	0,6	**246**	
16 IR 28	28,0	16	0,6	0,7	**248**	
16 IR 27	27,0	16	0,7	0,8	**250**	
16 IR 24	24,0	16	0,7	0,8	**252**	
16 IR 20	20,0	16	0,8	0,9	**254**	
16 IR 18	18,0	16	0,8	1,0	**256**	
16 IR 16	16,0	16	0,9	1,1	**258**	
16 IR 14	14,0	16	1,0	1,2	**260**	**760**
16 IR 13	13,0	16	1,0	1,3	**262**	
16 IR 12	12,0	16	1,1	1,4	**264**	**764**
16 IR 11,5	11,5	16	1,1	1,5	**266**	
16 IR 11	11,0	16	1,1	1,5	**268**	
16 IR 10	10,0	16	1,1	1,5	**270**	
16 IR 9	9,0	16	1,2	1,7	**272**	
16 IR 8	8,0	16	1,2	1,6	**274**	
16 IR 8	8,0	16	1,1	1,5		**774**
22 IR 7	7,0	22	1,6	2,3	**276**	**776**
22 IR 6	6,0	22	1,6	2,3	**278**	
22 IR 5	5,0	22	1,7	2,5	**280**	
22 IN 4,5	4,5	22	2,0	11,0	**282** [1)]	
22 IN 4	4,0	22	2,0	11,0	**284** [1)]	

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

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

→ v_c Page 45

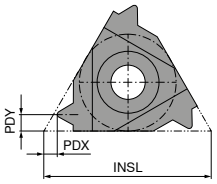
8

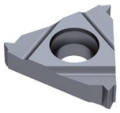
Left hand internal thread turning insert

▲ Full profile

UN | UNC | UNF | UNEF | 60°

CCN20





Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 270 ...
11 IL 72	72,0	11	0,8	0,3	202
11 IL 64	64,0	11	0,8	0,4	204
11 IL 56	56,0	11	0,7	0,4	206
11 IL 48	48,0	11	0,6	0,6	208
11 IL 44	44,0	11	0,6	0,6	210
11 IL 40	40,0	11	0,6	0,6	212
11 IL 36	36,0	11	0,6	0,6	214
11 IL 32	32,0	11	0,6	0,6	216
11 IL 28	28,0	11	0,6	0,7	218
11 IL 27	27,0	11	0,7	0,8	220
11 IL 24	24,0	11	0,7	0,8	222
11 IL 20	20,0	11	0,8	0,9	224
11 IL 18	18,0	11	0,8	1,0	226
11 IL 16	16,0	11	0,9	1,1	228
11 IL 14	14,0	11	0,9	1,1	230
16 IL 72	72,0	16	0,8	0,3	232
16 IL 64	64,0	16	0,8	0,4	234
16 IL 56	56,0	16	0,7	0,4	236
16 IL 48	48,0	16	0,6	0,6	238
16 IL 44	44,0	16	0,6	0,6	240
16 IL 40	40,0	16	0,6	0,6	242
16 IL 36	36,0	16	0,6	0,6	244
16 IL 32	32,0	16	0,6	0,6	246
16 IL 28	28,0	16	0,6	0,7	248
16 IL 27	27,0	16	0,7	0,8	250
16 IL 24	24,0	16	0,7	0,8	252
16 IL 20	20,0	16	0,8	0,9	254
16 IL 18	18,0	16	0,8	1,0	256
16 IL 16	16,0	16	0,9	1,1	258
16 IL 14	14,0	16	1,0	1,2	260
16 IL 13	13,0	16	1,0	1,3	262
16 IL 12	12,0	16	1,1	1,4	264
16 IL 11,5	11,5	16	1,1	1,5	266
16 IL 11	11,0	16	1,1	1,5	268
16 IL 10	10,0	16	1,1	1,5	270
16 IL 9	9,0	16	1,2	1,7	272
16 IL 8	8,0	16	1,2	1,6	274
22 IL 7	7,0	22	1,6	2,3	276
22 IL 6	6,0	22	1,6	2,3	278
22 IL 5	5,0	22	1,7	2,5	280

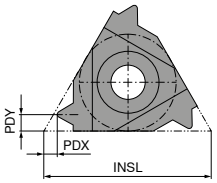
P	●
M	●
K	●
N	
S	○
H	○
O	

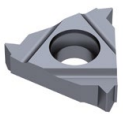
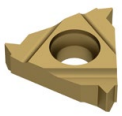
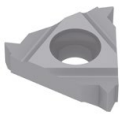
→ v_c Page 45

Right hand external thread turning insert

▲ Full profile

NPT 60°



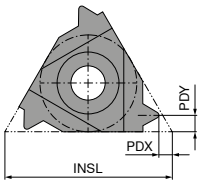
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	CCN20 ER 71 256 ...	CWN1525 ER 71 256 ...	HCN2525 ER 71 256 ...
16 ER 27	27,0	16	0,7	0,8	**240**		
16 ER 18	18,0	16	0,8	1,0	**242**		**742**
16 ER 14	14,0	16	0,9	1,2	**244**	**144**	**744**
16 ER 11,5	11,5	16	1,1	1,5	**246**	**146**	**746**
16 ER 8	8,0	16	1,3	1,8	**248**		
P					●	●	○
M					●	○	●
K					●	●	○
N						●	○
S					○		○
H					○		○
O						○	

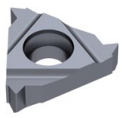
→ v_c Page 45

Left hand external thread turning insert

▲ Full profile

NPT 60°





Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	CCN20 EL 71 258 ...
16 EL 27	27,0	16	0,7	0,8	**240**
16 EL 18	18,0	16	0,8	1,0	**242**
16 EL 14	14,0	16	0,9	1,2	**244**
16 EL 11,5	11,5	16	1,1	1,5	**246**
16 EL 8	8,0	16	1,3	1,8	**248**
P					●
M					●
K					●
N					
S					○
H					○
O					

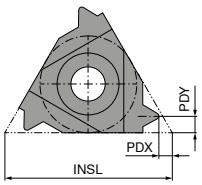
→ v_c Page 45

8

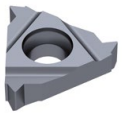
Right hand internal thread turning insert

▲ Full profile
▲ CCN7525 grade with sintered chip breaker for universal application

NPT 60°



CCN20 CCN7525



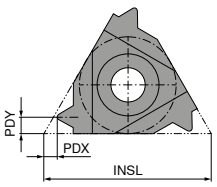
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 260 ...	IR 71 260 ...
11 IR 27	27,0	11	0,7	0,8	210	
11 IR 18	18,0	11	0,8	1,0	212	
11 IR 14	14,0	11	0,9	1,1	214	
16 IR 27	27,0	16	0,7	0,8	240	
16 IR 18	18,0	16	0,8	1,0	242	
16 IR 14	14,0	16	0,9	1,2	244	944
16 IR 11,5	11,5	16	1,1	1,5	246	946
16 IR 8	8,0	16	1,3	1,8	248	
P					●	●
M					●	●
K					●	●
N						
S					○	●
H					○	○
O						

→ v_c Page 45

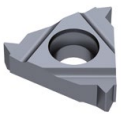
Left hand internal thread turning insert

▲ Full profile

NPT 60°



CCN20

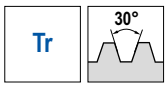


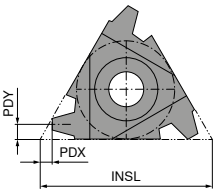
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 262 ...
11 IL 27	27,0	11	0,7	0,8	210
11 IL 18	18,0	11	0,8	1,0	212
11 IL 14	14,0	11	0,9	1,1	214
16 IL 27	27,0	16	0,7	0,8	240
16 IL 18	18,0	16	0,8	1,0	242
16 IL 14	14,0	16	0,9	1,2	244
16 IL 11,5	11,5	16	1,1	1,5	246
16 IL 8	8,0	16	1,3	1,8	248
P					●
M					●
K					●
N					
S					○
H					○
O					

→ v_c Page 45

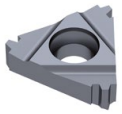
Right hand external thread turning insert

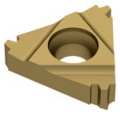
▲ Full profile
▲ Trapezoidal thread DIN 103





CCN20 | CWN1525





Designation	TP mm	INSL mm	PDX mm	PDY mm	ER 71 232 ...	ER 71 232 ...
16 ER 1,5	1,5	16	1,0	1,1	**240**	
16 ER 2,0	2,0	16	1,1	1,3	**242**	
16 ER 2,0	2,0	16	1,0	1,3		**142**
16 ER 3,0	3,0	16	1,3	1,5	**244**	**144**
22 ER 4,0	4,0	22	1,8	1,9		**170**
22 ER 4,0	4,0	22	1,7	1,9	**270**	
22 ER 5,0	5,0	22	2,0	2,4		**172**
22 ER 5,0	5,0	22	2,1	2,5	**272**	
22 ER 6,0	6,0	22	2,3	2,7	**274** 1)	
22 EN 6,0	6,0	22	2,0	11,0	**276** 2)	
22 EN 7,0	7,0	22	2,3	11,0	**278** 2)	
P					●	●
M					●	○
K					●	●
N						●
S					○	
H					○	
O						○

1) Requires special holder or an independently modified standard holder
2) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

→ v_c Page 45

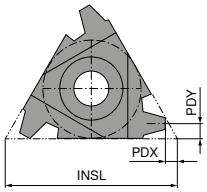
8

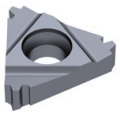
Left hand external thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103

Tr | 30°

CCN20





Designation	TP mm	INSL mm	PDX mm	PDY mm	EL 71 234 ...
16 EL 1,5	1,5	16	1,0	1,1	240
16 EL 2,0	2,0	16	1,1	1,3	242
16 EL 3,0	3,0	16	1,3	1,5	244
22 EL 4,0	4,0	22	1,7	1,9	270
22 EL 5,0	5,0	22	2,1	2,5	272
22 EL 6,0	6,0	22	2,3	2,7	274 1)
P					●
M					●
K					●
N					
S					○
H					○
O					

1) Requires special holder or an independently modified standard holder

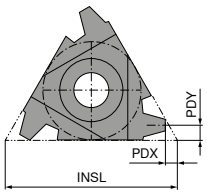
→ v_c Page 45

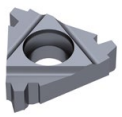
Right hand internal thread turning insert

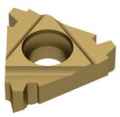
▲ Full profile
▲ Trapezoidal thread DIN 103

Tr | 30°

CCN20 | CWN1525







Designation	TP mm	INSL mm	PDX mm	PDY mm	IR 71 236 ...	IR 71 236 ...
11 IR 1,5	1,5	11	0,815	0,9	210	
16 IR 1,5	1,5	16	1,000	1,1	240	
16 IR 2,0	2,0	16	1,100	1,3	242	
16 IR 3,0	3,0	16	1,300	1,5	244	144
22 IR 4,0	4,0	22	1,800	1,9		170
22 IR 4,0	4,0	22	1,700	1,9	270	
22 IR 5,0	5,0	22	2,000	2,4		172
22 IR 5,0	5,0	22	2,100	2,5	272	
22 IR 6,0	6,0	22	2,300	2,7	274 1)	
22 IN 6,0	6,0	22	2,000	11,0	276 2)	
22 IN 7,0	7,0	22	2,300	11,0	278 2)	
P					●	●
M					●	○
K					●	●
N						●
S					○	
H					○	
O						○

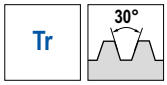
1) Requires special holder or an independently modified standard holder

2) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

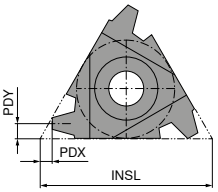
→ v_c Page 45

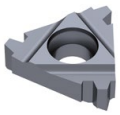
Left hand internal thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103



CCN20





Designation	TP mm	INSL mm	PDX mm	PDY mm	IL 71 238 ...
11 IL 1,5	1,5	11	0,8	0,9	**210**
16 IL 1,5	1,5	16	1,0	1,1	**240**
16 IL 2,0	2,0	16	1,1	1,3	**242**
16 IL 3,0	3,0	16	1,3	1,5	**244**
22 IL 4,0	4,0	22	1,7	1,9	**270**
22 IL 5,0	5,0	22	2,1	2,5	**272**
22 IL 6,0	6,0	22	2,3	2,7	**274** 1)
P					●
M					●
K					●
N					
S					○
H					○
O					

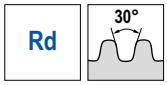
1) Requires special holder or an independently modified standard holder

→ v_c Page 45

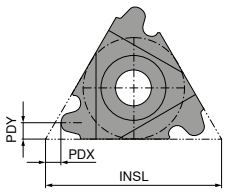
8

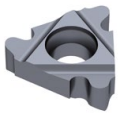
Right hand external thread turning insert

▲ Full profile
▲ Round thread DIN 405



CCN20





ER
71 248 ...

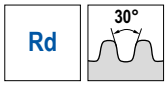
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	
16 ER 10	10	16	1,1	1,2	**240**
16 ER 8	8	16	1,4	1,3	**242**
16 ER 6	6	16	1,5	1,7	**246**
22 ER 6	6	22	1,5	1,7	**270**
22 ER 4	4	22	2,2	2,3	**272**

P	●
M	●
K	●
N	
S	○
H	○
O	

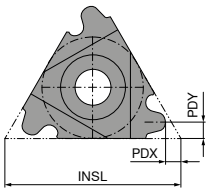
→ v_c Page 45

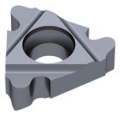
Left hand external thread turning insert

▲ Full profile
▲ Round thread DIN 405



CCN20





EL
71 250 ...

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	
16 EL 10	10	16	1,1	1,2	**240**
16 EL 8	8	16	1,4	1,3	**242**
16 EL 6	6	16	1,5	1,7	**246**
22 EL 6	6	22	1,5	1,7	**270**
22 EL 4	4	22	2,2	2,3	**272**

P	●
M	●
K	●
N	
S	○
H	○
O	

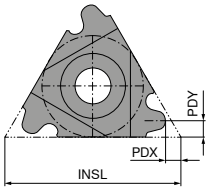
→ v_c Page 45

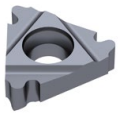
Right hand internal thread turning insert

▲ Full profile
▲ Round thread DIN 405

Rd | 30°

CCN20





IR
71 252 ...

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	
16 IR 10	10	16	1,1	1,2	**240**
16 IR 8	8	16	1,4	1,4	**242**
16 IR 6	6	16	1,4	1,5	**246**
22 IR 6	6	22	1,5	1,7	**270**
22 IR 4	4	22	2,2	2,3	**272**

P	●
M	●
K	●
N	
S	○
H	○
O	

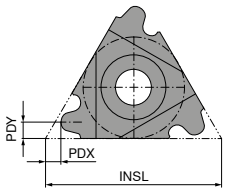
→ v_c Page 45

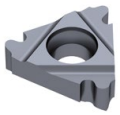
Left hand internal thread turning insert

▲ Full profile
▲ Round thread DIN 405

Rd | 30°

CCN20





IL
71 254 ...

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	
16 IL 10	10	16	1,1	1,2	**240**
16 IL 8	8	16	1,4	1,4	**242**
16 IL 6	6	16	1,4	1,5	**246**
22 IL 6	6	22	1,5	1,7	**270**
22 IL 4	4	22	2,2	2,3	**272**

P	●
M	●
K	●
N	
S	○
H	○
O	

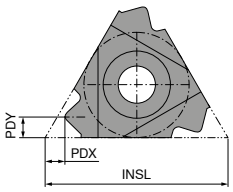
→ v_c Page 45

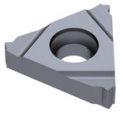
Right hand external thread turning insert

▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°

CCN20





Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	ER 71 240 ...
16 ER 20	20	16	0,8	0,8	**240**
16 ER 18	18	16	0,8	0,9	**242**
16 ER 16	16	16	0,8	1,0	**244**

P	●
M	●
K	●
N	
S	○
H	○
O	

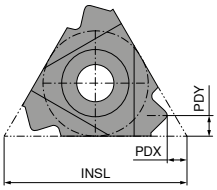
→ v_c Page 45

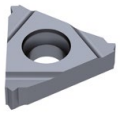
Left hand external thread turning insert

▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°

CCN20





Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EL 71 242 ...
16 EL 20	20	16	0,8	0,8	**240**
16 EL 18	18	16	0,8	0,9	**242**
16 EL 16	16	16	0,8	1,0	**244**

P	●
M	●
K	●
N	
S	○
H	○
O	

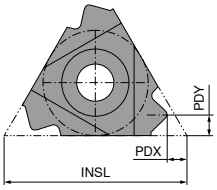
→ v_c Page 45

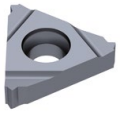
Right hand internal thread turning insert

▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°

CCN20





IR
71 244 ...

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	
11 IR 18	18	11	0,8	0,9	**238**
16 IR 18	18	16	0,8	0,9	**242**
16 IR 16	16	16	0,8	1,0	**244**

P	●
M	●
K	●
N	
S	○
H	○
O	

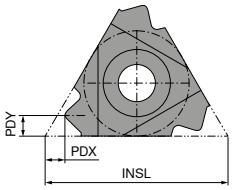
→ v_c Page 45

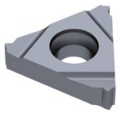
Left hand internal thread turning insert

▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°

CCN20





IL
71 246 ...

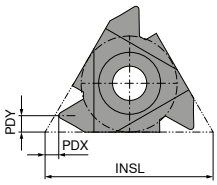
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	
11 IL 18	18	11	0,8	0,9	**238**
16 IL 18	18	16	0,8	0,9	**242**
16 IL 16	16	16	0,8	1,0	**244**

P	●
M	●
K	●
N	
S	○
H	○
O	

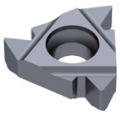
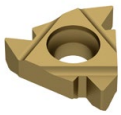
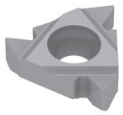
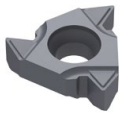
→ v_c Page 45

Right hand external thread turning insert

▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application



CCN20 | CWN1525 | HCN2525 | CCN7525

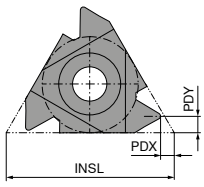
Designation	TP mm	INSL mm	PDX mm	PDY mm	ER 71 206 ...	ER 71 206 ...	ER 71 206 ...	ER 71 206 ...
16 ER A60	0,5 - 1,5	16	0,8	0,9	**240**	**140**	**740**	**940**
16 ER AG60	0,5 - 3	16	1,2	1,7	**244**	**144**	**744**	**944**
16 ER G60	1,75 - 3	16	1,2	1,7	**242**	**142**	**742**	**942**
22 EN U60	5,5 - 8	22	0,9	11,0	**272** [1)]			
22 ER N60	3,5 - 5	22	1,7	2,5	**270**	**170**		
P					●	●	○	●
M					●	○	●	●
K					●	●	○	●
N						●	○	
S					○		○	●
H					○		○	○
O						○		

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

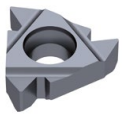
→ v_c Page 45

Left hand external thread turning insert

▲ Partial profile



CCN20

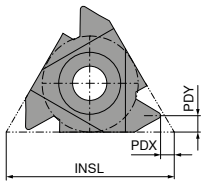


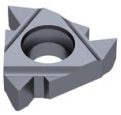
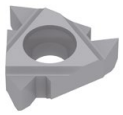
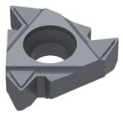
Designation	TP mm	INSL mm	PDX mm	PDY mm	EL 71 208 ...
16 EL A60	0,5 - 1,5	16	0,8	0,9	**240**
16 EL AG60	0,5 - 3	16	1,2	1,7	**244**
16 EL G60	1,75 - 3	16	1,2	1,7	**242**
22 EL N60	3,5 - 5	22	1,7	2,5	**270**
P					●
M					●
K					●
N					
S					○
H					○
O					

→ v_c Page 45

Right hand internal thread turning insert

▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application



	CCN20	CWN1525	HCN2525	CCN7525
				
	IR	IR	IR	IR
	71 210 ...	71 210 ...	71 210 ...	71 210 ...

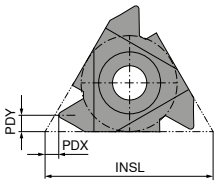
Designation	TP mm	INSL mm	PDX mm	PDY mm							
11 IR A60	0,5 - 1,5	11	0,8	0,9	**210**		**110**				
16 IR A60	0,5 - 1,5	16	0,8	0,9	**240**		**140**				
16 IR AG60	0,5 - 3	16	1,2	1,7	**244**		**144**		**744**		**944**
16 IR G60	1,75 - 3	16	1,2	1,7	**242**		**142**				
22 IN U60	5,5 - 8	22	0,9	11,0	**272** [1]						
22 IR N60	3,5 - 5	22	1,7	2,5	**270**		**170**				
P					●		●		○		●
M					●		○		●		●
K					●		●		○		●
N							●		○		
S					○				○		●
H					○				○		○
O							○				

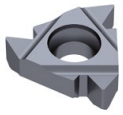
1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

→ v_c Page 45

Left hand internal thread turning insert

▲ Partial profile



	CCN20
	
	IL
	71 212 ...

Designation	TP mm	INSL mm	PDX mm	PDY mm	
11 IL A60	0,5 - 1,5	11	0,8	0,9	**210**
16 IL A60	0,5 - 1,5	16	0,8	0,9	**240**
16 IL AG60	0,5 - 3	16	1,2	1,7	**244**
16 IL G60	1,75 - 3	16	1,2	1,7	**242**
22 IL N60	3,5 - 5	22	1,7	2,5	**270**
P					●
M					●
K					●
N					
S					○
H					○
O					

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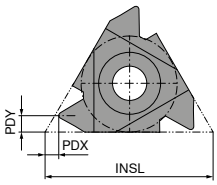
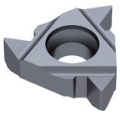
8

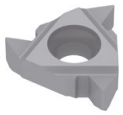
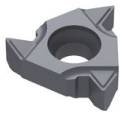
Right hand external thread turning insert

▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application



CCN20 | CWN1525 | HCN2525 | CCN7525



Designation	TPI	INSL	PDX	PDY	ER 71 200 ...	ER 71 200 ...	ER 71 200 ...	ER 71 200 ...
	1/"	mm	mm	mm				
16 ER A55	48 - 16	16	0,8	0,9	**240**	**140**	**740**	**940**
16 ER AG55	48 - 8	16	1,2	1,7	**244**	**144**	**744**	**944**
16 ER G55	14 - 8	16	1,2	1,7	**242**	**142**	**742**	**942**
22 ER N55	7 - 5	22	1,7	2,5	**270**	**170**	**770**	
22 EN U55	4,5 - 3,25	22	0,9	11,0	**272** [1)]			
P					●	●	○	●
M					●	○	●	●
K					●	●	○	●
N						●	○	
S					○		○	●
H					○		○	○
O						○		

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

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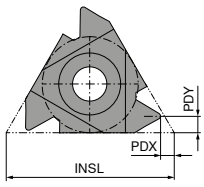
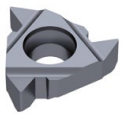
Left hand external thread turning insert

▲ Partial profile



CCN20

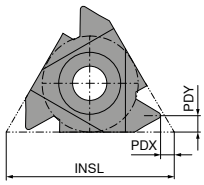


Designation	TPI	INSL	PDX	PDY	EL 71 202 ...
	1/"	mm	mm	mm	
16 EL A55	48 - 16	16	0,8	0,9	**240**
16 EL AG55	48 - 8	16	1,2	1,7	**244**
16 EL G55	14 - 8	16	1,2	1,7	**242**
22 EL N55	7 - 5	22	1,7	2,5	**270**
P					●
M					●
K					●
N					
S					○
H					○
O					

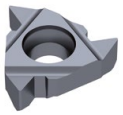
→ v_c Page 45

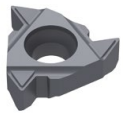
Right hand internal thread turning insert

▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application



CCN20 | CWN1525 | CCN7525





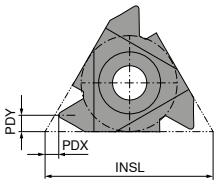
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 204 ...	IR 71 204 ...	IR 71 204 ...
11 IR A55	48 - 16	11	0,8	0,9	**210**		
16 IR A55	48 - 16	16	0,8	0,9	**240**		
16 IR AG55	48 - 8	16	1,2	1,7	**244**		
16 IR G55	14 - 8	16	1,2	1,7	**242**	**142**	**942**
22 IN U55	4,5 - 3,25	22	0,9	11,0	**272** [1)]		
22 IR N55	7 - 5	22	1,7	2,5	**270**		
P					●	●	●
M					●	○	●
K					●	●	●
N						●	
S					○		●
H					○		○
O						○	

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

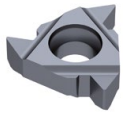
→ v_c Page 45

Left hand internal thread turning insert

▲ Partial profile



CCN20



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 203 ...
11 IL A55	48 - 16	11	0,8	0,9	**210**
16 IL A55	48 - 16	16	0,8	0,9	**240**
16 IL AG55	48 - 8	16	1,2	1,7	**244**
16 IL G55	14 - 8	16	1,2	1,7	**242**
22 IL N55	7 - 5	22	1,7	2,5	**270**
P					●
M					●
K					●
N					
S					○
H					○
O					

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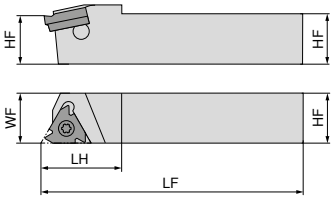
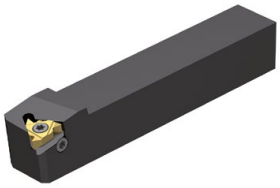
8

Standard External Thread Turning Holder

▲ Tool Holder with Approach Angle ß = 1,5°





Illustrations show right-hand versions

ISO designation	HF mm	WF mm	LF mm	LH mm	Insert	torque moment Nm	Left-hand 71 281 ...	Right-hand 71 280 ...
SE R/L 08 08 H11	8	11	100	16	11 ..	1,3	**908** [2]	**908** [2]
SE R/L 10 10 H11	10	12	100	18	11 ..	1,3	**910** [2]	**910** [2]
SE R/L 12 12 K11	12	12	125	20	11 ..	1,3	**912** [2]	**912** [2]
SE R/L 12 12 F16	12	16	80	22	16 ..	3,5	**012**	**012**
SE R/L 16 16 H16	16	16	100	25	16 ..	3,5	**016**	**016**
SE R/L 20 20 K16	20	20	125	30	16 ..	3,5	**020**	**020**
SE R/L 25 25 M16	25	25	150	30	16 ..	3,5	**025**	**025**
SE R/L 32 32 P16	32	32	170	30	16 ..	3,5	**032**	**032**
SE R/L 25 25 M22	25	25	150	32	22 ..	10	**125**	**125**
SE R 32 32 P22	32	32	170	34	22 ..	10		**132**
SE R 32 32 P22U	32	21	170	32	22 .N	10		**232** [1]

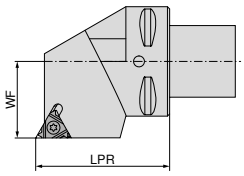
1) Neutral insert indicated by marking (N)
2) without shim

Spare parts for Article no.	Multi tooth shim 71 950 ...		Shim 71 950 ...		Screw-U 71 950 ...		Key D 80 950 ...		Clamping screw 71 950 ...	
71 280 908 / 71 281 908							T08	**110**		**230**
71 280 910 / 71 281 910							T08	**110**		**230**
71 280 912 / 71 281 912							T08	**110**		**230**
71 280 012	ER 16 / IL 16	**101**	ER 16 / IL 16	**121**		**234**	T10	**112**		**231**
71 281 012	EL 16 / IR 16	**108**	EL 16 / IR 16	**129**		**234**	T10	**112**		**231**
71 280 016	ER 16 / IL 16	**101**	ER 16 / IL 16	**121**		**234**	T10	**112**		**231**
71 281 016	EL 16 / IR 16	**108**	EL 16 / IR 16	**129**		**234**	T10	**112**		**231**
71 280 020	ER 16 / IL 16	**101**	ER 16 / IL 16	**121**		**234**	T10	**112**		**231**
71 281 020	EL 16 / IR 16	**108**	EL 16 / IR 16	**129**		**234**	T10	**112**		**231**
71 280 025	ER 16 / IL 16	**101**	ER 16 / IL 16	**121**		**234**	T10	**112**		**231**
71 281 025	EL 16 / IR 16	**108**	EL 16 / IR 16	**129**		**234**	T10	**112**		**231**
71 280 032	ER 16 / IL 16	**101**	ER 16 / IL 16	**121**		**234**	T10	**112**		**231**
71 281 032	EL 16 / IR 16	**108**	EL 16 / IR 16	**129**		**234**	T10	**112**		**231**
71 280 125			ER 22 / IL 22	**137**		**235**	T20	**114**		**232**
71 281 125			EL 22 / IR 22	**145**		**235**	T20	**114**		**232**
71 280 132			ER 22 / IL 22	**137**		**235**	T20	**114**		**232**
71 280 232			ER 22U / IL 22U	**153**		**235**	T20	**114**		**232**

Shims for correction of helix angle see page → **Page 43.**

External threading holder

▲ Tool Holder with Approach Angle ß = 1,5°



Illustrations show right-hand versions

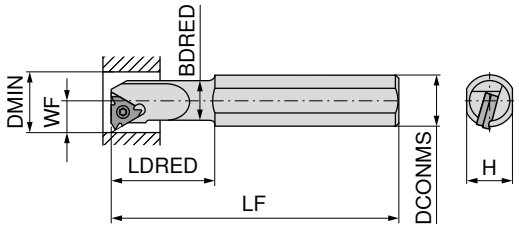
ISO designation	Adapter	LPR mm	WF mm	Insert	torque moment Nm	Left-hand 84 191 ...	Right-hand 84 190 ...
PSC40 SE R/L 27050-16.IK	PSC 40	50	27	16 ..	3,5	**412**	**412**
PSC40 SE R/L 27050-22.IK	PSC 40	50	27	22 ..	10	**422**	**422**
PSC50 SE R/L 35060-16.IK	PSC 50	60	35	16 ..	3,5	**512**	**512**
PSC50 SE R/L 35060-22.IK	PSC 50	60	35	22 ..	10	**522**	**522**
PSC63 SE R/L 45065-16.IK	PSC 63	65	45	16 ..	3,5	**612**	**612**
PSC63 SE R/L 45065-22.IK	PSC 63	65	45	22 ..	10	**622**	**622**
PSC80 SE R/L 55080-22.IK	PSC 80	80	55	22 ..	10	**822**	**822**

Spare parts for Article no.	Multi tooth shim 71 950 ...		Shim 71 950 ...		Screw-U 71 950 ...		Key D 80 950 ...		Clamping screw 71 950 ...	
84 190 412	ER 16 / IL 16	**101**	ER 16 / IL 16	**121**		**234**	T10	**112**		**231**
84 191 412	EL 16 / IR 16	**108**	EL 16 / IR 16	**129**		**234**	T10	**112**		**231**
84 190 422			ER 22 / IL 22	**137**		**235**	T20	**114**		**232**
84 191 422			EL 22 / IR 22	**145**		**235**	T20	**114**		**232**
84 190 512	ER 16 / IL 16	**101**	ER 16 / IL 16	**121**		**234**	T10	**112**		**231**
84 191 512	EL 16 / IR 16	**108**	EL 16 / IR 16	**129**		**234**	T10	**112**		**231**
84 190 522			ER 22 / IL 22	**137**		**235**	T20	**114**		**232**
84 191 522			EL 22 / IR 22	**145**		**235**	T20	**114**		**232**
84 190 612	ER 16 / IL 16	**101**	ER 16 / IL 16	**121**		**234**	T10	**112**		**231**
84 191 612	EL 16 / IR 16	**108**	EL 16 / IR 16	**129**		**234**	T10	**112**		**231**
84 190 622			ER 22 / IL 22	**137**		**235**	T20	**114**		**232**
84 191 622			EL 22 / IR 22	**145**		**235**	T20	**114**		**232**
84 190 822			ER 22 / IL 22	**137**		**235**	T20	**114**		**232**
84 191 822			EL 22 / IR 22	**145**		**235**	T20	**114**		**232**

Shims for correction of helix angle see page → **Page 43.**

Standard Internal Thread Turning Holder

▲ Tool Holder with Approach Angle ß = 1,5°



Illustrations show right-hand versions

ISO designation	H	LF	LDRED	DCONMS	BDRED	WF	DMIN	Insert	torque moment	Left-hand	Right-hand
	mm	mm	mm	mm	mm	mm	mm		Nm	71 283 ...	71 282 ...
SI R 0010 H11	9,0	100	25	10	9,5	7,4	12	11 ..	1,3		**011** [1]
SI R/L 0010 K11	14,0	125	25	16	10,0	7,4	12	11 ..	1,3	**010** [1]	**010** [1]
SI R 0013 L11	14,0	140	32	16	12,0	8,9	15	11 ..	1,3		**013** [1]
SI R/L 0013 M16	14,0	150	32	16	13,0	10,2	16	16 ..	3,5	**015** [1]	**015** [1]
SI R/L 0016 P16	18,0	170	40	20	15,0	11,7	19	16 ..	3,5	**016** [1]	**016** [1]
SI R/L 0020 P16	18,0	170	40	20	19,5	13,7	24	16 ..	3,5	**020**	**020**
SI R 0025 R16	22,6	200	40	25	24,5	16,2	29	16 ..	3,5		**026**
SI R/L 0032 S16	28,8	250	50	32	31,5	19,7	36	16 ..	3,5	**032**	**032**
SI R 0040 T16	36,0	300	50	40	39,5	23,7	44	16 ..	3,5		**040**
SI R 0020 P22	18,0	170	40	20	19,5	15,6	24	22 ..	10		**120** [1]
SI R/L 0025 R22	22,6	200	40	25	24,5	18,1	29	22 ..	10	**126**	**126**
SI R 0032 S22	28,8	250	50	32	31,5	21,6	38	22 ..	10		**132**
SI R 0040 T22	36,0	300	60	40	39,5	25,6	46	22 ..	10		**140**
SI R 0032 S22U	28,8	250	60	32	31,5	24,4	38	22 .N	10		**133** [2]

1) without shim
2) Neutral insert indicated by marking (N)

Multi tooth shim

Shim

Screw-U

Key D

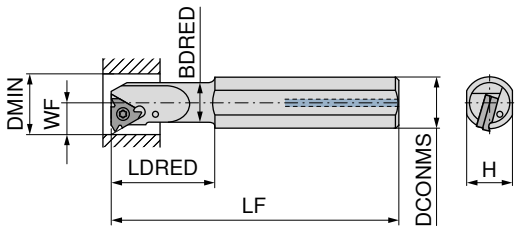
Clamping screw

Spare parts for Article no.		71 950 ...		71 950 ...		71 950 ...		80 950 ...		71 950 ...
71 282 011							T08	**110**		**230**
71 282 010 / 71 283 010							T08	**110**		**230**
71 282 013							T08	**110**		**230**
71 282 015 / 71 283 015							T10	**112**		**236**
71 282 016 / 71 283 016							T10	**112**		**236**
71 282 020	EL 16 / IR 16	**108**	EL 16 / IR 16	**129**		**234**	T10	**112**		**231**
71 283 020	ER 16 / IL 16	**101**	ER 16 / IL 16	**121**		**234**	T10	**112**		**231**
71 282 026	EL 16 / IR 16	**108**	EL 16 / IR 16	**129**		**234**	T10	**112**		**231**
71 282 032	EL 16 / IR 16	**108**	EL 16 / IR 16	**129**		**234**	T10	**112**		**231**
71 283 032	ER 16 / IL 16	**101**	ER 16 / IL 16	**121**		**234**	T10	**112**		**231**
71 282 040	EL 16 / IR 16	**108**	EL 16 / IR 16	**129**		**234**	T10	**112**		**231**
71 282 120						**234**	T20	**114**		**237**
71 282 126			EL 22 / IR 22	**145**		**235**	T20	**114**		**232**
71 283 126			ER 22 / IL 22	**137**		**235**	T20	**114**		**232**
71 282 132			EL 22 / IR 22	**145**		**235**	T20	**114**		**232**
71 282 140			EL 22 / IR 22	**145**		**235**	T20	**114**		**232**
71 282 133			AL 22U / IR 22U	**161**		**235**	T20	**114**		**232**

Shims for correction of helix angle see page → **Page 43.**

Standard Internal Thread Turning Holder with thro' coolant

▲ Tool Holder with Approach Angle ß = 1,5°



Illustrations show right-hand versions

									Left-hand	Right-hand
									71 283 ...	71 282 ...
ISO designation	H	LF	LDRED	DCONMS	BDRED	WF	DMIN	Insert	torque moment	
	mm	mm	mm	mm	mm	mm	mm		Nm	
SI R 0010 M11CB	9,0	150	25	10	9,5	7,4	12	11 ..	1,3	510 [2]
SI R 0012 P11CB	11,0	170	30	12	11,5	8,4	15	11 ..	1,3	512 [2]
SI R/L 0010 K11B	14,0	125	25	16	10,0	7,4	12	11 ..	1,3	310
SI R/L 0013 M16B	14,0	150	32	16	13,0	10,2	16	16 ..	3,5	315
SI R 0016 P16B	18,0	170	40	20	16,0	11,7	19	16 ..	3,5	316
SI R 0020 P16B	18,0	170	40	20	19,5	13,7	24	16 ..	3,5	320 [1]
SI R/L 0032 S16B	28,8	250	50	32	31,5	19,7	36	16 ..	3,5	332 [1]

1) with shim seat
2) Carbide version

Multi tooth shim

Shim

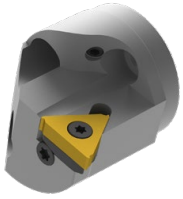
Screw-U

Key D

Clamping screw

			71 950 ...			71 950 ...		71 950 ...		80 950 ...		71 950 ...
Spare parts for Article no.												
71 282 510									T08	110		230
71 282 512									T08	110		230
71 282 310 / 71 283 310									T08	110		230
71 282 315 / 71 283 315									T10	112		236
71 282 316									T10	112		236
71 282 320	EL 16 / IR 16		108	EL 16 / IR 16		129		234	T10	112		231
71 282 332	EL 16 / IR 16		108	EL 16 / IR 16		129		234	T10	112		231
71 283 332	ER 16 / IL 16		101	ER 16 / IL 16		121		234	T10	112		231

Shims for correction of helix angle see page → **Page 43.**



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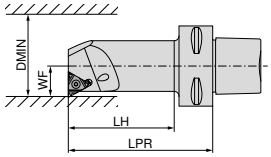
Internal threading holder

▲ Tool Holder with Approach Angle ß = 1,5°



Illustrations show right-hand versions

ISO designation	Adapter	WF mm	LPR mm	LH mm	DMIN mm	Insert	torque moment Nm	Left-hand 84 197 ...	Right-hand 84 196 ...
PSC40 SI R/L 12060-16.IK	PSC 40	12	60	37	20	16 ..	3,5	**410**	**410**
PSC40 SI R/L 14060-16.IK	PSC 40	14	60	38	25	16 ..	3,5	**412**	**412**
PSC40 SI R/L 17070-16.IK	PSC 40	17	70	48	32	16 ..	3,5	**414**	**414**
PSC40 SI R/L 22090-16.IK	PSC 40	22	90	69	40	16 ..	3,5	**416**	**416**
PSC40 SI R/L 27080-16.IK	PSC 40	27	80	60	50	16 ..	3,5	**418**	**418**
PSC40 SI R/L 15065-22.IK	PSC 40	15	65	42	25	22 ..	10	**420**	**420**
PSC40 SI R/L 19070-22.IK	PSC 40	19	70	48	32	22 ..	10	**422**	**422**
PSC40 SI R/L 22090-22.IK	PSC 40	22	90	69	40	22 ..	10	**424**	**424**
PSC40 SI R/L 27080-22.IK	PSC 40	27	80	60	50	22 ..	10	**426**	**426**
PSC50 SI R/L 12060-16.IK	PSC 50	12	60	35	20	16 ..	3,5	**510**	**510**
PSC50 SI R/L 14060-16.IK	PSC 50	14	60	36	25	16 ..	3,5	**512**	**512**
PSC50 SI R/L 17070-16.IK	PSC 50	17	70	47	32	16 ..	3,5	**514**	**514**
PSC50 SI R/L 22090-16.IK	PSC 50	22	90	68	40	16 ..	3,5	**516**	**516**
PSC50 SI R/L 27105-16.IK	PSC 50	27	105	84	50	16 ..	3,5	**518**	**518**
PSC50 SI R/L 15065-22.IK	PSC 50	15	65	41	25	22 ..	10	**520**	**520**
PSC50 SI R/L 19070-22.IK	PSC 50	19	70	47	32	22 ..	10	**522**	**522**
PSC50 SI R/L 22090-22.IK	PSC 50	22	90	68	40	22 ..	10	**524**	**524**
PSC50 SI R/L 27105-22.IK	PSC 50	27	105	84	50	22 ..	10	**526**	**526**
PSC63 SI R/L 14070-16.IK	PSC 63	14	70	42	25	16 ..	3,5	**610**	**610**
PSC63 SI R/L 17075-16.IK	PSC 63	17	75	48	32	16 ..	3,5	**612**	**612**
PSC63 SI R/L 22090-16.IK	PSC 63	22	90	64	40	16 ..	3,5	**614**	**614**
PSC63 SI R/L 27105-16.IK	PSC 63	27	105	80	50	16 ..	3,5	**616**	**616**
PSC63 SI R/L 19075-22.IK	PSC 63	19	75	48	32	22 ..	10	**620**	**620**
PSC63 SI R/L 22090-22.IK	PSC 63	22	90	64	40	22 ..	10	**622**	**622**
PSC63 SI R/L 27105-22.IK	PSC 63	27	105	80	50	22 ..	10	**624**	**624**

Multi tooth shim

Shim

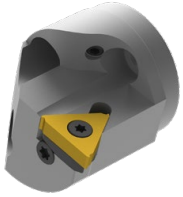
Screw-U

Key D

Clamping screw

Spare parts Insert			71 950 ...		71 950 ...		71 950 ...		80 950 ...		71 950 ...
16 ..	right	EL 16 / IR 16	**108**	EL 16 / IR 16	**129**	**234**	T10	**112**	**231**
16 ..	left	ER 16 / IL 16	**101**	ER 16 / IL 16	**121**	**234**	T10	**112**	**231**
22 ..	left			ER 22 / IL 22	**137**	**235**	T20	**114**	**232**
22 ..	right			EL 22 / IR 22	**145**	**235**	T20	**114**	**232**

Shims for correction of helix angle see page → **Page 43.**



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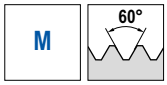
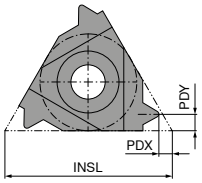
Right hand internal thread turning insert – Mini size 06

▲ Full profile
▲ Thread production from diameter 6 mm





CCN1525 CCN2520

Designation	TP mm	PDX mm	PDY mm	INSL mm	IR 71 271 ...	IR 71 224 ...
06 IR 0,5	0,50	0,9	0,5	6	**110**	**35700**
06 IR 0,75	0,75	0,8	0,5	6	**112**	**36100**
06 IR 1,0	1,00	0,7	0,6	6	**114**	**36500**
06 IR 1,25	1,25	0,6	0,6	6	**116**	**36700**
P					●	○
M					●	●
K					●	○
N					○	
S						●
H						○
O					○	

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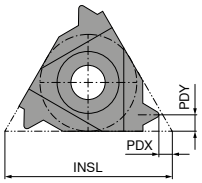
8

Right hand internal thread turning insert – Mini size 06

▲ Full profile
▲ Thread production from diameter 6 mm



CCN1525 CCN2520

Designation	TPI 1/"	PDX mm	PDY mm	INSL mm	IR 71 230 ...	IR 71 230 ...
06 IR 26	26	0,7	0,6	6	**13500**	**33500**
06 IR 22	22	0,6	0,6	6	**13100**	**33100**
06 IR 20	20	0,6	0,7	6	**12900**	**32900**
06 IR 18	18	0,6	0,7	6	**12500**	**32500**
P					●	○
M					●	●
K					●	○
N					○	
S						●
H						○
O					○	

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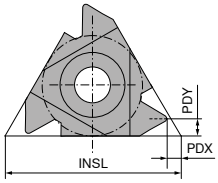
Right hand internal thread turning insert – Mini size 06

▲ Partial profile
▲ Thread production from diameter 6 mm



CCN1525 | CCN2520

Designation	TP mm	INSL mm	PDX mm	PDY mm	IR 71 274 ...	IR 71 272 ...
06 IR A60	0,5 - 1,25	6	0,6	0,6	**210**	**30000**
P					●	○
M					●	●
K					●	○
N					○	
S						●
H						○
O					○	

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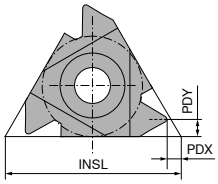
Right hand internal thread turning insert – Mini size 06

▲ Partial profile
▲ Thread production from diameter 6 mm



CCN1525 | CCN2520

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 272 ...	IR 71 272 ...
06 IR A55	48 - 20	6	0,5	0,6	**10100**	**30100**
P					●	○
M					●	●
K					●	○
N					○	
S						●
H						○
O					○	

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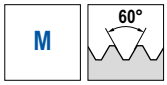
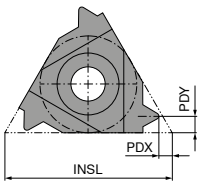
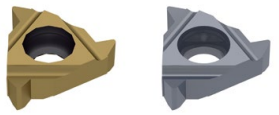
Right hand internal thread turning insert – Mini size 08

▲ Full profile
▲ Thread production from diameter 8 mm





CCN1525 CCN2520



Designation	TP mm	PDX mm	PDY mm	INSL mm	IR 71 224 ...	IR 71 224 ...
08 IR 0,5	0,50	0,6	0,5	8	**14300**	**34300**
08 IR 0,75	0,75	0,6	0,5	8	**13700**	**33700**
08 IR 1,0	1,00	0,6	0,6	8	**13300**	**33300**
08 IR 1,25	1,25	0,6	0,7	8	**13100**	**33100**
08 IR 1,5	1,50	0,6	0,7	8	**12900**	**32900**
08 IR 1,75	1,75	0,6	0,8	8	**12700**	**32700**
08 IN 2,0	2,00	0,9	4,0	8	**12500**[1)]	**32500**[1)]
P					●	○
M					●	●
K					●	○
N					○	
S						●
H						○
O					○	

1) Neutral version (N)

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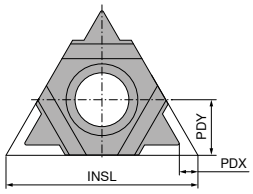
Right hand internal thread turning insert – Mini size 08

▲ Partial profile
▲ Thread production from diameter 8 mm



CCN1525 CCN2520

Designation	TP mm	INSL mm	PDX mm	PDY mm	IN 71 273 ...	IN 71 273 ...
08 IN M60	1,75 - 2,0	8	0,8	4	**10800**	**30800**
P					●	○
M					●	●
K					●	○
N					○	
S						●
H						○
O					○	

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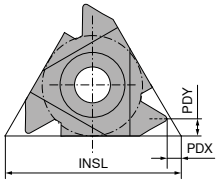
Right hand internal thread turning insert – Mini size 08

▲ Partial profile
▲ Thread production from diameter 8 mm



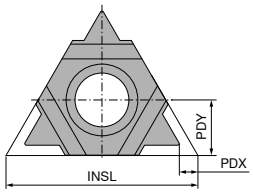
CCN1525 | CCN2520

Designation	TP mm	PDX mm	PDY mm	INSL mm	IR 71 272 ...	IR 71 272 ...
08 IR A60	0,5 - 1,25	0,6	0,6	8	**10600**	
08 IR A60	0,5 - 1,5	0,6	0,7	8		**30600**
P					●	○
M					●	●
K					●	○
N					○	
S						●
H						○
O					○	

→ v_c Page 45

Right hand internal thread turning insert – Mini size 08

▲ Partial profile
▲ Thread production from diameter 8 mm



CCN1525 | CCN2520

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IN 71 273 ...	IN 71 273 ...
08 IN M55	14 - 11	8	0,9	4	**10900**	
P					●	○
M					●	●
K					●	○
N					○	
S						●
H						○
O					○	

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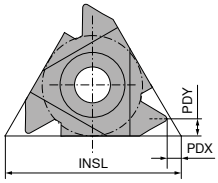
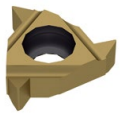
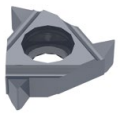
Right hand internal thread turning insert – Mini size 08

▲ Partial profile
▲ Thread production from diameter 8 mm



CCN1525 | CCN2520





Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 272 ...	IR 71 272 ...
08 IR A55	48 - 16	8	0,6	0,7	**10700**	**30700**
P					●	○
M					●	●
K					●	○
N					○	
S						●
H						○
O					○	

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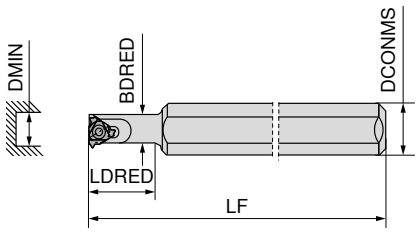
Right Hand Internal Thread Holder – Mini size 06



Right-hand

71 282 ...

ISO designation	LF mm	LDRED mm	DCONMS mm	BDRED mm	DMIN mm	Insert	torque moment Nm	
SI R 0005 H06	100	12	12	5,1	6	06 ..	0,6	**00500**
SI R 0005 H06 C	100	26	6	5,1	6	06 ..	0,6	**10500**[1)]

1) Solid Carbide Shank with Thro' Coolant

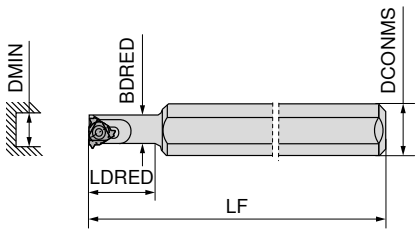
Key D

Clamping screw

80 950 ... **71 950 ...**

Spare parts for Article no.			
71 282 00500	T06	**108**	**23800**
71 282 10500	T06	**108**	**23800**

Right Hand Internal Thread Holder – Mini size 08



Right-hand

71 282 ...

ISO designation	LF mm	LDRED mm	DCONMS mm	BDRED mm	DMIN mm	Insert	torque moment Nm	
SI R 0007 K08	125	18	16	6,6	7,8	08 ..	0,6	**00700**
SI R 0008 K08U	125	21	16	7,3	9,0	08 .N	0,6	**00800**[1)]
SI R 0007 K08CB	125	31	8	6,6	7,8	08 ..	0,6	**10700**[2)]

1) Neutral insert indicated by marking (N)
2) Solid Carbide Shank with Thro' Coolant

Key D

Clamping screw

80 950 ... **71 950 ...**

Spare parts for Article no.			
71 282 00700	T06	**108**	**23900**
71 282 00800	T06	**108**	**23900**
71 282 10700	T06	**108**	**23900**

Shims for Standard Threading Inserts

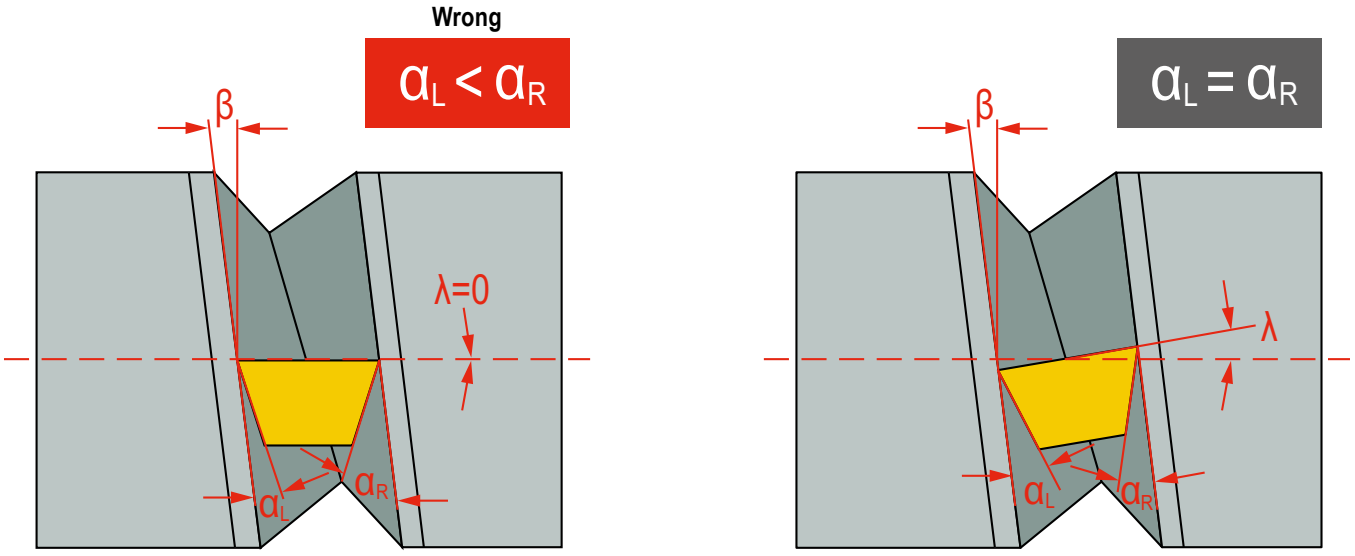
▲ Use the formula on **page 47** to calculate the required correction angle α (±).
▲ Then find the corresponding correction plate below.

Pitch-angle β	Correction angle α	AE 16 ER 16 / IL 16 71 950 ...	AI 16 EL 16 / IR 16 71 950 ...	AE 22 ER 22 / IL 22 71 950 ...	AI 22 EL 22 / IR 22 71 950 ...	AE 22 U ER 22 / IL 22 71 950 ...	AI 22 U EL 22 / IR 22 71 950 ...	AE 16 M ER 16 / IL 16 71 950 ...	AI 16 M EL 16 / IR 16 71 950 ...
+ 4,5°	+ 3°	118	126	134	142	150 [1]	158 [1]		
+ 3,5°	+ 2°	119	127	135	143	151 [1]	159 [1]		
+ 2,5°	+ 1°	120	128	136	144	152 [1]	160 [1]		
+ 1,5°	0°	121	129	137	145	153 [1]	161 [1]	101	108
+ 0,5°	- 1°	122	130	138	146	154 [1]	162 [1]		
0°	- 1,5°	123	131	139	147				
- 0,5°	- 2°	124	132	140	148	156 [1]	164 [1]		
- 1,5°	- 3°	125	133	141	149	157 [1]	165 [1]		

1) Neutral version for tool holder identified by (U).

Flank clearance angle and effective approach angle

The angle of inclination λ of the cutting edges, in concert with the thread approach angle β ensures an equal rake angle and side clearance angle on both thread flanks.



α = Side clearance angle
λ = Pitch angle
β = An effective angle of inclination is achieved by using a suitable insert seat

Material examples for cutting data tables

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

*** Tensile strength**

Cutting data standard values

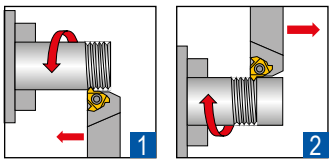
Index	CCN1525 Mini	CCN2520 Mini	CWN1525	HCN2525	CCN7525	CCN20	CWK20
	v_c (m/min)						
P.1.1	**80**	120	**120**	120	**120**	**120**	
P.1.2	**80**	120	**120**	120	**120**	**120**	
P.1.3	**80**	120	**120**	120	**120**	**120**	
P.1.4	**80**	80	**80**	90	**80**	**80**	
P.1.5	**70**	80	**80**	90	**80**	**80**	
P.2.1	**50**	80	**80**	90	**80**	**80**	
P.2.2	**50**	80	**80**	90	**80**	**80**	
P.2.3	**50**	80	**80**	90	**80**	**80**	
P.2.4	**50**	80	**80**	90	**80**	**80**	
P.3.1	**50**	50	**60**	70	**50**	**50**	
P.3.2	**50**	50	**60**	70	**50**	**50**	
P.3.3	**50**	50	**60**	70	**50**	**50**	
P.4.1	**50**	50	**60**	70	**50**	**50**	
P.4.2	**50**	50	**60**	70	**50**	**50**	
M.1.1	**40**	**90**	60	**110**	**90**	**60**	40
M.2.1	**40**	**90**	60	**110**	**90**	**60**	40
M.3.1	**40**	**90**	60	**110**	**90**	**60**	40
K.1.1	**60**	120	**90**	140	**120**	**120**	**80**
K.1.2	**60**	120	**90**	140	**120**	**120**	**80**
K.2.1	**60**	100	**80**	120	**100**	**100**	**70**
K.2.2	**60**	100	**80**	120	**100**	**100**	**70**
K.3.1	**50**	100	**80**	110	**100**	**100**	**70**
K.3.2	**50**	100	**80**	110	**100**	**100**	**70**
N.1.1	500		**600**	700			**150**
N.1.2	300		**600**	700			**150**
N.2.1	120		**250**	280			**120**
N.2.2	120		**250**	280			**120**
N.2.3	120		**250**	280			**120**
N.3.1	110		**150**	190			**100**
N.3.2	150		**150**	190			**100**
N.3.3	150		**150**	190			**100**
N.4.1	300		**300**	220			**150**
S.1.1		**25**		20	**25**	20	20
S.1.2		**25**		20	**25**	20	20
S.2.1		**25**		20	**25**	20	20
S.2.2		**25**		20	**25**	20	20
S.2.3		**25**		20	**25**	20	20
S.3.1		**35**		30	**35**	30	30
S.3.2		**35**		30	**35**	30	30
S.3.3		**35**		30	**35**	30	30
H.1.1		35		30	35	30	
H.1.2		35		30	35	30	
H.1.3		35		30	35	30	
H.1.4		35		30	35	30	
H.2.1		25		20	25	20	
H.3.1		25		20	25	20	
O.1.1	150		200				
O.1.2	150		200				
O.2.1	150		200				
O.2.2	150		200				
O.3.1	150		200				

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

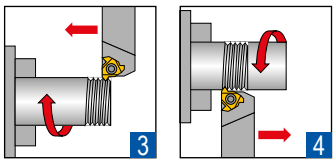
8

Thread turning methods

External right-hand thread

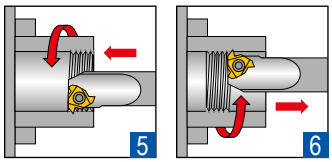


External left-hand thread

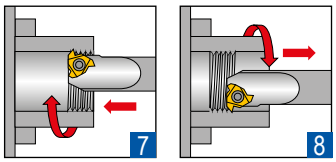


The machining examples 2, 4, 6 and 8 require negative shims!
These shims can be found on → **Page 43.**

Internal right-hand thread

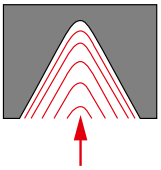


Internal left-hand thread



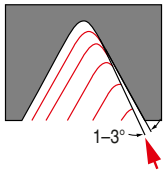
Thread infeed methods

Radial Infeed



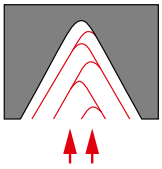
- for pitches less than 1.5 mm
- for short chipping materials
- for machining hardened materials
- simple and quick method

Flank infeed



- for pitches larger than 1.5 mm
- with radial penetration the effective cutting edge length is too large, which may lead to chattering
- with trapezoidal and ACME threads, chip flow on three sides can be problematic

Alternating infeed



- with large pitches
- for long chipping materials
- uniform wear of the cutting edges
- complicated programming process

Recommended number of cuts and cutting depths

Standard Threading Inserts

Pitch (TP/TPI)		mm	0,50	0,75	1,00	1,25	1,50	1,75	2,00	2,50	3,00	3,50	4,00	4,50	5,00	5,50	6,00	8,00
		TPI	48	32	24	20	16	14	12	10	8	7	6	5.5	5	4.5	4	3
Number of passes			4–6	4–7	4–8	5–9	6–10	7–12	7–12	8–14	9–16	10–18	11–18	11–19	12–20	12–20	12–20	15–24
Number of passes	**(CCN7525)**		3–4	3–4	3–5	4–6	5–6	6–8	6–8	8–10								
Number of passes	**Mini Inserts**		6–9	6–11	6–12	8–14	9–15	11–18	11–18									

Multi edge thread turning insert

Standard	Insert	Insert size		Pitch (TP)	Number of flutes (NT)	Designation	Passes	Cutting depth per pass		
		IC	L mm					1	2	3
ISO external	M	3/8"	16	1,0 mm	3	3 ER 1.0 ISO 3M	2	0,38	0,25	
ISO external	M	3/8"	16	1,5 mm	2	3 ER 1.5 ISO 2M	3	0,42	0,30	0,20

Pitch angle

Important Information about Standard Shims

- ▲ the pitch angle should be determined through calculation or by using the chart below.
- ▲ the standard threading holder is supplied with a 1.5° inclined insert seat and a shim without angular correction.
  Hence the Tool holders are delivered with an angle of inclination β of 1.5°.

Without the appropriate correction of the helix angle, the following may occur

- ▲ the profile will be distorted.
- ▲ insufficient clearance angle.
- ▲ the tool life of the insert is greatly reduced.

Method 1: Calculation

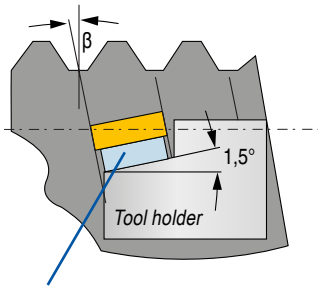
Calculating the helix angle β:

$$\beta = \frac{20 \times TP}{DMIN}$$

For trapezium:

$$\frac{15 \times TP}{DMIN}$$

20 = constant
β = Helix angle (°)
TP = Pitch (mm)
DMIN = Nominal diameter (mm)



Example calculation

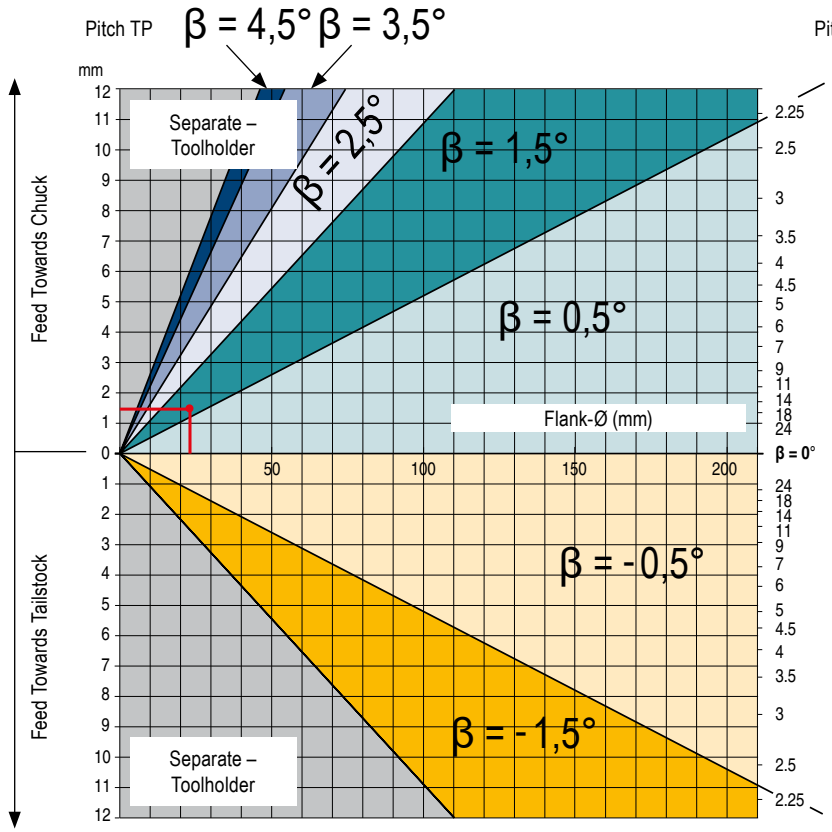
External thread M24 x 1.5
Feed towards chuck
DMIN = Nominal Ø: M24 = 24 mm
TP = Pitch: 1.5 mm

$$\beta = \frac{20 \times 1{,}5 \text{ mm}}{24 \text{ mm}}$$

β = 1,25°

Method 2: Diagram

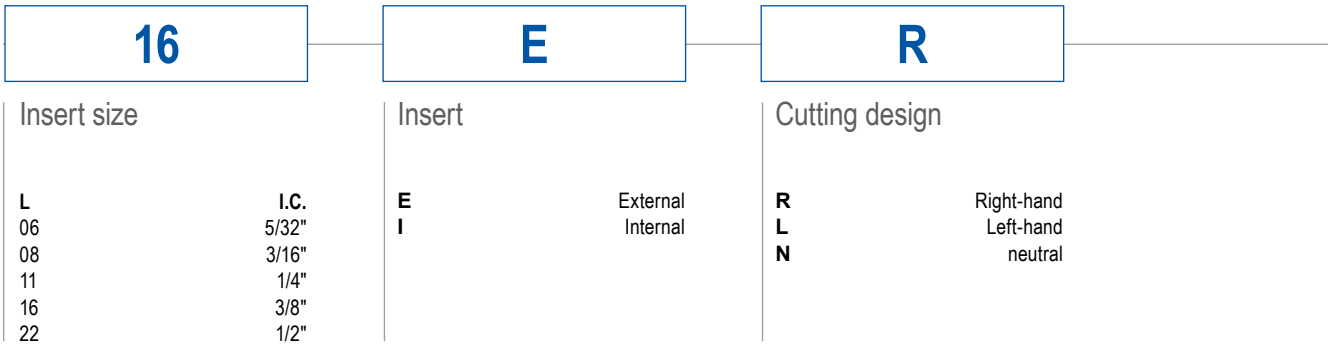
From the flank Ø in the diagram, a line is drawn vertically upwards until it intersects with the line of the pitch of the thread to be produced. In the color-coded region in which it is now, a horizontal line to the edge of the chart indicates the appropriate factor.



Calculated pitch angle β value	Correction angle α
0,0°–0,49°	-1,5°
0,5°–0,99°	-1°
1,0°–1,99°	0°
2,0°–2,99°	+1°
3,0°–3,99°	+2°
4,0°–4,99°	+3°
0,0°–(-0,49°)	-2°
-0,5°–(-1,5°)	-3°

8

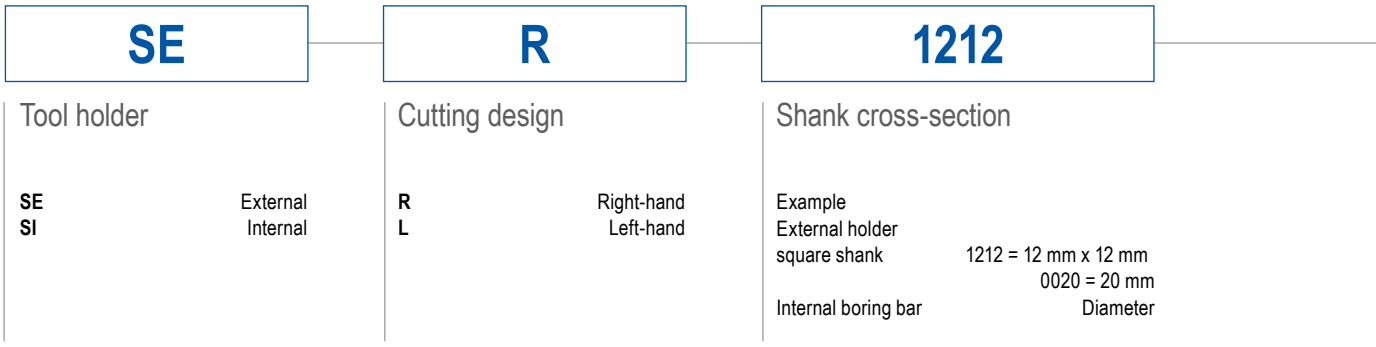
Designation key – indexable inserts



Example

16 ER AG 60
ER16 right hand – external insert with a pitch of 0.5-3.0 mm

Designation key – holders



Example

SE R 1212 F 16
Right hand holder with 12 x 12 mm square shank,
overall length of 80 mm, only suitable for an ER16 threading insert

AG 60

Pitch (TP/TPI)

Full profile

mm	G/Z
0,35	72–4

Partial profile

	mm	G/Z
A	0,5–1,5	48–16
AG	0,5–3,0	48–8
M	1,7–2,0	14–11
G	1,75–3,0	14–8
N	3,5–5,0	7–5
U	5,5–8,0	4,5–3,5

Flank angle
55°
60°

Number of flutes (NT)

2M	Multi-tooth insert with 2 teeth
3M	Multi-tooth insert with 3 teeth

8

F

Overall length

	mm
F	80
H	100
K	125
L	140
M	150
P	170
R	200
S	250
T	300

16

Insert size

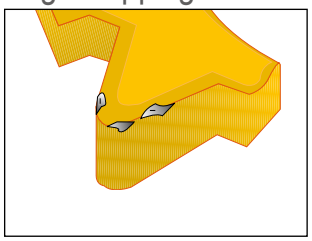
L	I.C.
06	5/32"
08	3/16"
11	1/4"
16	3/8"
22	1/2"

Properties

B	with thro' coolant
C	with carbide shank
U	neutral holder

Troubleshooting

Edge chipping



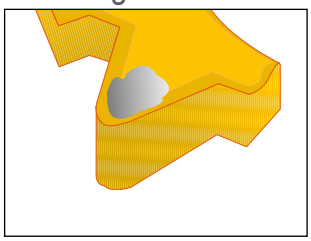
Cause

- Common in stainless materials
- Incorrect grade

Remedy

- Minimize tool overhang length
- Check that the insert is clamped
- Minimize vibration
- Use a tougher grade

Cratering



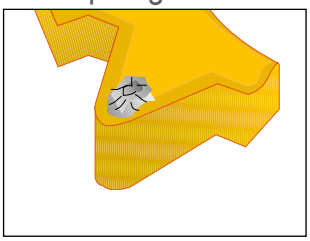
Cause

- Common in stainless materials
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce depth of cut
- Use a harder grade

Built-up edge



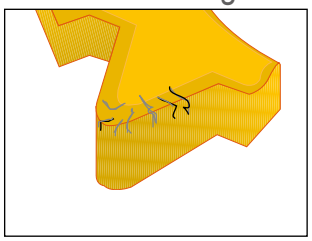
Cause

- Cutting speed too low
- Incorrect grade

Remedy

- Apply coolant
- Increase cutting speed
- Use a tougher grade

Thermal cracking



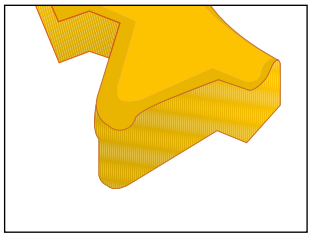
Cause

- Insufficient coolant
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce cutting speed
- Use a tougher grade

Plastic deformation



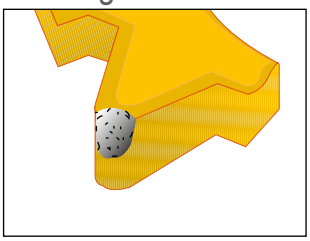
Cause

- Infeed too large
- Insufficient coolant
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce depth of cut
- Reduce cutting speed
- Use a harder grade

Breakage



Cause

- Infeed too large
- Insufficient coolant
- Plastic deformation
- Instability
- Helix angle not appropriate
- Incorrect grade

Remedy

- Reduce depth of cut
- Check machine and tool stability
- Reduce cutting speed
- Check helix angle
- Use a tougher grade

Grade description

Universal

CCN7525
- Carbide, TiAlN-coated
- ISO | **P25** | **M25** | **K25** | **S25** | H25
- The universal carbide grade with sintered chip breaker for medium to high cutting speeds

CCN2520
- Carbide, TiAlN-coated
- ISO | P25 | **M25** | K25 | **S25** | H25
- The coated carbide grade for the machining of stainless steels at medium to high cutting speeds

CCN1525
- Carbide, TiN-coated
- ISO | **P25** | **M25** | **K25** | N25 | O25
- The coated carbide grade for machining steels and stainless steels at low cutting speeds

Non-ferrous metals

CWK20
- Carbide, uncoated
- ISO | M10 | **K10** | **N10** | S10
- The wear-resistant carbide grade for machining aluminium and other non-ferrous metals

Steel

CCN20
- Carbide, TiAlN-coated
- ISO | **P20** | **M20** | **K20** | S20 | H20
- The all-round carbide grade for machining steels at low cutting speeds

CWN1525
- Carbide, TiN-coated
- ISO | **P25** | M25 | **K25** | **N25** | O25
- The universal carbide grade for machining steels and non-ferrous metals at low cutting speeds

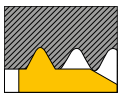
Stainless steel

HCN2525
- Carbide, TiAlN-coated
- ISO | P25 | **M25** | K25 | N25 | S25 | H25
- The coated carbide grade for machining stainless steels at high cutting speeds
- Also suitable for exotic materials

8

Profile Type Description

Full profile



- Thread diameter must not be turned to final thread size
- a minimum infeed of 0.07 mm is necessary
- Insert can only be used only for a specific pitch

Advantages:
- High-quality thread
- No burr formation
- No rework
- In part longer service life

Partial profile

- Core diameter must be premachined to the finished size
- A minimum infeed of 0.07 mm is required

Advantages:
- One threading insert can be used to machine several pitches
- Threading insert can be used for any application
- Reduced stock requirements

Multi-Tooth Thread Turning Insert

- Thread diameter must not be turned to final thread size
- a minimum infeed of 0.07 mm is necessary
- Insert can only be used only for a specific pitch

Advantages:
- Fewer passes required
- Thread production in less time

Attention:
- Check there is sufficient thread run-out

Mini Thread Turning Insert

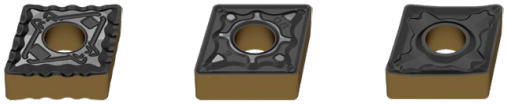
- From a min. core hole diameter of Ø 6 mm or Ø 8 mm

Advantages:
- Special cutting materials for low cutting speeds
- 3 cutting edges for miniature applications

New products for machining technicians

NEW

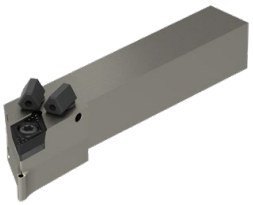
Steel machining with the new ISO-P grades



Thanks to a CVD multilayer coating with the latest Dragonskin coating technology, the indexable inserts are ideally suited to versatile steel machining. In combination with a balanced carbide base substrate, the new grades in the ISO-P category boast a wide application area with improved wear resistance. Depending on the cutting conditions, the perfect cutting material can be selected from three grades.

NEW

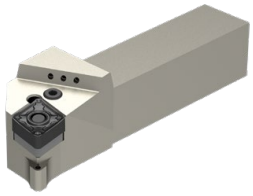
Tool holder with square shank – MaxiLock-S DC for positive indexable inserts



The new MaxiLock-S DC tool holders improve both your process security and the service life of the tool cutting edges with targeted cooling. Suitable for a wide range of positive indexable inserts.

NEW

Tool holder with square shank – MaxiLock-N DC for negative indexable inserts



Improve your machining process with precision cooling on the tool cutting edge. The cooling has a particularly efficient effect on the flank of the tool. Suitable for a wide range of negative indexable inserts using toggle clamps.

Suitable adapters for our square rotating- and grooving holders can be found in **Chapter 16 Adapters and accessories**.
Available for machine interfaces VDI and BMT.
New: Adapters with HSK-T machine interface → **Chapter 16, pages 194+195**

NEW

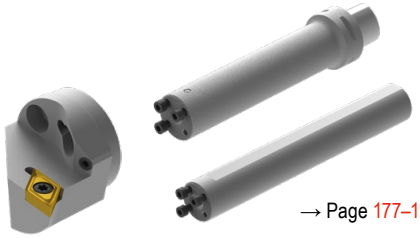
-M23 chip breaker

→ Page 125

Soft cutting geometry with excellent Chip breaking behavior at low cutting depths for steel machining. Available for positive round inserts in the ISO-P carbide grades.

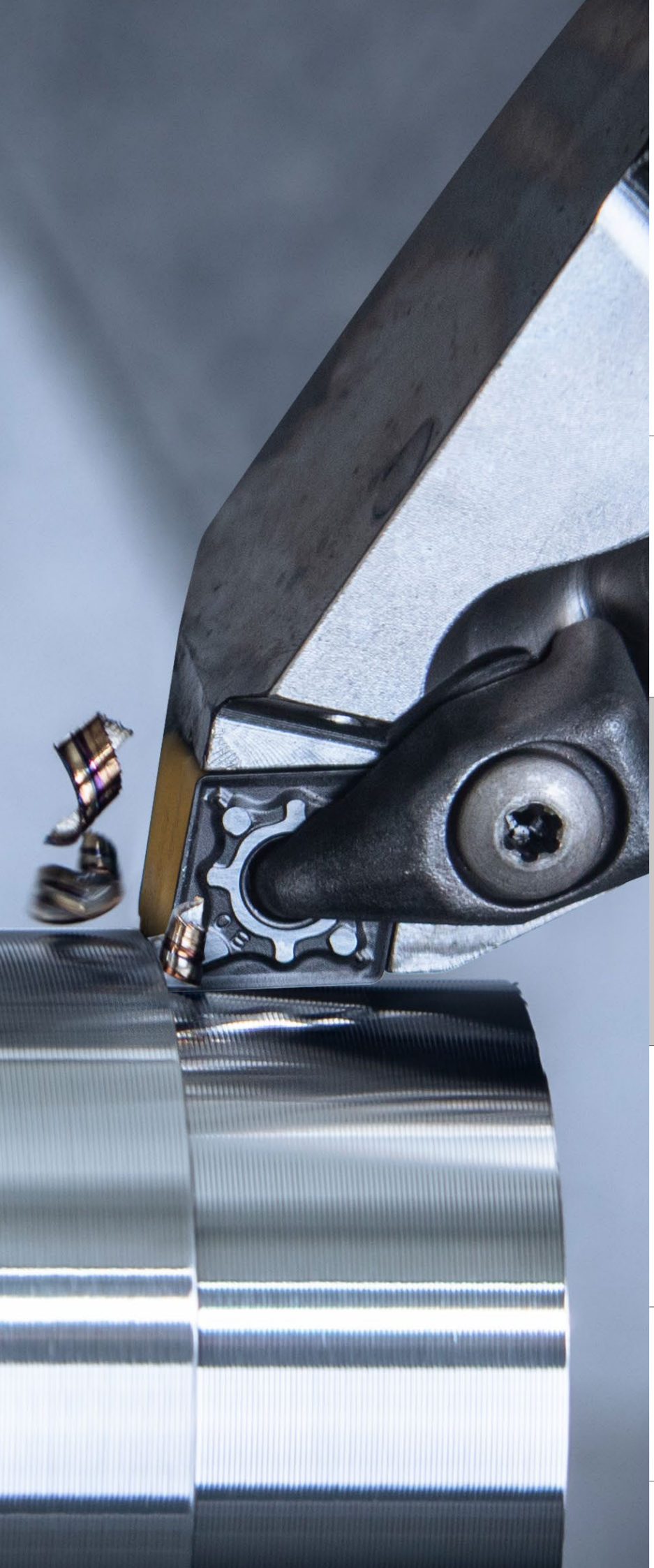
NEW

MaxiChange – Exchangeable head system



→ Page 177–192

The new actively vibration-dampened basic holder for demanding internal turning operations. Available with the Machine interface PSC, HSK-T and cylindrical shank.



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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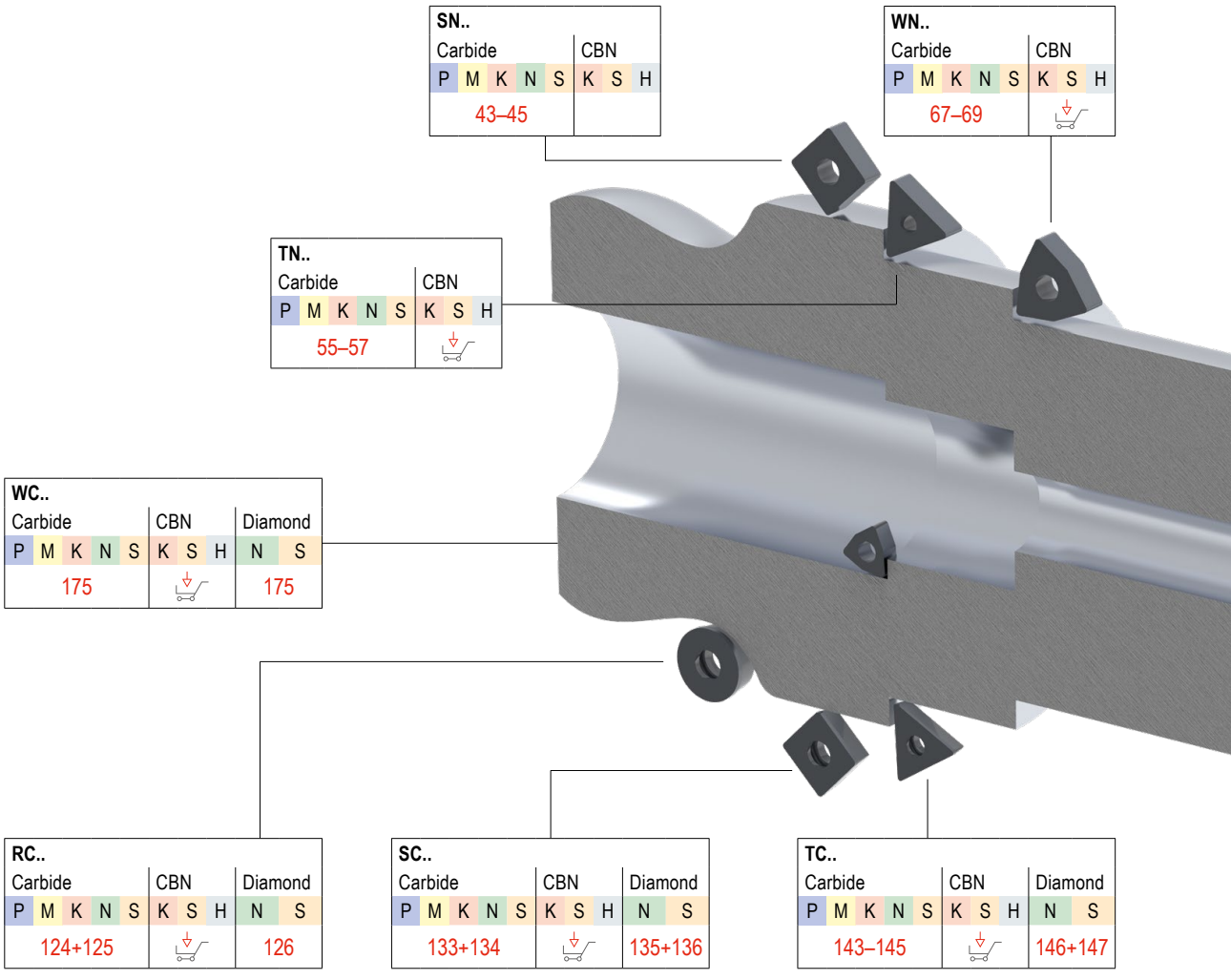
CERATIZIT \ Performance

Premium quality tools for high performance.

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

Toolfinder – Application



Symbol explanation

CTCP125-P *Carbide Grade*

F	Fine Machining
M	Medium Machining
R	Rough Machining

Smooth cut
Irregular cutting depth
Interrupted cut

Int. coolant supply

Direct Cooling DirectCooling

A detailed overview of grades can be found in the technical appendix on → **page** 228

Hard turning with PCBN indexable inserts

https://cts.ceratizit.com/en/pcbn-indexable-inserts

The tool selection for Sliding head machines

cts.ceratizit.com/en/sliding-head-turning

9

CN..

Carbide					CBN			Diamond	
P	M	K	N	S	K	S	H	N	S
12–16								17	

DN..

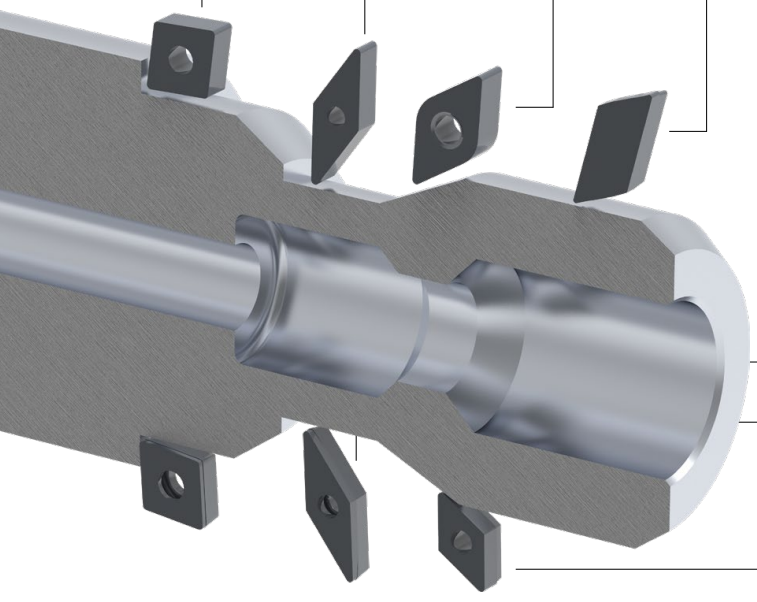
Carbide					CBN			Diamond	
P	M	K	N	S	K	S	H	N	S
26–29								30	

VN..

Carbide					CBN		
P	M	K	N	S	K	S	H
62+63							

KN..

Carbide				
P	M	K	N	S



CC..

Carbide					CBN			Diamond	
P	M	K	N	S	K	S	H	N	S
76–79								80–84	

VC..

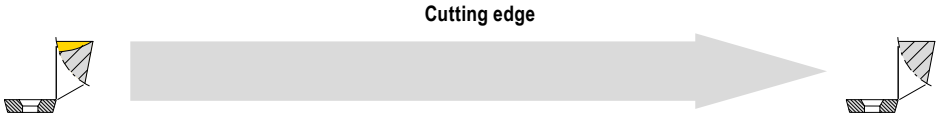
Carbide					CBN			Diamond	
P	M	K	N	S	K	S	H	N	S
153–155								157–159	

DC..

Carbide					CBN			Diamond	
P	M	K	N	S	K	S	H	N	S
99–102								104–108	

This article can be found in our online shop at cuttingtools.ceratizit.com

Chip Breakers Overview



			Sharp			medium		stable		
			5	10	20	30	40	50	60	70
increasing wedge angle	fine	F	-F05 -CF05	-SF -23P	-CF / -CF20	-F30 -SMF	-F34 -F40 -TFQ	-F50 -CF55		
	medium	M		-M23	-25P -25Q -M25	-XU -M30 -SM -SMQ	-M34 -M40 -TMQ	-M42 -M50 -M55 -27	-M60 -29	-M70
	rough	R					-NMA	-R28	-R58	-R88

Grade description

C T C P 1 2 5 -P (Example)

CT
CERATIZIT

-P
Performance

Degree of hardness

05	ISO 05
10	ISO 10
15	ISO 15
20	ISO 20
25	ISO 25
30	ISO 30
35	ISO 35
40	ISO 40

Application

1	Turning
2	Milling
3	Grooving
4	Drilling
5	Thread turning
6	Others
7	Several processes

Main application – material

P	Steel
M	Stainless steel
K	Cast iron
N	Non-ferrous metals
S	Heat-resistant
H	Tempered steel
O	Non-metal materials
X	Universal application

Coating

W	Uncoated carbide
C	CVD-coated carbide
P	PVD-coated carbide
T	Cermet, uncoated
E	Cermet, coated
N	Silicon nitride, uncoated
M	Silicon nitride, coated
S	Mixed ceramic
K	Whisker ceramic
I	SiAlON
D	PDC
B	PcBN
H	HSS sintered

Toolfinder – negative inserts

				Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Geometry						
				P	M	K	N	S	H	O	CN..	DN..	KN..	SN..	TN..	VN..	WN..
Main application: **Steel and cast iron**	Sharp → stable	Fine	-CF / -CF20	●	○	○					12	26			55		67
			-F40	●		○										62	
			-F50	●		○					12	26		43	55	62	67
			-TFQ	●	○	○					12+13	27					67
		Medium	-XU	●		○					13	27				62	68
			-M40	●		○										62	
			-M50	●	○	○					13	27		43	55	62	68
			-TMQ	●		○					13	27					68
			-M70 | -11, -12	●	○	○					13+14	28	🛒	44	56		68
		Rough	.NMA	●	○						14	28		44	56		69
			-R28	●	○	○					14	28		45	56		
			-R58	●	○	○					14+15	28+29		45	56+57		
			-R88	●	○	○					15			45			
Main application: **Stainless**	Sharp → stable	Fine	-F30	○	●			○			15	29		46	57	62	69
		Medium	-M30	○	●			○			15	29		46	57	62+63	69
			-42	○	●			○			15						
			-M42	○	●			●			16	29		46	57		69
			-M60	○	●			○			16	29		45	57		69
			-M70	○	●			○			13–15	28+29		46	57		69
Main application: **Heat-resistant**	Sharp → stable	Fine	-F32		●		○	●			🛒	🛒				🛒	
			-F34	○	●		○	●			16						70
		Medium	-M34	●	●		○	●			16	29		45	57	63	70
			-M42	○	●		○	●			16	29			🛒		🛒
			-M52		●		○	●			🛒	🛒		🛒	🛒		🛒
Main application: **Non-ferrous metals**		Diamond	FN , FL, FR				●			●	17	30					

🛒 This article can be found in our online shop at cuttingtools.ceratizit.com

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Toolfinder – positive inserts

				Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Geometry								
				P	M	K	N	S	H	O	CC..	DC..	RC..	SC..	SP..	TC..	TP..	VC..	WC..
Main application: **Steel and cast iron**	Sharp	Fine	-CF05	●	○	○					76	99		133		143		153	
			-SF	●	○	○					76–78	99–101		133		143		153+154	175
		Medium	-CF55	●	○	○					76	99		133		143		153	
			-M23	●		○							125						
			-SMF	●	○	○					76–78	99+105	124	133		143		153+154	
			-SM	●	○	●					77+78	100	124+125	133		143		154	
			-SMQ	●		○					77+78	101							
	stable		-EN, -EL, -ER	●	○	●													
Main application: **Stainless**	Sharp	Fine	-F43	○	●			○			78	101				144			
			-M81	○	●			○											
		Medium	-M25	○	●			●			78	101		134		144		154	
	stable		-M55	○	●			●			78	101		133+134		144+145		154+155	
Main application: **Non-ferrous metals**	Sharp	Fine	-23P			○	●			○	78	102							
		Medium	-25P	●	●	○	●	●		○	78	102	125	134				155	
			-25Q	●	●	○	●	●		○	79	102						155	
			-27	●	●	○	●	●		○	79	102	125	134		145		156	
	stable		-29			○	●			○	79	103						156	
		Diamond	-FN , -FL, -FR				●			●	80–84	104–108	126	135+136		146+147		157–159	175
			CB1				●			●	81+84	105–108	126	135		146		158+159	
			CB2				●			●	81+84	105 107+108	126	136		147		158+159	
			CB3				●			●	83	107		136		147		159	
Main application: **Heat-resistant**	Sharp	Fine	-F05	●	●		●	●			79	103						156	
	stable		-F23		●	○	○	●											

This article can be found in our online shop at cuttingtools.ceratizit.com

Toolfinder – holders

Toolholders and boring bars for negative inserts

Geometry	Tool holder	Boring bars	HSK-T	PSC
CN..	18–21	24+25	22	23
DN..	31–34	41+42	34–36	37–40
SN..	47–52	54	52	
TN..	58–60	61		
VN..	64		65	65+66
WN..	71+72	74+75	73	73

Toolholders and boring bars for positive inserts

Geometry	Tool holder	Boring bars	HSK-T	PSC
CC..	85–91	94–98	92	93
DC..	109–115	119–123	116	117+118
RC..	127–131		132	
SC..	137–141	142		
TC..	148–151	152		
VC..	160–168	172–174	168–170	170+171
WC..		176		

Suitable coolant accessories can be found on → **page** 193–195.

MaxiChange – Overview of the product range

As the MaxiChange exchangeable head system is modular, it is extremely flexible and can be used for a variety of applications thanks to the wide selection of exchangeable heads. On top of these advantages, the MaxiChange GX also includes a grooving function for internal and external machining as well as axial and radial machining.

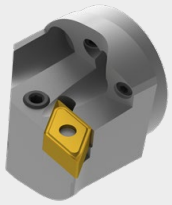
Exchangeable heads

For negative inserts

PCLN 95°

187

PDUN 93°



187

PDQN 107,5°

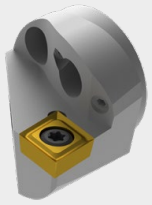
188

PWLN 95°

188

For positive inserts

SCLC 95°



189

SDUC 93°

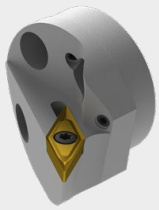
189

SDQC 107,5°

190

NEW

SVPC 117,5°



190

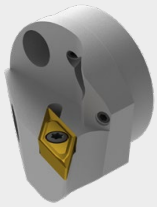
NEW

SVUC 93°

191

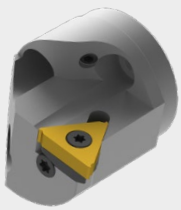
NEW

SVQC 107,5°



191

For internal thread



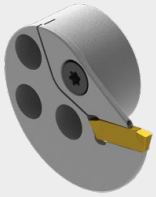
192

→ Chapter 11 – Grooving tools

For radial grooving

NEW

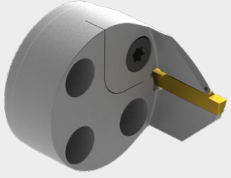
GX 16



For axial grooving

NEW

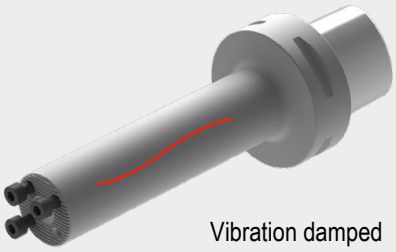
GX 24



Tool holder

PSC

177



Vibration damped

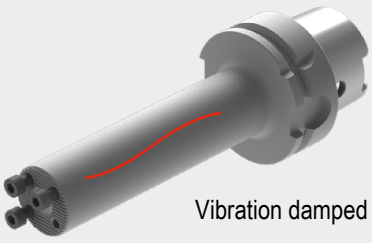
178

Actively vibration-damped

179

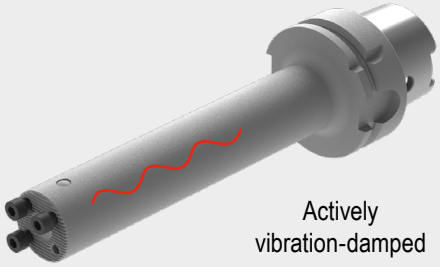
HSK-T

180



Vibration damped

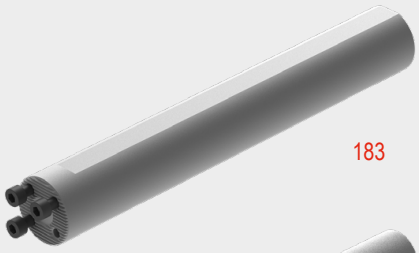
181



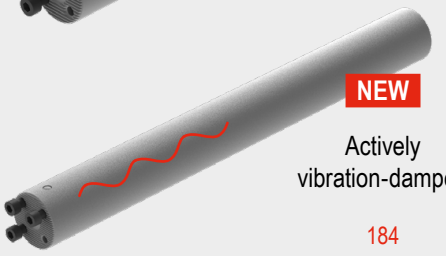
Actively vibration-damped

182

Cylindrical shank



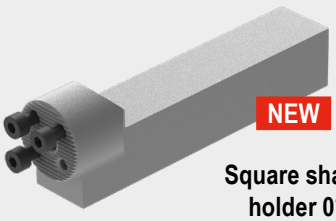
183



NEW

Actively vibration-damped

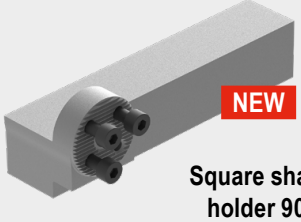
184



NEW

Square shank holder 0°

185



NEW

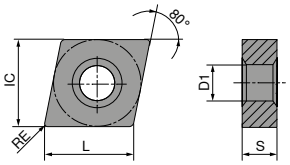
Square shank holder 90°

186

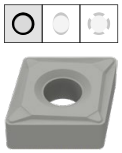
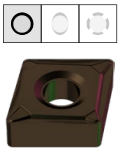
9

CNMG / CNMA / CNMM

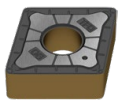
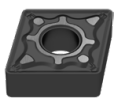
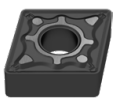
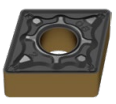
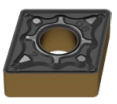
Designation	L	S	D1	IC
	mm	mm	mm	mm
CNMG 0903..	9,7	3,18	3,81	9,52
CNM. 1204..	12,9	4,76	5,16	12,70
CNM. 1606..	16,1	6,35	6,35	15,87
CNM. 1906..	19,3	6,35	7,94	19,05
CNMM 2509..	25,8	9,52	9,12	25,40



CNMG

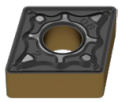
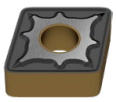
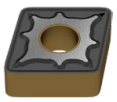
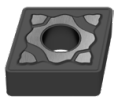
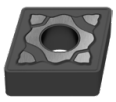
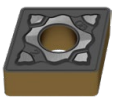
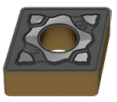
		NEW	NEW	NEW	NEW
	-CF TCM10	-CF20 CTEP110	-TFQ CTEP110	-F50 CTCP115-P	-F50 CTCP125-P	-F50 CTCP135-P	-TFQ CTCP115-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	F	F
	CERMET CNMG	CERMET CNMG	CERMET CNMG	CNMG	CNMG	CNMG	CNMG
	70 101 ...	76 101 ...	76 110 ...	76 132 ...	76 132 ...	76 132 ...	76 110 ...
ISO / RE mm							
090304EN 0,4				31601	51601	71601	
090308EN 0,8				31801	51801	71801	
120404EN 0,4	904	028	028	32801	52801	72801	32801
120408EN 0,8	908	030	030	33001	53001	73001	33001
120412EN 1,2			032	33201	53201	73201	32001
P	●	●	●	●	●	●	●
M	○	○	○			○	
K	○	○	○	○	○		○
N							
S							
H							
O							

CNMG

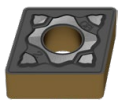
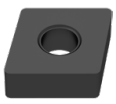
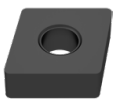
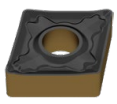
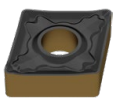
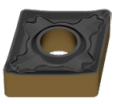
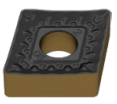
		NEW	NEW	NEW			NEW	NEW
		-TFQ CTCP125-P	-XU CTCP115-P	-XU CTCP125-P	-M50 CTCK110	-M50 CTCK120	-M50 CTCP115-P	-M50 CTCP125-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	M	M	M	M	M	M
		CNMG	CNMG	CNMG	CNMG	CNMG	CNMG	CNMG
		76 110 ...	76 290 ...	76 290 ...	70 132 ...	70 132 ...	76 135 ...	76 135 ...
ISO	RE mm							
120404EN	0,4	52801	32801	52801	028		32801	52801
120408EN	0,8	53001	33001	53001	030	530	33001	53001
120412EN	1,2	53201	33201	53201	032	532	32001	53201
120416EN	1,6						33401	53401
160608EN	0,8						34201	54201
160612EN	1,2						34401	54401
160616EN	1,6						34601	54601
P		●	●	●	○	○	●	●
M								
K		○	○	○	●	●	○	○
N								
S								
H								
O								

9

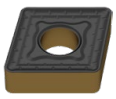
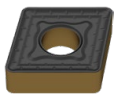
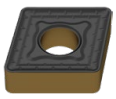
CNMG

		NEW	NEW	NEW			NEW	NEW
		-M50 CTCP135-P	-TMQ CTCP115-P	-TMQ CTCP125-P	-M70 CTCK110	-M70 CTCK120	-M70 CTCP115-P	-M70 CTCP125-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	M	M	M	M	M
		CNMG	CNMG	CNMG	CNMG	CNMG	CNMG	CNMG
		76 135 ...	76 196 ...	76 196 ...	70 119 ...	70 119 ...	76 119 ...	76 119 ...
ISO	RE mm							
120404EN	0,4	72801						
120408EN	0,8	73001	33001	53001	030	530	33001	53001
120412EN	1,2	73201	32001	53201	032	532	32001	53201
120416EN	1,6	73401			034	534	33401	53401
160608EN	0,8	74201			042	542	34201	54201
160612EN	1,2	74401			044	544	34401	54401
160616EN	1,6	74601			046	546	34601	54601
160624EN	2,4						34801	54801
190608EN	0,8						35401	55401
190612EN	1,2				056	556	35601	55601
190616EN	1,6				058	558	35801	55801
190624EN	2,4						36001	56001
P		●	●	●	○	○	●	●
M		○						
K			○	○	●	●	○	○
N								
S								
H								
O								

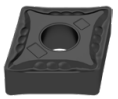
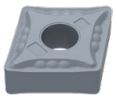
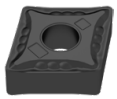
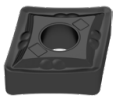
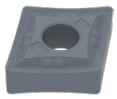
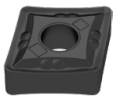
CNMG / CNMA / CNMM

		NEW			NEW	NEW	NEW	NEW
		-M70 CTCP135-P	CTCK110	CTCK120	-R28 CTCP115-P	-R28 CTCP125-P	-R28 CTCP135-P	-R58 CTCP115-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	R	R	R	R	R	R
		CNMG	CNMA	CNMA	CNMM	CNMM	CNMM	CNMM
		76 119 ...	70 100 ...	70 100 ...	76 114 ...	76 114 ...	76 114 ...	76 115 ...
ISO	RE mm							
120404EN	0,4		028	528				
120408EN	0,8	73001	030	530	33001	53001		33001
120412EN	1,2	73201	032	532	33201	53201	73201	33201
120416EN	1,6	73401	034	534	33401	53401	73401	33401
160608EN	0,8	74201	042	542				
160612EN	1,2	74401	044	544	34401	54401	74401	34401
160616EN	1,6	74601	046	546	34601	54601	74601	34601
160624EN	2,4	74801						34801
190608EN	0,8	75401						
190612EN	1,2	75601	056	556	35601	55601	75601	35601
190616EN	1,6	75801	058	558	35801	55801	75801	35801
190624EN	2,4	76001			36001	56001	76001	36001
250924EN	2,4				38401	58401	78401	38401
P		●	○	○	●	●	●	●
M		○					○	
K			●	●	○	○		○
N								
S								
H								
O								

CNMM

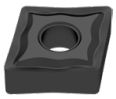
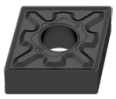
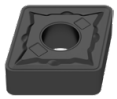
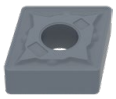
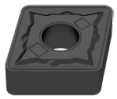
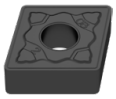
		NEW	NEW	NEW	NEW	NEW
		-R58 CTCP125-P	-R58 CTCP135-P	-R88 CTCP115-P	-R88 CTCP125-P	-R88 CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		R CNMM	R CNMM	R CNMM	R CNMM	R CNMM
		76 115 ...	76 115 ...	76 133 ...	76 133 ...	76 133 ...
ISO	RE mm					
120408EN	0,8	53001	73001			
120412EN	1,2	53201	73201			
120416EN	1,6	53401	73401			
160612EN	1,2	54401	74401			
160616EN	1,6	54601	74601			
160624EN	2,4	54801	74801			
160624SN	2,4			34801	54801	74801
190612EN	1,2	55601	75601			
190616EN	1,6	55801	75801			
190616SN	1,6			35801	55801	75801
190624EN	2,4	52401	76001			
190624SN	2,4			36001	56001	76001
250924EN	2,4	58401	78401			
250924SN	2,4			38401	58401	78401
P		●	●	●	●	●
M			○			○
K		○		○	○	
N						
S						
H						
O						

CNMG

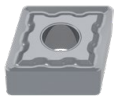
		-F30 CTCM120	-F30 CTPM125	-F30 CTCM130	-M30 CTCM120	-M30 CTPM125	-M30 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		F CNMG	F CNMG	F CNMG	M CNMG	M CNMG	M CNMG
		75 010 ...	75 010 ...	75 010 ...	75 011 ...	75 011 ...	75 011 ...
ISO	RE mm						
120404EN	0,4	12800	280	32800			
120408EN	0,8	13000	230	33000	13000	230	33000
120412EN	1,2				13200	232	33200
120416EN	1,6				13400	234	33400
P		○	○	○	○	○	○
M		●	●	●	●	●	●
K							
N							
S				○			○
H							
O							

9

CNMG

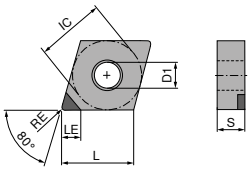
		NEW	NEW				NEW
		-42 CTCM130	-M42 CTCM130	-M60 CTCM120	-M60 CTPM125	-M60 CTCM130	-M70 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		M	M	M	M	M	M
		CNMG	CNMG	CNMG	CNMG	CNMG	CNMG
		75 030 ...	75 029 ...	75 012 ...	75 012 ...	75 012 ...	75 037 ...
ISO	RE mm						
120404EN	0,4		32800				
120408EN	0,8	33000	33000	13000	230	33000	33000
120412EN	1,2		33200	13200	232	33200	33200
120416EN	1,6			13400	234	33400	
160612EN	1,2			14400	24400	34400	34400
190612EN	1,2						35600
190616EN	1,6						35800
P		○	○	○	○	○	○
M		●	●	●	●	●	●
K							
N							
S		○	○			○	○
H							
O							

CNMG

		NEW		NEW
		-F34 CTPX710	-M34 CTPX710	-M42 CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
		F	M	M
		CNMG	CNMG	CNMG
		75 299 ...	75 003 ...	75 007 ...
ISO	RE mm			
120404EN	0,4	62800	62800	
120408EN	0,8	63000	63000	63000
120412EN	1,2	63200	63200	63200
120416EN	1,6		63400	
P		●	●	●
M		●	●	●
K				
N		○	○	○
S		●	●	●
H				
O				

CNGA

Designation	L mm	S mm	D1 mm	IC mm
CNGA 1204..	12,9	4,76	5,13	12,7



CNGA A

CNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDPD20	CTDPS30
				F	F
				DIAMOND CNGA	DIAMOND CNGA
				71 127 ...	71 127 ...
ISO	RE mm	TCE (NOI)	LE mm		
120404FN	0,4	A (1)	6,3	10001	20001
120408FN	0,8	A (1)	6,0	10101	20101
120412FN	1,2	A (1)	5,7	10201	20201
P					
M					
K					
N				●	●
S					
H					
O				●	●

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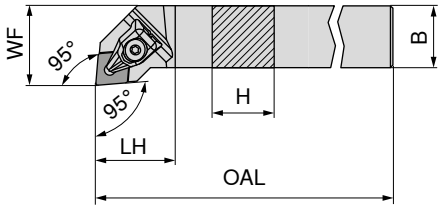
→ v_c Page 196–209

MaxiLock-D – DCLN 95° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

								Left-hand	Right-hand
								70 509 ...	**70 508 ...**
ISO designation	H	B	OAL	LH	WF	torque moment	Insert		
	mm	mm	mm	mm	mm	Nm			
DCLN R/L 1616 H09	16	16	100	23	20	2	CN.. 0903	**516**	**516**
DCLN R/L 2020 K09	20	20	125	24	25	2	CN.. 0903	**520**	**520**
DCLN R/L 2020 K12	20	20	125	32	25	4	CN.. 1204	**620**	**620**
DCLN R/L 2525 M12	25	25	150	32	32	4	CN.. 1204	**625**	**625**
DCLN R/L 3225 P12	32	25	170	32	32	4	CN.. 1204	**632**	**632**
DCLN R/L 2525 M16	25	25	150	38	32	6,5	CN.. 1606	**725**	**725**
DCLN R/L 3232 P16	32	32	170	36	40	6,5	CN.. 1606	**732**	**732**
DCLN R/L 3232 P19	32	32	170	42	40	6,5	CN.. 1906	**832**	**832**
DCLN R/L 4040 S19	40	40	250	42	50	6,5	CN.. 1906	**940**	**940**
DCLN R/L 4040 S25	40	40	250	60	50	6,5	CN.. 2509	**440**	**440**

XPress type

70 950 ...

Key D

80 950 ...

Clamping screw

70 950 ...

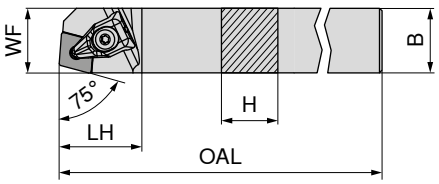
Carbide type C

70 950 ...

Spare parts for Article no.						
70 508 516 / 70 509 516	**823**	T09 - IP	**126**	M3x7 - IP	**819**	**848**
70 508 520 / 70 509 520	**823**	T09 - IP	**126**	M3x7 - IP	**819**	**848**
70 508 620 / 70 509 620	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**810**
70 508 625 / 70 509 625	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**810**
70 508 632 / 70 509 632	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**810**
70 508 725 / 70 509 725	**825**	T20 - IP	**129**	M5x14 - IP	**821**	**814**
70 508 732 / 70 509 732	**825**	T20 - IP	**129**	M5x14 - IP	**821**	**814**
70 508 832 / 70 509 832	**826**	T20 - IP	**129**	M5x14 - IP	**821**	**816**
70 508 940 / 70 509 940	**826**	T20 - IP	**129**	M5x14 - IP	**821**	**816**
70 508 440 / 70 509 440	**827**	T25 - IP	**122**	M6x16 - IP	**822**	**625**

MaxiLock-D – DCBN 75° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

								Left-hand	Right-hand
								70 501 ...	**70 500 ...**
ISO designation	H	B	OAL	LH	WF	torque moment	Insert		
	mm	mm	mm	mm	mm	Nm			
DCBN R/L 2525 M12	25	25	150	32	22	4	CN.. 1204	**825**	**825**

XPress type

70 950 ...

Key D

80 950 ...

Clamping screw

70 950 ...

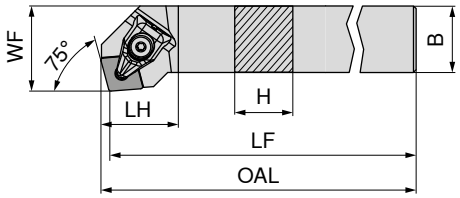
Carbide type C

70 950 ...

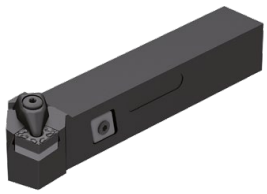
Spare parts for Article no.						
70 501 825 / 70 500 825	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**810**

MaxiLock-D – DCKN 75° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 505 ...	Right-hand 70 504 ...
DCKN R/L 2525 M12	25	25	152,9	150	28,9	32	4	CN.. 1204	**825**	**825**

XPress type — **70 950 ...** — **824**

Key D — **80 950 ...** — T15 - IP — **128**

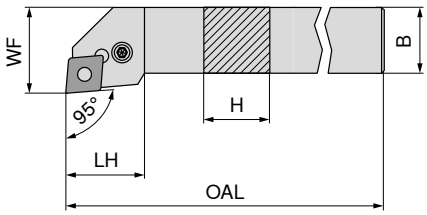
Clamping screw — **70 950 ...** — M4,5x12 - IP — **820**

Carbide type C — **70 950 ...** — **810**

Spare parts for Article no.
70 505 825 / 70 504 825

MaxiLock-N – PCLN 95° – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key



Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 509 ...	Right-hand 70 508 ...
PCLN R/L 1616 H12	16	16	100	26,2	20	4	CN.. 1204	**016**	**016**
PCLN R/L 2020 K12	20	20	125	27,5	25	4	CN.. 1204	**020**	**020**
PCLN R/L 2525 M12	25	25	150	28,1	32	4	CN.. 1204	**025**	**025**
PCLN R/L 3225 P12	32	25	170	28,1	32	4	CN.. 1204	**032**	**032**
PCLN R/L 2525 M16	25	25	150	32,7	32	4	CN.. 1606	**125**	**125**
PCLN R/L 3232 P16	32	32	170	32,6	40	4	CN.. 1606	**132**	**132**
PCLN R/L 3232 P19	32	32	170	38,0	40	8	CN.. 1906	**232**	**232**
PCLN R/L 4040 S19	40	40	250	38,0	50	8	CN.. 1906	**54000**	**54000**
PCLN R/L 4040 S25	40	40	250	50,0	50	8	CN.. 2509	**340**	**340**

Key I — **70 950 ...** — SW3 — **176**

Shim — **70 950 ...** — **198**

Assembly pin — **70 950 ...** — **192**

Lever — **70 950 ...** — **187**

Clamping screw — **70 950 ...** — **209**

Carbide type C — **70 950 ...** — **233**

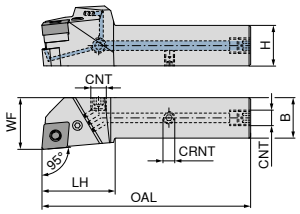
Spare parts for Article no.

70 508 016 / 70 509 016	SW3	**176**	**198**	**192**	**187**	**209**	**233**
70 508 020 / 70 509 020	SW3	**176**	**198**	**192**	**187**	**209**	**233**
70 508 025 / 70 509 025	SW3	**176**	**198**	**192**	**187**	**209**	**233**
70 508 032 / 70 509 032	SW3	**176**	**198**	**192**	**187**	**209**	**233**
70 508 125 / 70 509 125	SW3	**176**	**391**	**394**	**385**	**388**	**380**
70 508 132 / 70 509 132	SW3	**176**	**391**	**394**	**385**	**388**	**380**
70 508 232 / 70 509 232	SW4	**396**	**392**	**395**	**386**	**389**	**381**
70 508 54000 / 70 509 54000	SW4	**396**	**392**	**395**	**386**	**389**	**381**
70 508 340 / 70 509 340	SW5	**265**	**621**	**623**	**620**	**622**	**624**

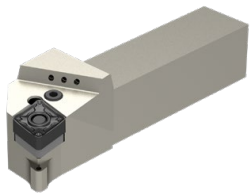
MaxiLock-N – PCLN 95° DC – Toolholder with lever clamping

Scope of supply:

Tool holder with allen key



Illustrations show right-hand versions



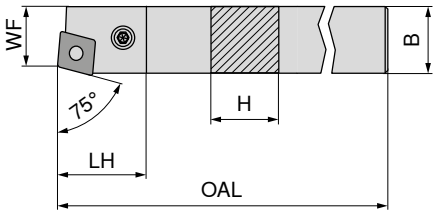
										NEW	NEW
										Left-hand	Right-hand
										70 592 ...	70 592 ...
ISO designation	H	B	OAL	LH	WF	CNT	CRNT	torque moment	Insert		
	mm	mm	mm	mm	mm			Nm			
PCLN R/L 2020 X12-T DC	20	20	109	40	25	G1/8"	M6	4	CN.. 1204	**02000**	**02001**
PCLN R/L 2525 X12-T DC	25	25	124	40	32	G1/8"	M6	4	CN.. 1204	**02500**	**02501**
PCLN R/L 3225 X12-T DC	32	25	140	40	32	G1/8"	M6	4	CN.. 1204	**03200**	**03201**
PCLN R/L 2525 X16-T DC	25	25	129	45	32	G1/8"	M6	4	CN.. 1606	**12500**	**12501**
PCLN R/L 3232 X16-T DC	32	32	145	45	40	G1/8"	M6	4	CN.. 1606	**13200**	**13201**
PCLN R/L 3232 X19-T DC	32	32	150	50	40	G1/8"	M6	8	CN.. 1906	**23200**	**23201**
PCLN R/L 4040 X19-T DC	40	40	175	50	48	G1/8"	M6	8	CN.. 1906	**04000**	**04001**
PCLN R/L 4040 X25-T DC	40	40	185	60	48	G1/8"	M6	8	CN.. 2509	**14000**	**14001**

	Key I	Shim	Assembly pin	Coolant screw plug	Lever	Clamping screw	Carbide type C	Grubscrew
	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
Spare parts for Article no.								
70 592 02000 / 70 592 02001	**176**	**198**	**192**	**294**	**187**	**209**	**233**	**86700**
70 592 02500 / 70 592 02501	**176**	**198**	**192**	**294**	**187**	**209**	**233**	**86700**
70 592 03200 / 70 592 03201	**176**	**198**	**192**	**294**	**187**	**209**	**233**	**86700**
70 592 12500 / 70 592 12501	**176**	**391**	**394**	**294**	**385**	**388**	**380**	**86700**
70 592 13200 / 70 592 13201	**176**	**391**	**394**	**294**	**385**	**388**	**380**	**86700**
70 592 23200 / 70 592 23201	**396**	**392**	**395**	**294**	**386**	**389**	**381**	**86700**
70 592 04000 / 70 592 04001	**396**	**392**	**395**	**294**	**386**	**389**	**381**	**86700**
70 592 14000 / 70 592 14001	**265**	**621**	**623**	**294**	**620**	**622**	**624**	**86700**

MaxiLock-N – PCBN 75° – Toolholder with lever clamping

Scope of supply:

Tool holder with allen key



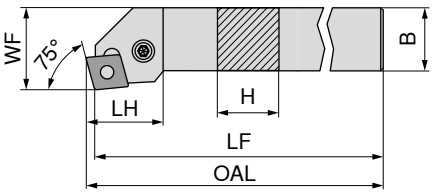
Illustrations show right-hand versions

								Left-hand	Right-hand
								70 501 ...	70 500 ...
ISO designation	H	B	OAL	LH	WF	torque moment	Insert		
	mm	mm	mm	mm	mm	Nm			
PCBN R/L 2525 M12	25	25	150	27,70	22	4	CN.. 1204	**025**	**025**
PCBN R/L 2525 M16	25	25	150	31,81	22	4	CN.. 1606	**12500**	**125**
PCBN R/L 3232 P19	32	32	170	38,00	27	8	CN.. 1906	**032**	**032**

		Key I	Shim	Assembly pin	Lever	Clamping screw	Carbide type C
		70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
Spare parts for Article no.							
70 500 025 / 70 501 025	SW3	**176**	**198**	**192**	**187**	**209**	**233**
70 500 125 / 70 501 12500	SW3	**176**	**391**	**394**	**385**	**388**	**380**
70 500 032 / 70 501 032	SW4	**396**	**392**	**395**	**386**	**389**	**381**

MaxiLock-N – PCKN 75° – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key



Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 505 ...	Right-hand 70 504 ...
PCKN R/L 2525 M12	25	25	153,07	150	31,4	32	4	CN.. 1204	**025**	**025**

Key I

Shim

Assembly pin

Lever

Clamping screw

Carbide type C

Spare parts for Article no.		70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
70 505 025 / 70 504 025	SW3	**176**	**198**	**192**	**187**	**209**	**233**

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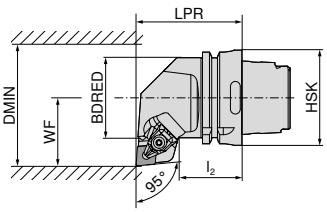
MaxiLock-D – DCLN 95° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 504 ...	Right-hand 74 503 ...
HSK T63 DCLN R/L 12	HSK-T 63	70	42	53	45	100	4	CN.. 1204	**512**	**512**
HSK T63 DCLN R/L 16	HSK-T 63	70	42	53	45	125	4	CN.. 1606	**516**	**516**
HSK T63 DCLN R/L 19	HSK-T 63	70	42	53	45	125	8	CN.. 1906	**519**	**519**
HSK T100 DCLN R/L 12	HSK-T 100	80	45	88	55	125	4	CN.. 1204	**712**	**712**
HSK T100 DCLN R/L 19	HSK-T 100	80	45	88	55	125	8	CN.. 1906	**719**	**719**

XPress type **70 950 ...**

Key D **80 950 ...**

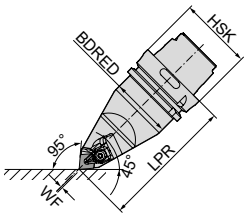
Clamping screw **70 950 ...**

Carbide type C **70 950 ...**

Spare parts for Article no.						
74 504 512 / 74 503 512	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**810**
74 504 516 / 74 503 516	**825**	T20 - IP	**129**	M5x14 - IP	**821**	**814**
74 504 519 / 74 503 519	**826**	T20 - IP	**129**	M5x14 - IP	**821**	**816**
74 504 712 / 74 503 712	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**810**
74 504 719 / 74 503 719	**826**	T20 - IP	**129**	M5x14 - IP	**821**	**816**

MaxiLock-D – DCMN 95° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Neutral 74 506 ...
HSK T63 DCMN N 12	HSK-T 63	115	53	0	4	CN.. 1204	**512**
HSK T100 DCMN N 12	HSK-T 100	150	88	0	4	CN.. 1204	**712**

XPress type **70 950 ...**

Key D **80 950 ...**

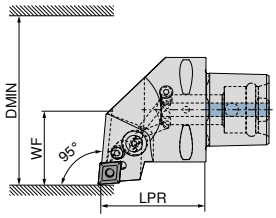
Clamping screw **70 950 ...**

Carbide type C **70 950 ...**

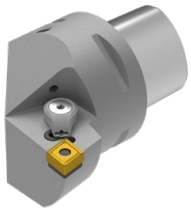
Spare parts for Article no.						
74 506 512	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**810**
74 506 712	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**810**

MaxiLock-N – PCLN 95° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	Left-hand 84 657 ...	Right-hand 84 656 ...
PSC40 PCLN R/L 50050-12	PSC 40	50	27	50	5	CN.. 1204	DC	**01295**	**01295**
PSC50 PCLN R/L 65060-12	PSC 50	60	35	65	5	CN.. 1204	DC	**01294**	**01294**
PSC63 PCLN R/L 80065-12	PSC 63	65	45	80	5	CN.. 1204	DC	**01293**	**01293**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**

Spare parts for Article no.	Shim 84 950 ...		Elbow lever screw 84 950 ...		Lever 84 950 ...	Carbide type C 84 950 ...
84 656 01295 / 84 657 01295	**29200**	M8X1/L17 SW3	**28700**		**29000**	**27800**
84 656 01294 / 84 657 01294	**29200**	M8X1/L17 SW3	**28700**		**29000**	**27800**
84 656 01293 / 84 657 01293	**29200**	M8X1/L17 SW3	**28700**		**29000**	**27800**

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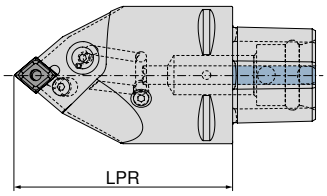
MaxiLock-N – PCMN 50° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set



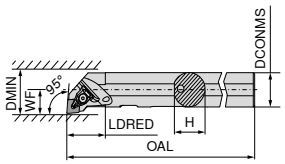
ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	Neutral 84 675 ...
PSC63 PCMN N 0100-12	PSC 63	100	5	CN.. 1204	DC	**01293**
PSC63 PCMN N 0130-12	PSC 63	130	5	CN.. 1204	DC	**11293**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**

Spare parts for Article no.	Shim 84 950 ...		Elbow lever screw 84 950 ...		Lever 84 950 ...	Carbide type C 84 950 ...
84 675 01293	**29200**	M8X1/L17 SW3	**28700**		**29000**	**27800**
84 675 11293	**29200**	M8X1/L17 SW3	**28700**		**29000**	**27800**

MaxiLock-D – DCLN 95° – Boring bar with top clamping

Scope of supply:
Boring bar with Torx key



Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 557 ...	Right-hand 70 556 ...
A20Q DCLN R/L 09	20	19	180	35	13	25	2	CN.. 0903	**720**	**720**
A25R DCLN R/L 12	25	24	200	36	17	32	4	CN.. 1204	**825**	**825**
A32S DCLN R/L 12	32	31	250	40	22	40	4	CN.. 1204	**832**	**832**
A40T DCLN R/L 12	40	39	300	45	27	50	4	CN.. 1204	**840**	**840**
A40U DCLN L 16	50	47	350	45	35	63	6,5	CN.. 1606	**85000**	

XPress type
70 950 ...

Key D
80 950 ...

Clamping screw
70 950 ...

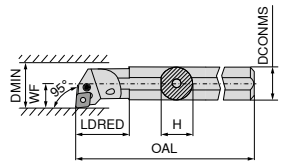
Carbide type C
70 950 ...

Spare parts for Article no.								
70 556 720 / 70 557 720	**823**	T09 - IP	**126**	M3x7 - IP	**819**		**848**
70 556 825 / 70 557 825	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		
70 556 832 / 70 557 832	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**810**
70 556 840 / 70 557 840	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**810**
70 557 85000	**825**	T20 - IP	**129**	M5x14 - IP	**821**		**814**

MaxiLock-N – PCLN 95° – Boring bar with lever clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant

Scope of supply:
Boring bar with Allen key



Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 557 ...	Right-hand 70 556 ...
A25R PCLN R/L 12	25	23	200	36,0	17	32	4	CN.. 1204	**225**	**225**
S25T PCLN R/L 12	25	23	300	22,0	17	32	4	CN.. 1204	**025**	**025**
A32S PCLN R/L 12	32	30	250	50,0	22	40	4	CN.. 1204	**232**	**232**
S32U PCLN R/L 12	32	30	350	24,1	22	40	4	CN.. 1204	**032**	**032**
A40T PCLN R/L 12	40	38	300	60,0	27	50	4	CN.. 1204	**240**	**240**
S40V PCLN R/L 12	40	38	400	24,1	27	50	4	CN.. 1204	**040**	**04000**[1)]
S50W PCLN R/L 16	50	47	450	31,0	35	63	4	CN.. 1606	**050**	**050**

1) nickel-plated

Key I
70 950 ...

Shim
70 950 ...

Assembly pin
70 950 ...

Lever
70 950 ...

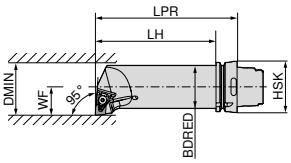
Clamping screw
70 950 ...

Carbide type C
70 950 ...

Spare parts for Article no.											
70 556 225 / 70 557 225	SW3	**176**	**198**	**192**	**187**	**205**	**233**
70 556 025 / 70 557 025	SW3	**176**	**198**	**192**	**187**	**205**	**233**
70 556 232 / 70 557 232	SW3	**176**	**198**	**192**	**187**	**205**	**233**
70 556 032 / 70 557 032	SW3	**176**	**198**	**192**	**187**	**205**	**233**
70 556 240 / 70 557 240	SW3	**176**	**198**	**192**	**187**	**209**	**233**
70 556 04000 / 70 557 040	SW3	**176**	**198**	**192**	**187**	**209**	**233**
70 556 050 / 70 557 050	SW3	**176**	**391**	**394**	**385**	**388**	**380**

MaxiLock-D – DCLN 95° – Boring bar with top clamping

Scope of supply:
Boring bar with Torx key



Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 529 ...	Right-hand 74 528 ...
HSK T63 50Q DCLN R/L 12	HSK-T 63	175	149	50	35	63	4	CN.. 1204	**512**	**512**

XPress type **70 950 ...**

Key D **80 950 ...**

Clamping screw **70 950 ...**

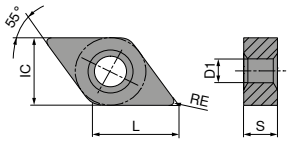
Carbide type C **70 950 ...**

Spare parts for Article no.			
74 528 512 / 74 529 512	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**810**

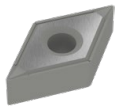
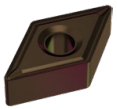
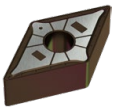
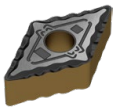
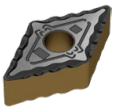
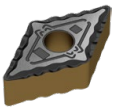
9

DNMG / DNMA / DNMM

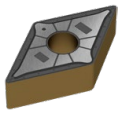
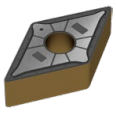
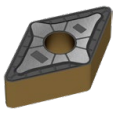
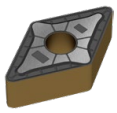
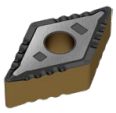
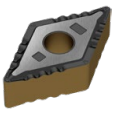
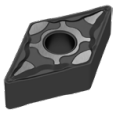
Designation	L	S	D1	IC
	mm	mm	mm	mm
DNMG 1104..	11,6	4,76	3,81	9,52
DNMG 1504..	15,5	4,76	5,16	12,70
DNM. 1506..	15,5	6,35	5,16	12,70



DNMG

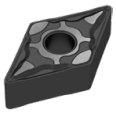
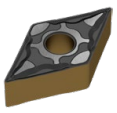
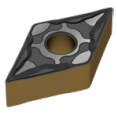
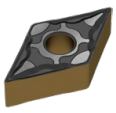
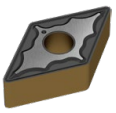
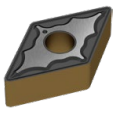
		-CF TCM10	-CF20 CTEP110	-TFQ CTEP110	NEW -F50 CTCP115-P	NEW -F50 CTCP125-P	NEW -F50 CTCP135-P
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		F	F	F	F	F	F
		CERMET DNMG	CERMET DNMG	CERMET DNMG	DNMG	DNMG	DNMG
		70 155 ...	76 102 ...	76 153 ...	76 134 ...	76 134 ...	76 134 ...
ISO	RE mm						
110402EN	0,2				30201	50201	70201
110404EN	0,4	904	004		30401	50401	70401
110408EN	0,8		006		30601	50601	70601
110412EN	1,2				30801	50801	70801
150404EN	0,4				31601	51601	71601
150408EN	0,8				31801	51801	71801
150412EN	1,2				32001	52001	72001
150604EN	0,4	914	028	028	32801	52801	72801
150608EN	0,8		030	030	33001	53001	73001
150612EN	1,2		032		33201	53201	73201
P		●	●	●	●	●	●
M		○	○	○			○
K		○	○	○	○	○	
N							
S							
H							
O							

DNMG

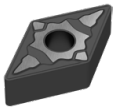
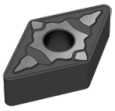
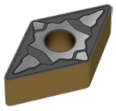
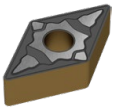
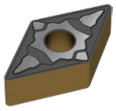
		NEW	NEW	NEW	NEW	NEW	NEW	
		-TFQ CTCP115-P	-TFQ CTCP125-P	-TFQ CTCP115-P	-TFQ CTCP125-P	-XU CTCP115-P	-XU CTCP125-P	-M50 CTCK110
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	F	M	M	M	M	M
		DNMG	DNMG	DNMG	DNMG	DNMG	DNMG	DNMG
		76 153 ...	76 153 ...	76 169 ...	76 169 ...	76 291 ...	76 291 ...	70 133 ...
ISO	RE mm							
150408EN	0,8							018
150412EN	1,2							020
150604EN	0,4	32801	52801			32801	52801	
150608EN	0,8	33001	53001			33001	53001	030
150612EN	1,2			33201	53201	33201	53201	032
P		●	●	●	●	●	●	○
M								
K		○	○	○	○	○	○	●
N								
S								
H								
O								

DNMG

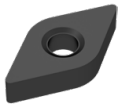
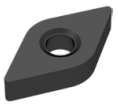
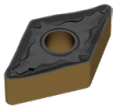
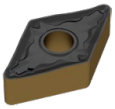
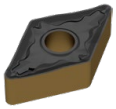
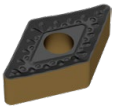
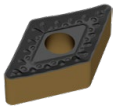
9

			NEW	NEW	NEW	NEW	NEW
		-M50 CTCK120	-M50 CTCP115-P	-M50 CTCP125-P	-M50 CTCP135-P	-TMQ CTCP125-P	-TMQ CTCP125-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		M	M	M	M	M	M
		DNMG	DNMG	DNMG	DNMG	DNMG	DNMG
		70 133 ...	76 136 ...	76 136 ...	76 136 ...	76 168 ...	76 197 ...
ISO	RE mm						
110404EN	0,4		30401	50401	70401		
110408EN	0,8		30601	50601	70601		
110412EN	1,2		30801	50801	70801		
150404EN	0,4		31601	51401	71601		
150408EN	0,8	518	31801	51801	71801		
150412EN	1,2	520	32001	51601	72001		
150416EN	1,6		32201	52201	72201		
150604EN	0,4		32801	52801	72801		
150608EN	0,8	530	33001	53001	73001	33001	53001
150612EN	1,2	532	33201	53201	73201	33201	53201
150616EN	1,6		33401	53401	73401		
P		○	●	●	●	●	●
M					○		
K		●	○	○		○	○
N							
S							
H							
O							

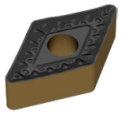
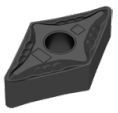
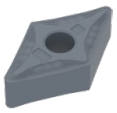
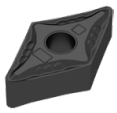
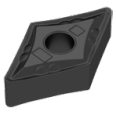
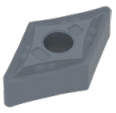
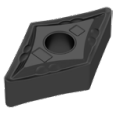
DNMG

				NEW	NEW	NEW
		-M70 CTCK110	-M70 CTCK120	-M70 CTCP115-P	-M70 CTCP125-P	-M70 CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		M	M	M	M	M
		DNMG	DNMG	DNMG	DNMG	DNMG
		70 263 ...	70 263 ...	76 263 ...	76 263 ...	76 263 ...
ISO	RE mm					
110408EN	0,8			30601	50601	70601
110412EN	1,2			30801	50801	70801
150408EN	0,8	018	518	31801	51801	71801
150412EN	1,2	020	520	32001	52001	72001
150416EN	1,6			32201	52201	72201
150608EN	0,8	030	530	33001	53001	73001
150612EN	1,2	032	532	33201	53201	73201
150616EN	1,6	034	534	33401	53401	73401
P		○	○	●	●	●
M						○
K		●	●	○	○	
N						
S						
H						
O						

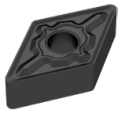
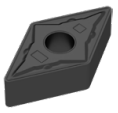
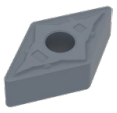
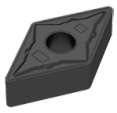
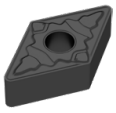
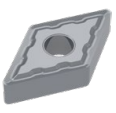
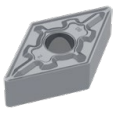
DNMA / DNMM

				NEW	NEW	NEW	NEW	NEW
		CTCK110	CTCK120	-R28 CTCP115-P	-R28 CTCP125-P	-R28 CTCP135-P	-R58 CTCP115-P	-R58 CTCP125-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		R	R	R	R	R	R	R
		DNMA	DNMA	DNMM	DNMM	DNMM	DNMM	DNMM
		70 156 ...	70 156 ...	76 165 ...	76 165 ...	76 165 ...	76 166 ...	76 166 ...
ISO	RE mm							
150408EN	0,8	018	518					
150412EN	1,2	020	520					
150608EN	0,8	030	530					
150612EN	1,2	032	532	33201	53201	73201	33201	53201
150616EN	1,6			33401	53401	73401	33401	53401
P		○	○	●	●	●	●	●
M						○		
K		●	●	○	○		○	○
N								
S								
H								
O								

DNMM / DNMG

ISO	RE mm	NEW -R58 CTCP135-P DRAGONSKIN	-F30 CTCM120 DRAGONSKIN	-F30 CTPM125 DRAGONSKIN	-F30 CTCM130 DRAGONSKIN	-M30 CTCM120 DRAGONSKIN	-M30 CTPM125 DRAGONSKIN	-M30 CTCM130 DRAGONSKIN
								
		R	F	F	F	M	M	M
		DNMM	DNMG	DNMG	DNMG	DNMG	DNMG	DNMG
		76 166 ...	75 013 ...	75 013 ...	75 013 ...	75 014 ...	75 014 ...	75 014 ...
110404EN	0,4		10400	204	30400			
110408EN	0,8		10600	206	30600	10600	206	30600
110412EN	1,2					10800	208	30800
150404EN	0,4		11600		31600			
150408EN	0,8		11800		31800	11800		31800
150412EN	1,2					12000		32000
150604EN	0,4		12800	228	32800			
150608EN	0,8		13000	230	33000	13000	230	33000
150612EN	1,2	73201				13200	232	33200
150616EN	1,6	73401						
P		●	○	○	○	○	○	○
M		○	●	●	●	●	●	●
K								
N								
S					○			○
H								
O								

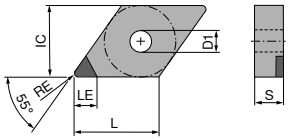
DNMG

ISO	RE mm	NEW -M42 CTCM130 DRAGONSKIN	NEW -M60 CTCM120 DRAGONSKIN	-M60 CTPM125 DRAGONSKIN	NEW -M60 CTCM130 DRAGONSKIN	NEW -M70 CTCM130 DRAGONSKIN	-M34 CTPX710 DRAGONSKIN	NEW -M42 CTPX710 DRAGONSKIN
								
		M	M	M	M	M	M	M
		DNMG	DNMG	DNMG	DNMG	DNMG	DNMG	DNMG
		75 027 ...	75 015 ...	75 015 ...	75 015 ...	75 038 ...	75 004 ...	75 027 ...
110404EN	0,4	30400						
110408EN	0,8	30600				30600		
150404EN	0,4	31600					61600	
150408EN	0,8	31800	11800		31800		61800	
150412EN	1,2		12000		32000		62000	
150604EN	0,4	32800						
150608EN	0,8	33000	13000	230	33000		63000	63000
150612EN	1,2		13200	232	33200		63200	
P		○	○	○	○	○	●	●
M		●	●	●	●	●	●	●
K								
N							○	○
S		○			○	○	●	●
H								
O								

9

DNGA

Designation	L mm	S mm	D1 mm	IC mm
DNGA 1504..	15,5	4,76	5,16	12,7
DNGA 1506..	15,5	6,35	5,16	12,7

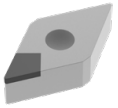


DNGA A

DNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners

CTDPD20



F
DIAMOND
DNGA
71 128 ...

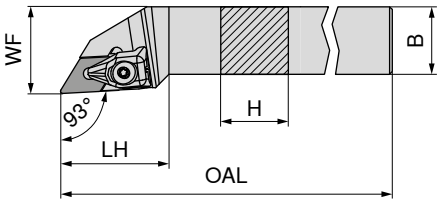
ISO	RE mm	TCE (NOI)	LE mm	
150404FN	0,4	**A (1)**	6,4	**10001**
150408FN	0,8	**A (1)**	6,0	**10101**
150412FN	1,2	**A (1)**	5,6	**10201**
150604FN	0,4	**A (1)**	6,4	**10301**
150608FN	0,8	**A (1)**	6,0	**10401**
150612FN	1,2	**A (1)**	5,6	**10501**

P	
M	
K	
N	●
S	
H	
O	●

MaxiLock-D – DDJN 93° – Toolholder with top clamping

Scope of supply:

Tool holder with Torx key



Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 541 ...		Right-hand 70 540 ...	
DDJN R/L 1616 H11	16	16	100	33	20	2	DN.. 1104	**816**		**816**	
DDJN R/L 2020 K11	20	20	125	33	25	2	DN.. 1104	**820**		**820**	
DDJN R/L 2525 M11	25	25	150	33	32	2	DN.. 1104	**825**		**825**	
DDJN R/L 2020 K15	20	20	125	40	25	4	DN.. 1504 / 1506	**720**		**720**	
DDJN R/L 2525 M15	25	25	150	40	32	4	DN.. 1504 / 1506	**725**		**725**	
DDJN R/L 3225 P15	32	25	170	40	32	4	DN.. 1504 / 1506	**832**		**832**	

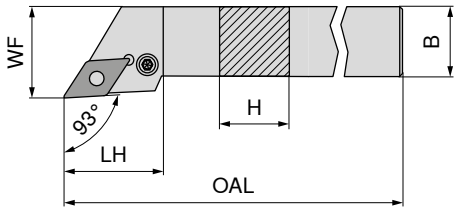
When using DN.. 1504 indexable inserts, use insert seat article no. **70 950 40000**.

Spare parts for Article no.	XPress type 70 950 ...		Key D 80 950 ...		Clamping screw 70 950 ...		Solid Carbide Seat D 70 950 ...	
70 541 816 / 70 540 816	**835**	T09 - IP	**126**	M3x7 - IP	**819**		**808**	
70 541 820 / 70 540 820	**835**	T09 - IP	**126**	M3x7 - IP	**819**		**808**	
70 541 825 / 70 540 825	**835**	T09 - IP	**126**	M3x7 - IP	**819**		**808**	
70 541 720 / 70 540 720	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**811**	
70 541 725 / 70 540 725	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**811**	
70 541 832 / 70 540 832	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**811**	

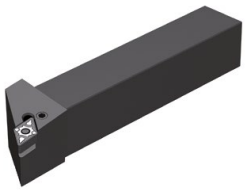
MaxiLock-N – PDJN 93° – Toolholder with lever clamping

Scope of supply:

Tool holder with allen key



Illustrations show right-hand versions



								Left-hand		Right-hand
								70 541 ...		**70 540 ...**
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert			
PDJN R/L 1616 H11	16	16	100	30,0	20	3	DN.. 1104	**116**		**116**
PDJN R/L 2020 K11	20	20	125	30,0	25	3	DN.. 1104	**12000**[1)]		**12000**[1)]
PDJN R/L 2525 M11	25	25	150	30,0	32	3	DN.. 1104	**12500**[1)]		**12500**[1)]
PDJN R/L 2020 K15	20	20	125	34,9	25	3,2	DN.. 1506	**020**		**020**
PDJN R/L 2525 M15	25	25	150	35,4	32	3,2	DN.. 1506	**025**		**025**
PDJN R/L 3225 P15	32	25	170	35,4	32	3,2	DN.. 1506	**032**		**032**
PDJN R/L 3232 P15	32	32	170	34,7	40	3,2	DN.. 1506	**13200**		**13200**

1) nickel-plated

Key I

Shim

Assembly pin

Lever

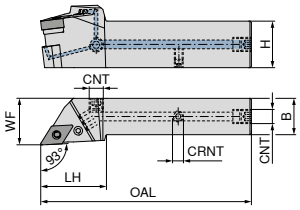
Clamping screw

Solid Carbide Seat D

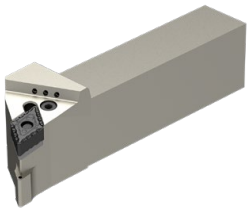
			70 950 ...		**70 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**	
Spare parts for Article no.												
70 540 116 / 70 541 116	SW2,5		**175**		**122**		**191**		**121**		**208**	**120**
70 540 12000 / 70 541 12000	SW2,5		**175**		**122**		**191**		**121**		**208**	**120**
70 540 12500 / 70 541 12500	SW2,5		**175**		**122**		**191**		**121**		**208**	**120**
70 540 020 / 70 541 020	SW3		**176**		**198**		**192**		**188**		**388**	**236**
70 540 025 / 70 541 025	SW3		**176**		**198**		**192**		**188**		**388**	**236**
70 540 032 / 70 541 032	SW3		**176**		**198**		**192**		**188**		**388**	**236**
70 540 13200 / 70 541 13200	SW3		**176**		**198**		**192**		**188**		**388**	**236**

MaxiLock-N – PDJN 93° DC – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key



Illustrations show right-hand versions



										NEW	NEW
										Left-hand	Right-hand
										70 593 ...	70 593 ...
ISO designation	H	B	OAL	LH	WF	CRNT	CNT	torque moment	Insert		
	mm	mm	mm	mm	mm			Nm			
PDJN R/L 2020 X11-T DC	20	20	104	35	25	M6	G1/8"	3	DN.. 1104	**02000**	**02001**
PDJN R/L 2525 X11-T DC	25	25	114	45	32	M6	G1/8"	3	DN.. 1104	**02500**	**02501**
PDJN R/L 2020 X15-T DC	20	20	114	45	25	M6	G1/8"	3,2	DN.. 1506	**12000**	**12001**
PDJN R/L 2525 X15-T DC	25	25	129	45	32	M6	G1/8"	3,2	DN.. 1506	**12500**	**12501**
PDJN R/L 3225 X15-T DC	32	25	145	45	32	M6	G1/8"	3,2	DN.. 1506	**03200**	**03201**
PDJN R/L 3232 X15-T DC	32	32	145	45	40	M6	G1/8"	3,2	DN.. 1506	**13200**	**13201**

	Key I	Shim	Assembly pin	Coolant screw plug	Lever	Clamping screw	Solid Carbide Seat D	Grubscrew
	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
Spare parts for Article no.								
70 593 02001 / 70 593 02000	**175**	**122**	**191**	**294**	**121**	**208**	**120**	**86700**
70 593 02501 / 70 593 02500	**175**	**122**	**191**	**294**	**121**	**208**	**120**	**86700**
70 593 12001 / 70 593 12000	**176**	**198**	**192**	**294**	**188**	**209**	**236**	**86700**
70 593 12501 / 70 593 12500	**176**	**198**	**192**	**294**	**188**	**209**	**236**	**86700**
70 593 03201 / 70 593 03200	**176**	**198**	**192**	**294**	**188**	**209**	**236**	**86700**
70 593 13201 / 70 593 13200	**176**	**198**	**192**	**294**	**188**	**209**	**236**	**86700**

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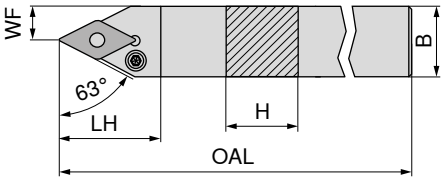
MaxiLock-N – PDNN 63° – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key



Illustrations show right-hand versions

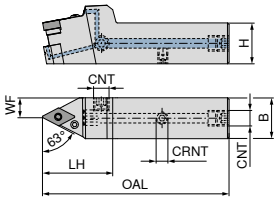
								Left-hand	Right-hand
								70 537 ...	70 536 ...
ISO designation	H	B	OAL	LH	WF	torque moment	Insert		
	mm	mm	mm	mm	mm	Nm			
PDNN R/L 2525 M11	25	25	150	30,0	12,5	3	DN.. 1104	**125**	**125**
PDNN R/L 2525 M15	25	25	150	36,5	12,5	3,2	DN.. 1506	**025**	**025**

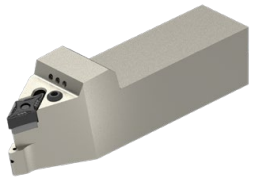
		Key I	Shim	Assembly pin	Lever	Clamping screw	Solid Carbide Seat D
		70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
Spare parts for Article no.							
70 537 125 / 70 536 125	SW2,5	**175**	**122**	**191**	**121**	**208**	**120**
70 537 025 / 70 536 025	SW3	**176**	**198**	**192**	**188**	**388**	**236**

MaxiLock-N – PDNN 63° DC – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key

Direct Cooling





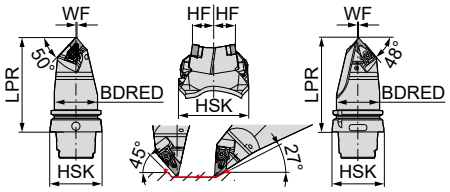
Illustrations show right-hand versions

									NEW		NEW
									Left-hand		Right-hand
									70 594 ...		**70 594 ...**
ISO designation	H	B	OAL	LH	WF	CRNT	CNT	torque moment	Insert		
	mm	mm	mm	mm	mm			Nm			
PDNN R/L 2525 X11-T DC	25	25	114	45	12,5	M6	G1/8"	3	DN.. 1104	**02500**	**02501**
PDNN R/L 2525 X15-T DC	25	25	119	50	12,5	M6	G1/8"	3,2	DN.. 1506	**12500**	**12501**

	Key I	Shim	Assembly pin	Coolant screw plug	Lever	Clamping screw	Solid Carbide Seat D	Grubscrew
	70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.								
70 594 02501 / 70 594 02500	**175**	**122**	**191**	**294**	**121**	**208**	**120**	**86700**
70 594 12501 / 70 594 12500	**176**	**198**	**192**	**294**	**188**	**209**	**236**	**86700**

MaxiLock-D – DCMN + DDMN – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



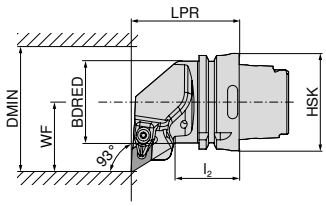
								Neutral
								74 600 ...
ISO designation	Adapter	LPR	BDRED	WF	HF	torque moment	Insert	
		mm	mm	mm	mm	Nm		
HSK T63 DCMN L 12 + DDMN L 15	HSK-T 63	115	53	0,5	20	4	CN.. 1204 / DN.. 1506	**501**
HSK T100 DCMN L 12 + DDMN L 15	HSK-T 100	150	88	0,5	20	4	CN.. 1204 / DN.. 1506	**701**

Face turning maximum 78 mm

	XPress type	Key D	Clamping screw	Solid Carbide Seat D	Carbide type C
	70 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
74 600 501	**824**	T15 - IP **128**	M4,5x12 - IP **820**	**811**	**810**
74 600 701	**824**	T15 - IP **128**	M4,5x12 - IP **820**	**811**	**810**

MaxiLock-D – DDUN 93° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

	Left-hand	Right-hand
	74 516 ...	**74 515 ...**

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert		
HSK T63 DDUN R/L 15	HSK-T 63	70	42	53	45	125	4	DN.. 1506	**515**	**515**
HSK T100 DDUN R/L 15	HSK-T 100	80	45	88	55	125	4	DN.. 1506	**715**	**715**

XPress type

70 950 ...

Key D

80 950 ...

Clamping screw

70 950 ...

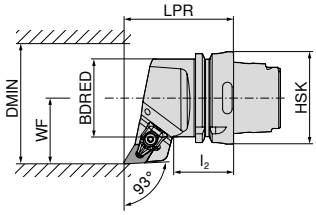
Solid Carbide Seat D

70 950 ...

Spare parts for Article no.						
74 516 515 / 74 515 515	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**811**
74 516 715 / 74 515 715	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**811**

MaxiLock-D – DDJN 93° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

	Left-hand	Right-hand
	74 512 ...	**74 511 ...**

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert		
HSK T63 DDJN R/L 15	HSK-T 63	75	42	53	45	125	4	DN.. 1506	**515**	**515**
HSK T100 DDJN R/L 15	HSK-T 100	85	45	88	55	125	4	DN.. 1506	**715**	**715**

XPress type

70 950 ...

Key D

80 950 ...

Clamping screw

70 950 ...

Solid Carbide Seat D

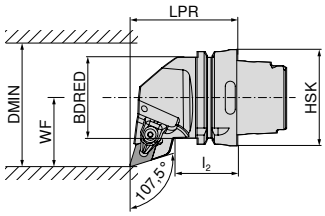
70 950 ...

Spare parts for Article no.						
74 512 515 / 74 511 515	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**811**
74 512 715 / 74 511 715	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**811**

9

MaxiLock-D – DDHN 107.5° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

	Left-hand	Right-hand
	74 508 ...	**74 507 ...**

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert		
HSK T63 DDHN R/L 15	HSK-T 63	70	42	53	45	125	4	DN.. 1506	**515**	**515**

XPress type
70 950 ...

Key D
80 950 ...

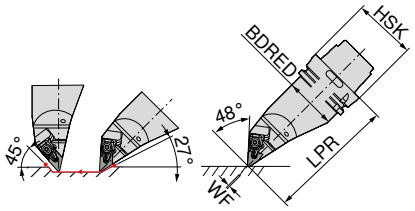
Clamping screw
70 950 ...

Solid Carbide Seat D
70 950 ...

Spare parts for Article no.					
74 508 515 / 74 507 515	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**811**

MaxiLock-D – DDMN 48° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



	Left-hand
	74 519 ...

ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	
HSK T63 DDMN L 15	HSK-T 63	130	53	0	4	DN.. 1506	**515**
HSK T100 DDMN L 15	HSK-T 100	160	88	0	4	DN.. 1506	**715**

XPress type
70 950 ...

Key D
80 950 ...

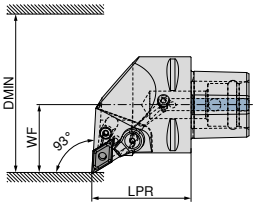
Clamping screw
70 950 ...

Solid Carbide Seat D
70 950 ...

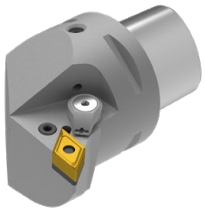
Spare parts for Article no.					
74 519 515	**824**	**128**	**820**	**811**
74 519 715	**824**	**128**	**820**	**811**

MaxiLock-N – PDUN 93° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	Left-hand 84 661 ...	Right-hand 84 660 ...
PSC40 PDUN R/L 50050-15	PSC 40	50	27	50	5	DN.. 1504 / 1506	DC	**01595**	**01595**
PSC50 PDUN R/L 65060-15	PSC 50	60	35	65	5	DN.. 1504 / 1506	DC	**01594**	**01594**
PSC63 PDUN R/L 80065-15	PSC 63	65	45	80	5	DN.. 1504 / 1506	DC	**01593**	**01593**

Shim
84 950 ...

Elbow lever screw
84 950 ...

Lever
84 950 ...

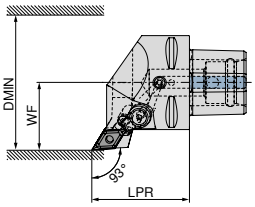
Solid Carbide Seat D
84 950 ...

Spare parts

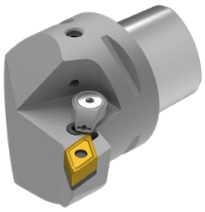
84 660 01593 / 84 661 01595	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27900**

MaxiLock-N – PDJN 93° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	Left-hand 84 665 ...	Right-hand 84 664 ...
PSC40 PDJN R/L 50050-15	PSC 40	50	27	50	5	DN.. 1504 / 1506	DC	**01595**	**01595**
PSC50 PDJN R/L 65060-15	PSC 50	60	35	65	5	DN.. 1504 / 1506	DC	**01594**	**01594**
PSC63 PDJN R/L 80065-15	PSC 63	65	45	80	5	DN.. 1504 / 1506	DC	**01593**	**01593**

Shim
84 950 ...

Elbow lever screw
84 950 ...

Lever
84 950 ...

Solid Carbide Seat D
84 950 ...

Spare parts

Adapter					
PSC 40	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27900**
PSC 50	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27900**
PSC 63	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27900**

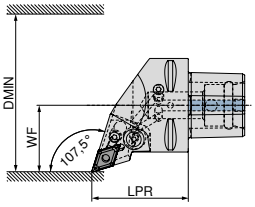
The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**

When using DN1504.. inserts Shim item no. **84 950 28200**

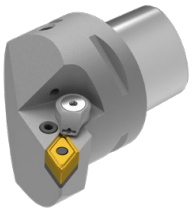
9

MaxiLock-N – PDHN 107,5° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	Left-hand 84 669 ...	Right-hand 84 668 ...
PSC40 PDHN R/L 50050-15	PSC 40	50	27	50	5	DN.. 1504 / 1506	DC	**01595**	**01595**
PSC50 PDHN R/L 65060-15	PSC 50	60	35	65	5	DN.. 1504 / 1506	DC	**01594**	**01594**
PSC63 PDHN R/L 80065-15	PSC 63	65	45	80	5	DN.. 1504 / 1506	DC	**01593**	**01593**

Shim

Elbow lever screw

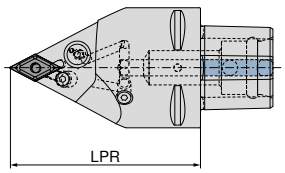
Lever

Solid Carbide Seat D

Spare parts for Article no.	Shim 84 950 ...	Elbow lever screw 84 950 ...	Lever 84 950 ...	Solid Carbide Seat D 84 950 ...
84 668 01595 / 84 669 01595	**29200**	**28700**	**28900**	**27900**
84 668 01594 / 84 669 01594	**29200**	**28700**	**28900**	**27900**
84 668 01593 / 84 669 01593	**29200**	**28700**	**28900**	**27900**

MaxiLock-N – PDNN 62,5° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set



ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	Neutral 84 676 ...
PSC63 PDNN N 0100-15	PSC 63	100	5	DN.. 1504 / 1506	DC	**01593**
PSC63 PDNN N 0130-15	PSC 63	130	5	DN.. 1504 / 1506	DC	**11593**

Shim

Elbow lever screw

Lever

Solid Carbide Seat D

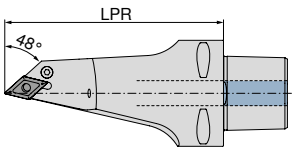
Spare parts for Article no.	Shim 84 950 ...	Elbow lever screw 84 950 ...	Lever 84 950 ...	Solid Carbide Seat D 84 950 ...
84 676 01593	**29200**	**28700**	**28900**	**27900**
84 676 11593	**29200**	**28700**	**28900**	**27900**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**

When using DN1504.. inserts Shim item no. **84 950 28200**

MaxiLock-N – PDMN 48° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set



Neutral
84 680 ...

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	
PSC63 PDMN L 0130-15	PSC 63	130	5	DN.. 1504 / 1506	DC	**11593**

Shim
84 950 ...
Spare parts for Article no.
84 680 11593
29200

Elbow lever screw
84 950 ...
28700

Lever
84 950 ...
28900

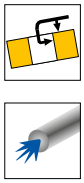
Solid Carbide Seat D
84 950 ...
27900

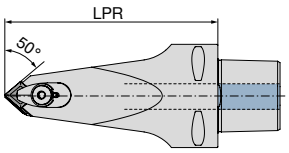
The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**

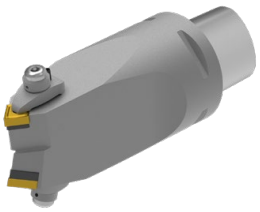
When using DN1504.. inserts Shim item no. **84 950 28200**

9

Toolholder DCMN – DDMN 50°/48°







Neutral

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	84 683 ...
PSC63 DCMN-DDMN L 0130-12/15	PSC 63	130	10	CN.. 1204 / DN.. 1506	**01293**

Spare parts for Article no.	Clamping Screw	Clamping claw	Ring-shaped nozzle	Clamping screw	Solid Carbide Seat D	Carbide type C
	84 950 ...	84 950 ...	84 950 ...	84 950 ...	84 950 ...	84 950 ...
84 683 01293	**28300**	**28500**	**28400**	**27500**	**27900**	**27800**

High-performance coolant set

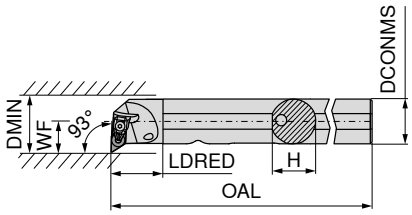
- ▲ Using the DC kit blocks the other coolant outlet so that all of the pressure is concentrated by the kit!
- ▲ Can be used up to 100 bar

Scope of supply:
Direct cooling nozzle and O-ring

	84 950 ...
Coolant set	**27400**

MaxiLock-D – DDUN 93° – Boring bar with top clamping

Scope of supply:
Boring bar with Torx key



Illustrations show right-hand versions

									Left-hand	Right-hand
									70 569 ...	**70 568 ...**
ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment	Insert		
	mm	mm	mm	mm	mm	mm	Nm			
A25R DDUN R/L 11	25	24	200	30	17	32	2	DN.. 1104	**725**	**725**
A32S DDUN R/L 11	32	31	250	40	22	40	2	DN.. 1104	**732**	**732**
A40T DDUN R/L 15	40	39	300	45	27	50	4	DN.. 1506	**840**	**840**

XPress type

70 950 ...

Key D

80 950 ...

Clamping screw

70 950 ...

Solid Carbide Seat D

70 950 ...

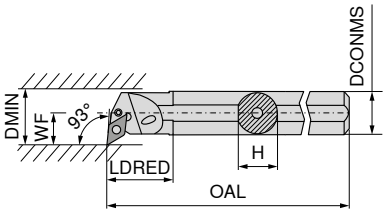
Spare parts for Article no.						
70 568 725 / 70 569 725	**835**	T09 - IP	**126**	M3x7 - IP	**819**	**808**
70 568 732 / 70 569 732	**835**	T09 - IP	**126**	M3x7 - IP	**819**	**808**
70 568 840 / 70 569 840	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**811**

9

MaxiLock-N – PDUN 93° – Boring bar with lever clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant

Scope of supply:
Boring bar with Allen key



Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 569 ...	Right-hand 70 568 ...
A20Q PDUN R/L 11	20	18,5	180	36	16,0	28	3	DN.. 1104	**12000**[1]	**12000**[1]
A25R PDUN R/L 11	25	23,0	200	36	18,5	32	3	DN.. 1104	**125**	**12500**[1]
A32S PDUN R/L 11	32	30,0	250	36	22,0	40	3	DN.. 1104	**13200**[1]	**132**
A32S PDUN R/L 15	32	30,0	250	50	22,0	40	3,2	DN.. 1506	**232**	**232**
A40T PDUN R/L 15	40	38,0	300	60	27,0	50	3,2	DN.. 1506	**240**	**240**
S50W PDUN R/L 15	50	47,0	450	31	35,0	63	3,2	DN.. 1506	**050**	**050**

1) nickel-plated

Key I

Shim

Assembly pin

Lever

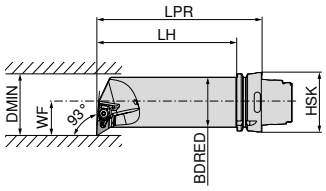
Clamping screw

Solid Carbide Seat D

Spare parts for Article no.		Key I 70 950 ...	Shim 70 950 ...	Assembly pin 70 950 ...	Lever 70 950 ...	Clamping screw 70 950 ...	Solid Carbide Seat D 70 950 ...
70 568 12000 / 70 569 12000	SW2,5	**175**			**125**	**126**	
70 568 12500 / 70 569 125	SW2,5	**175**	**122**	**191**	**121**	**208**	**120**
70 568 132 / 70 569 13200	SW2,5	**175**	**122**	**191**	**121**	**208**	**120**
70 568 232 / 70 569 232	SW3	**176**	**198**	**192**	**188**	**209**	**236**
70 568 240 / 70 569 240	SW3	**176**	**198**	**192**	**188**	**209**	**236**
70 568 050 / 70 569 050	SW3	**176**	**198**	**192**	**188**	**388**	**236**

MaxiLock-D – DDUN 93° – Boring bar with top clamping

Scope of supply:
Boring bar with Torx key



Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 533 ...	Right-hand 74 532 ...
HSK T63 50Q DDUN R/L 15	HSK-T 63	175	149	50	35	63	4	DN.. 1506	**515**	**515**

XPress type

Key D

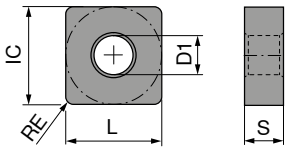
Clamping screw

Solid Carbide Seat D

Spare parts for Article no.		XPress type 70 950 ...	Key D 80 950 ...		Clamping screw 70 950 ...	Solid Carbide Seat D 70 950 ...
74 533 515 / 74 532 515		**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**811**

SNMG / SNMA / SNMM

Designation	L	S	D1	IC
	mm	mm	mm	mm
SNMG 0903..	9,52	3,18	3,81	9,52
SNM. 1204..	12,70	4,76	5,16	12,70
SNM. 1506..	15,87	6,35	6,35	15,87
SNM. 1906..	19,05	6,35	7,94	19,05
SNMM 2507..	25,40	7,94	9,12	25,40
SNMM 2509..	25,40	9,52	9,12	25,40



SNMG

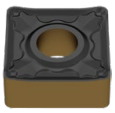
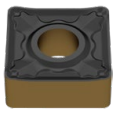
		NEW	NEW	NEW	NEW	NEW	NEW
		-F50 CTCP115-P	-F50 CTCP125-P	-F50 CTCP135-P	-M50 CTCP115-P	-M50 CTCP125-P	-M50 CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	F	F	M	M	M
		SNMG	SNMG	SNMG	SNMG	SNMG	SNMG
		76 140 ...	76 140 ...	76 140 ...	76 137 ...	76 137 ...	76 137 ...
ISO	RE mm						
090308EN	0,8	30601	50601	70601			
120404EN	0,4	31601	51601	71601			
120408EN	0,8	31801	51801	71801	31801	51801	71801
120412EN	1,2	32001	52001	72001	32001	52001	72001
120416EN	1,6				32201	52201	72201
150608EN	0,8				33001	53001	73001
150612EN	1,2				33201	53201	73201
150616EN	1,6				33401	53401	73401
P		●	●	●	●	●	●
M				○			○
K		○	○		○	○	
N							
S							
H							
O							

9

SNMG / SNMA

			NEW	NEW	NEW	NEW		
		-M70 CTCK110 DRAGONSKIN	-M70 CTCP115-P DRAGONSKIN	-M70 CTCP125-P DRAGONSKIN	-M70 CTCP135-P DRAGONSKIN	-M70 CTCP125-P DRAGONSKIN	-M70 CTCK120 DRAGONSKIN	CTCK110 DRAGONSKIN
		M	M	M	M	R	M	R
		SNMG	SNMG	SNMG	SNMG	SNMG	SNMG	SNMA
		70 225 ...	76 225 ...	76 225 ...	76 225 ...	76 188 ...	70 225 ...	70 114 ...
ISO	RE mm							
120408EN	0,8	018	31801	51801	71801		518	018
120412EN	1,2	020	32001	52001	72001		520	020
120416EN	1,6	022	32201	52201	72201		522	022
150612EN	1,2	032	33201	53201	73201		532	032
150616EN	1,6	034	33401	53401	73401		534	034
190612EN	1,2	044	34401	54401	74401		544	044
190616EN	1,6	046	34601	54601	74601		546	046
190624EN	2,4		34801	54801	74801			
250924EN	2,4					57001		
P		○	●	●	●	●	○	○
M					○			
K		●	○	○		○	●	●
N								
S								
H								
O								

SNMA / SNMM

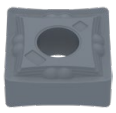
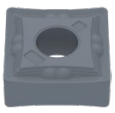
			NEW	NEW	NEW	NEW	NEW	NEW
		CTCK120	-R28 CTCP115-P	-R28 CTCP125-P	-R28 CTCP135-P	-R58 CTCP115-P	-R58 CTCP125-P	-R58 CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		R	R	R	R	R	R	R
		SNMA	SNMM	SNMM	SNMM	SNMM	SNMM	SNMM
		70 114 ...	76 128 ...	76 128 ...	76 128 ...	76 129 ...	76 129 ...	76 129 ...
ISO	RE mm							
120408EN	0,8	518				31801	51801	71801
120412EN	1,2	520				32001	52001	72001
120416EN	1,6	522						
150612EN	1,2	532	33201	53201	73201	33201	53201	73201
150616EN	1,6	534	33401	53401	73401	33401	53401	73401
190612EN	1,2	544				34401	54401	74401
190616EN	1,6	546	34601	54601	74601	34601	54601	74601
190624EN	2,4					34801	54801	74801
250724EN	2,4				76001	36001	56001	76001
250924EN	2,4		37001	57001	77001	37001	57001	77001
P		○	●	●	●	●	●	●
M					○			○
K		●	○	○		○	○	
N								
S								
H								
O								

9

SNMM

		NEW	NEW	NEW	NEW	NEW	NEW
		-R88 CTCP115-P	-R88 CTCP115-P	-R88 CTCP125-P	-R88 CTCP125-P	-R88 CTCP135-P	-R88 CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		R	R	R	R	R	R
		SNMM	SNMM	SNMM	SNMM	SNMM	SNMM
		76 130 ...	76 325 ...	76 130 ...	76 326 ...	76 130 ...	76 327 ...
ISO	RE mm						
190616SN	1,6	34601		54601		74601	
190624SN	2,4	34801		54801		74801	
250724SN	2,4	36001		56001		76001	
250732SN	3,2		36101		56101		76101
250924SN	2,4	37001		57001		77001	
250932SN	3,2		37201		57201		77201
P		●	●	●	●	●	●
M						○	○
K		○	○	○	○		
N							
S							
H							
O							

SNMG

	-F30 CTCM120	-F30 CTPM125	-F30 CTCM130	-M30 CTCM120	-M30 CTPM125	-M30 CTPM125	-M30 CTCM130
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	M	M	M	M
	SNMG	SNMG	SNMG	SNMG	SNMG	SNMG	SNMG
	75 016 ...	75 016 ...	75 016 ...	75 017 ...	75 017 ...	75 016 ...	75 017 ...
ISO / RE mm							
120404EN 0,4	11600	216	31600				
120408EN 0,8	11800	218	31800	11800	218		31800
120412EN 1,2				12000		220	32000
P	○	○	○	○	○	○	○
M	●	●	●	●	●	●	●
K							
N							
S			○				○
H							
O							

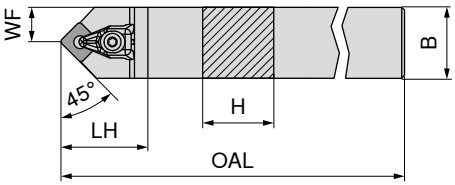
SNMG

	NEW				NEW	
	-M42 CTCM130	-M60 CTCM120	-M60 CTPM125	-M60 CTCM130	-M70 CTCM130	-M34 CTPX710
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	M	M	M	M	M	M
	SNMG	SNMG	SNMG	SNMG	SNMG	SNMG
	75 034 ...	75 018 ...	75 018 ...	75 018 ...	75 039 ...	75 005 ...
ISO / RE mm						
120408EN 0,8	31800	11800	218	31800	31800	61800
120412EN 1,2	32000	12000	210	32000	32000	62000
120416EN 1,6		12200	220	32200		
190616EN 1,6					34600	
P	○	○	○	○	○	●
M	●	●	●	●	●	●
K						
N						○
S	○			○	○	●
H						
O						

→ v_c Page 196–209

MaxiLock-D – DSDN 45° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 70 516 ...
DSDN N 2020 K12	20	20	125	38	10,3	4	SN.. 1204	**620**
DSDN N 2525 M12	25	25	150	38	12,5	4	SN.. 1204	**625**

XPress type
70 950 ...

Key D
80 950 ...

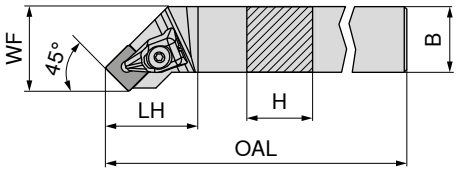
Clamping screw
70 950 ...

Solid Carbide support S
70 950 ...

Spare parts for Article no.						
70 516 620	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**813**
70 516 625	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**813**

MaxiLock-D – DSSN 45° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 513 ...	Right-hand 70 512 ...
DSSN R/L 2020 K12	20	20	125	35	25	4	SN.. 1204	**620**	**620**
DSSN R/L 2525 M12	25	25	150	35	32	4	SN.. 1204	**625**	**625**
DSSN R/L 3225 P12	32	25	170	35	32	4	SN.. 1204	**632**	**632**

XPress type
70 950 ...

Key D
80 950 ...

Clamping screw
70 950 ...

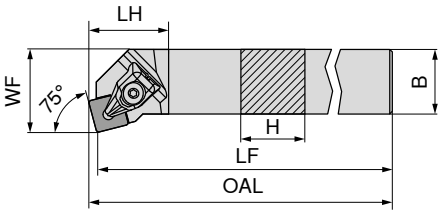
Solid Carbide support S
70 950 ...

Spare parts for Article no.						
70 512 620 / 70 513 620	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**813**
70 512 625 / 70 513 625	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**813**
70 512 632 / 70 513 632	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**813**

9

MaxiLock-D – DSKN 75° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

	Left-hand	Right-hand
	70 525 ...	**70 524 ...**

ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert		
DSKN R/L 2525 M12	25	25	153,3	150	28	32	4	SN.. 1204	**625**	**625**

XPress type

70 950 ...

Key D

80 950 ...

Clamping screw

70 950 ...

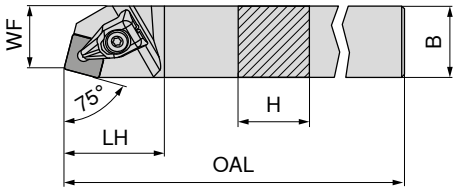
Solid Carbide support S

70 950 ...

Spare parts for Article no.						
70 525 625 / 70 524 625	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**813**

MaxiLock-D – DSBN 75° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

	Right-hand
	70 520 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	
DSBN R 2020 K12	20	20	125	35	17	4	SN.. 1204	**620**
DSBN R 2525 M12	25	25	150	35	22	4	SN.. 1204	**625**
DSBN R 2525 M15	25	25	150	42	22	6,5	SN.. 1506	**725**
DSBN R 3232 P15	32	32	170	42	27	6,5	SN.. 1506	**832**
DSBN R 3232 P19	32	32	170	48	27	6,5	SN.. 1906	**732**
DSBN R 4040 S19	40	40	250	48	35	6,5	SN.. 1906	**840**
DSBN R 4040 S25	40	40	250	57	35	6,5	SN.. 2507 / SN.. 2509	**940**

When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40100.

XPress type

70 950 ...

Key D

80 950 ...

Clamping screw

70 950 ...

Solid Carbide support S

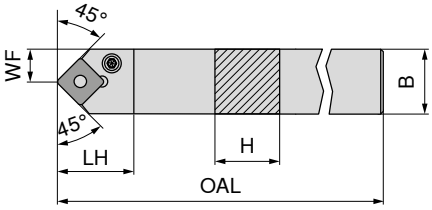
70 950 ...

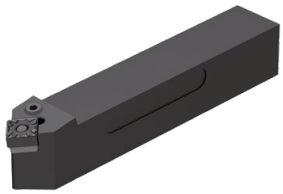
Spare parts for Article no.						
70 520 620	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**813**
70 520 625	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**813**
70 520 725	**825**	T20 - IP	**129**	M5x14 - IP	**821**	**833**
70 520 832	**825**	T20 - IP	**129**	M5x14 - IP	**821**	**833**
70 520 732	**826**	T20 - IP	**129**	M5x14 - IP	**821**	**817**
70 520 840	**826**	T20 - IP	**129**	M5x14 - IP	**821**	**817**
70 520 940	**827**	T25 - IP	**122**	M6x16 - IP	**822**	**818**

MaxiLock-N – PSDN 45° – Toolholder with lever clamping

Scope of supply:

Tool holder with allen key





Neutral

70 516 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	
PSDN N 2020 K12	20	20	125	27,6	10,3	4	SNM. 1204	**020**
PSDN N 2525 M12	25	25	150	27,6	12,8	4	SNM. 1204	**025**
PSDN N 3225 P19	32	25	170	40,4	12,5	8	SNM. 1906	**03200**
PSDN N 4040 S25	40	40	250	48,8	20,0	8	SNM. 2507 / 2509	**04000**

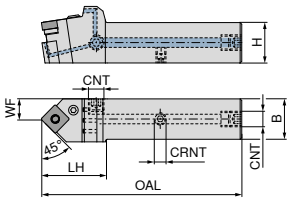
When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40200.

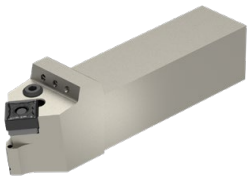
		Key I	Shim	Assembly pin	Lever	Clamping screw	Solid Carbide support S
		70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.							
70 516 020	SW3	**176**	**198**	**192**	**187**	**209**	**230**
70 516 025	SW3	**176**	**198**	**192**	**187**	**209**	**230**
70 516 03200	SW4	**396**	**392**	**395**	**386**	**389**	**383**
70 516 04000	SW5	**265**	**621**	**623**	**620**	**622**	**27600**

MaxiLock-N – PSDN 45° DC – Toolholder with lever clamping

Scope of supply:

Tool holder with allen key





NEW

Neutral

70 596 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	
PSDN N 2020 X12-T DC	20	20	109	40	11,5	M6	G1/8"	4	SNM. 1204	**02000**
PSDN N 2525 X12-T DC	25	25	124	40	13,3	M6	G1/8"	4	SNM. 1204	**02500**
PSDN N 2525 X15-T DC	25	25	134	50	13,7	M6	G1/8"	4	SNM. 1506	**12500**
PSDN N 3225 X15-T DC	32	25	150	50	13,7	M6	G1/8"	4	SNM. 1506	**03200**
PSDN N 3225 X19-T DC	32	25	152	52	13,7	M6	G1/8"	8	SNM. 1906	**13200**
PSDN N 4040 X25-T DC	40	40	190	65	22,4	M6	G1/8"	8	SNM. 2507 / 2509	**04000**

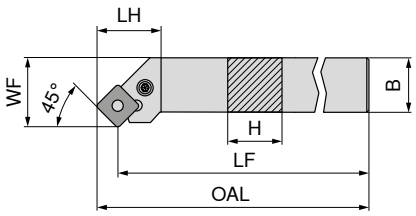
When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40200.

	Key I	Shim	Assembly pin	Coolant screw plug	Lever	Clamping screw	Solid Carbide support S	Grubscrew
	70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.								
70 596 02000	**176**	**198**	**192**	**294**	**187**	**209**	**230**	**86700**
70 596 02500	**176**	**198**	**192**	**294**	**187**	**209**	**230**	**86700**
70 596 12500	**176**	**391**	**394**	**294**	**385**	**388**	**382**	**86700**
70 596 03200	**176**	**391**	**394**	**294**	**385**	**388**	**382**	**86700**
70 596 13200	**396**	**392**	**395**	**294**	**386**	**389**	**383**	**86700**
70 596 04000	**265**	**621**	**623**	**294**	**620**	**622**	**27600**	**86700**

MaxiLock-N – PSSN 45° – Toolholder with lever clamping

Scope of supply:

Tool holder with allen key



Illustrations show right-hand versions

ISO designation	H	B	OAL	LF	LH	WF	torque moment	Insert	Left-hand	Right-hand
	mm	mm	mm	mm	mm	mm	Nm		70 513 ...	70 512 ...
PSSN R/L 1616 H09	16	16	106,7	100	23,6	20	3	SNM. 0903	**016**	**01600**[1]
PSSN R/L 2020 K12	20	20	134,0	125	27,3	25	4	SNM. 1204	**020**	**020**
PSSN R/L 2525 M12	25	25	159,0	150	29,3	32	4	SNM. 1204	**025**	**025**
PSSN R/L 3225 P12	32	25	179,0	170	29,3	32	4	SNM. 1204	**032**	**032**
PSSN R 2525 M15	25	25	161,2	150	32,5	32	4	SNM. 1506		**125**
PSSN R 3232 P15	32	32	181,2	170	38,9	40	4	SNM. 1506		**132**
PSSN R 3232 P19	32	32	183,5	170	41,2	40	8	SNM. 1906		**232**
PSSN L 3232 P19	32	32	183,5	170	40,2	40	8	SNM. 1906	**232**	
PSSN R 4040 S25	40	40	268,0	250	50,8	50	8	SNM. 2507 / 2509		**04000**

1) nickel-plated

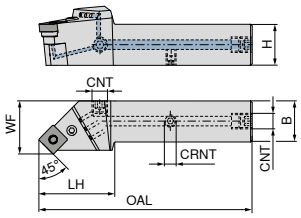
When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40200.

Spare parts for Article no.		Key I	Shim	Assembly pin	Lever	Clamping screw	Solid Carbide support S
		70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
70 512 01600 / 70 513 016	SW2,5	**175**	**197**	**191**	**185**	**208**	**229**
70 512 020 / 70 513 020	SW3	**176**	**198**	**192**	**187**	**209**	**230**
70 512 025 / 70 513 025	SW3	**176**	**198**	**192**	**187**	**209**	**230**
70 512 032 / 70 513 032	SW3	**176**	**198**	**192**	**187**	**209**	**230**
70 512 125	SW3	**176**	**391**	**394**	**385**	**388**	**382**
70 512 132	SW3	**176**	**391**	**394**	**385**	**388**	**382**
70 512 232	SW4	**396**	**392**	**395**	**386**	**389**	**383**
70 513 232	SW4	**396**	**392**	**395**	**386**	**389**	**383**
70 512 04000	SW5	**265**	**621**	**623**	**620**	**622**	**27600**

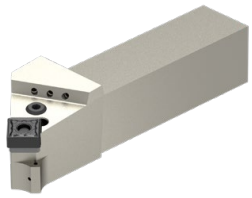
MaxiLock-N – PSSN 45° DC – Toolholder with lever clamping

Scope of supply:

Tool holder with allen key



Illustrations show right-hand versions



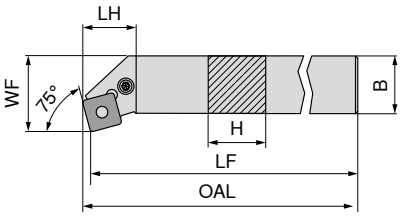
ISO designation	H	B	OAL	LH	WF	CRNT	CNT	torque moment	Insert	NEW Left-hand 70 597 ...	NEW Right-hand 70 597 ...
	mm	mm	mm	mm	mm			Nm			
PSSN R/L 2020 X12-T DC	20	20	111,9	42,9	25	M6	G1/8"	4	SNM. 1204	**02000**	**02001**
PSSN R/L 2525 X12-T DC	25	25	129,9	45,9	32	M6	G1/8"	4	SNM. 1204	**02500**	**02501**
PSSN R/L 3225 X12-T DC	32	25	145,9	45,9	32	M6	G1/8"	4	SNM. 1204	**03200**	**03201**
PSSN R 2525 X15-T DC	25	25	131,5	47,5	32	M6	G1/8"	4	SNM. 1506		**12501**
PSSN R 3232 X15-T DC	32	32	145,9	45,9	40	M6	G1/8"	4	SNM. 1506		**13201**
PSSN R/L 3232 X19-T DC	32	32	151,8	51,8	40	M6	G1/8"	8	SNM. 1906	**13200**	**23201**
PSSN R 4040 X25-T DC	40	40	189,6	64,6	50	M6	G1/8"	8	SNM. 2507 / 2509		**04001**

When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40200.

Spare parts for Article no.	Key I 70 950 ...	Shim 70 950 ...	Assembly pin 70 950 ...	Coolant screw plug 70 950 ...	Lever 70 950 ...	Clamping screw 70 950 ...	Solid Carbide support S 70 950 ...	Grubscrew 70 950 ...
70 597 02001 / 70 597 02000	**176**	**198**	**192**	**294**	**187**	**209**	**230**	**86700**
70 597 02501 / 70 597 02500	**176**	**198**	**192**	**294**	**187**	**209**	**230**	**86700**
70 597 03201 / 70 597 03200	**176**	**198**	**192**	**294**	**187**	**209**	**230**	**86700**
70 597 12501	**176**	**391**	**394**	**294**	**385**	**388**	**382**	**86700**
70 597 13201	**176**	**391**	**394**	**294**	**385**	**388**	**382**	**86700**
70 597 23201 / 70 597 13200	**396**	**392**	**395**	**294**	**386**	**389**	**383**	**86700**
70 597 04001	**265**	**621**	**623**	**294**	**620**	**622**	**27600**	**86700**

MaxiLock-N – PSKN 75° – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key



Illustrations show right-hand versions

ISO designation	H mm	LF mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 525 ...	Right-hand 70 524 ...
PSKN R/L 1616 H09	16	100	16	102,5	18,7	20	3	SNM. 0903	**016**	**016**
PSKN R/L 2020 K12	20	125	20	128,3	24,1	25	4	SNM. 1204	**020**	**020**
PSKN R/L 2525 M12	25	150	25	153,3	24,1	32	4	SNM. 1204	**025**	**025**
PSKN R/L 3225 P12	32	170	25	173,1	24,1	32	4	SNM. 1204	**03200**	**03200**
PSKN R 4040 S19	40	250	40	254,6	38,3	50	8	SNM. 1906		**04000**

Key I

Shim

Assembly pin

Lever

Clamping screw

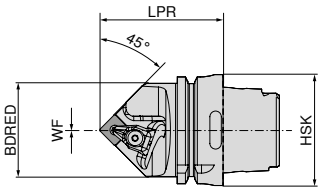
Solid Carbide support S

Spare parts for Article no.		70 950 ...	Shim 70 950 ...	Assembly pin 70 950 ...	Lever 70 950 ...	Clamping screw 70 950 ...	Solid Carbide support S 70 950 ...
70 524 016 / 70 525 016	SW2,5	**175**	**197**	**191**	**185**	**208**	**229**
70 524 020 / 70 525 020	SW3	**176**	**198**	**192**	**187**	**209**	**230**
70 524 025 / 70 525 025	SW3	**176**	**198**	**192**	**187**	**209**	**230**
70 524 03200 / 70 525 03200	SW3	**176**	**198**	**192**	**187**	**209**	**230**
70 524 04000	SW4	**396**	**392**	**395**	**386**	**389**	**383**

9

MaxiLock-D – DSDN 45° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Neutral 74 522 ...
HSK T63 DSDN N 12	HSK-T 63	70	53	0	4	SN.. 1204	**512**
HSK T63 DSDN N 15	HSK-T 63	75	53	0	4	SN.. 1506	**515**
HSK T100 DSDN N 12	HSK-T 100	80	88	0	4	SN.. 1204	**712**
HSK T100 DSDN N 19	HSK-T 100	85	88	0	8	SN.. 1906	**719**

XPress type

Key D

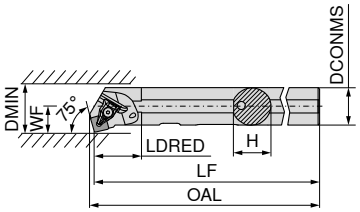
Clamping screw

Solid Carbide support S

Spare parts for Article no.		XPress type 70 950 ...	Key D 80 950 ...		Clamping screw 70 950 ...	Solid Carbide support S 70 950 ...
74 522 512	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**813**
74 522 515	**825**	T20 - IP	**129**	M5x14 - IP	**821**	**833**
74 522 712	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**813**
74 522 719	**826**	T20 - IP	**129**	M5x14 - IP	**821**	**817**

MaxiLock-D – DSKN 75° – Boring bar with top clamping

Scope of supply:
Boring bar with Torx key



Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 561 ...	Right-hand 70 560 ...
A32S DSKN R/L 12	32	31	250	254,2	40	22	40	4	SN.. 1204	**832**	**832**

XPress type **70 950 ...**

Key D **80 950 ...**

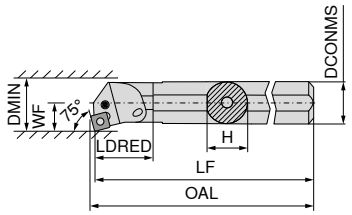
Clamping screw **70 950 ...**

Solid Carbide support S **70 950 ...**

Spare parts for Article no.								
70 560 832 / 70 561 832	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**813**

MaxiLock-N – PSKN 75° – Boring bar with lever clamping

Scope of supply:
Boring bar with Allen key



Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 561 ...	Right-hand 70 560 ...
A25R PSKN R/L 12	25	23	200	203	36	17	32	4	SNM. 1204	**225**	**225**
A32S PSKN R/L 12	32	30	250	253	50	22	40	4	SNM. 1204	**232**	**232**
A40T PSKN R/L 12	40	38	300	303	60	27	50	4	SNM. 1204	**240**	**240**

Key I **70 950 ...**

Shim **70 950 ...**

Assembly pin **70 950 ...**

Lever **70 950 ...**

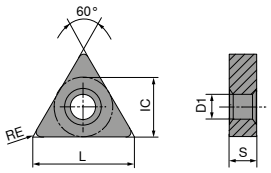
Clamping screw **70 950 ...**

Solid Carbide support S **70 950 ...**

Spare parts for Article no.										
70 561 225 / 70 560 225	SW3	**176**	**198**	**192**	**187**	**205**	**230**
70 561 232 / 70 560 232	SW3	**176**	**198**	**192**	**187**	**205**	**230**
70 561 240 / 70 560 240	SW3	**176**	**198**	**192**	**187**	**209**	**230**

TNMG / TNMA / TNMM

Designation	L	S	D1	IC
	mm	mm	mm	mm
TNMG 1103..	11,0	3,18	2,26	6,35
TNM. 1604..	16,5	4,76	3,81	9,52
TNM. 2204..	22,0	4,76	5,16	12,70



TNMG

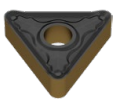
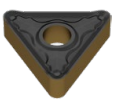
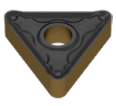
			NEW	NEW	NEW	NEW	NEW	NEW
		-CF20 CTEP110	-F50 CTCP115-P	-F50 CTCP125-P	-F50 CTCP135-P	-M50 CTCP115-P	-M50 CTCP125-P	-M50 CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	F	F	F	M	M	M
		CERMET TNMG	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
		76 149 ...	76 146 ...	76 146 ...	76 146 ...	76 138 ...	76 138 ...	76 138 ...
ISO	RE mm							
110304EN	0,4		30401	50401	70401			
110308EN	0,8		30601	50601	70601			
160404EN	0,4	016	31601	51601	71601	31601	51601	71601
160408EN	0,8	018	31801	51801	71801	31801	51801	71801
160412EN	1,2	020	32001	52001	72001	32001	52001	72001
220408EN	0,8					33001	53001	73001
220412EN	1,2					33201	53201	73201
P		●	●	●	●	●	●	●
M		○			○			○
K		○	○	○		○	○	
N								
S								
H								
O								

9

TNMG

				NEW	NEW	NEW	NEW	NEW
		-M70 CTCK110	-M70 CTCK120	-M70 CTCP115-P	-M70 CTCP125-P	-M70 CTCP135-P	CTCP125-P	CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		M	M	M	M	M	M	M
		TNMG	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
		70 155 ...	70 155 ...	76 155 ...	76 155 ...	76 155 ...	76 142 ...	76 142 ...
ISO	RE mm							
160404ER	0,4						51601	71601
160408EL	0,8						51801	
160408EN	0,8	018	518	31801	51801	71801		
160408ER	0,8						51701	71801
160412EN	1,2	020	520	32001	52001	72001		
220404EN	0,4				52801			
220408EN	0,8	030	530	33001	53001	73001		
220412EN	1,2	032	532	33201	53201	73201		
220416EN	1,6	034	534	33401	53401	73401		
P		○	○	●	●	●	●	●
M						○		○
K		●	●	○	○		○	
N								
S								
H								
O								

TNMA / TNMM

				NEW	NEW	NEW	NEW	NEW
		CTCK110	CTCK120	-R28 CTCP115-P	-R28 CTCP125-P	-R28 CTCP135-P	-R58 CTCP115-P	-R58 CTCP125-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		R	M	R	R	R	R	R
		TNMA	TNMA	TNMM	TNMM	TNMM	TNMM	TNMM
		70 134 ...	70 134 ...	76 154 ...	76 154 ...	76 154 ...	76 152 ...	76 152 ...
ISO	RE mm							
160408EN	0,8	018	518					
160412EN	1,2	020	520					
160416EN	1,6	022	522					
220408EN	0,8	030	530					
220412EN	1,2	032	532				33201	53201
220416EN	1,6	034	534	33401	53401	73401		
P		○	○	●	●	●	●	●
M						○		
K		●	●	○	○		○	○
N								
S								
H								
O								

TNMM / TNMG

		NEW						
		-R58 CTCP135-P	-F30 CTCM120	-F30 CTPM125	-F30 CTCM130	-M30 CTCM120	-M30 CTPM125	-M30 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		R	F	F	F	M	M	M
		TNMM	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
		76 152 ...	75 019 ...	75 019 ...	75 019 ...	75 020 ...	75 020 ...	75 020 ...
ISO	RE mm							
160404EN	0,4		11600	216	31600			
160408EN	0,8		11800	218	31800	11800	218	31800
160412EN	1,2					12000	220	32000
220412EN	1,2	73201						
P		●	○	○	○	○	○	○
M		○	●	●	●	●	●	●
K								
N								
S					○			○
H								
O								

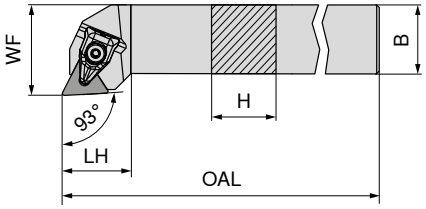
TNMG

		NEW				NEW	
		-M42 CTCM130	-M60 CTCM120	-M60 CTPM125	-M60 CTCM130	-M70 CTCM130	-M34 CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		M	M	M	M	M	M
		TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
		75 035 ...	75 021 ...	75 021 ...	75 021 ...	75 040 ...	75 006 ...
ISO	RE mm						
160404EN	0,4	31600					
160408EN	0,8	31800	11800	218	31800	31800	61800
160412EN	1,2		12000	220	32000	32000	
220404EN	0,4						62800
220408EN	0,8						63000
220412EN	1,2					33200	
220416EN	1,6						63400
P		○	○	○	○	○	●
M		●	●	●	●	●	●
K							
N							○
S		○			○	○	●
H							
O							

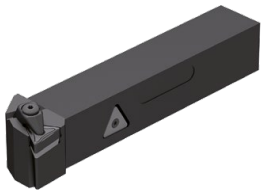
9

MaxiLock-D – DTJN 93° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions



								Left-hand	Right-hand
								70 591 ...	**70 590 ...**
ISO designation	H	B	OAL	LH	WF	torque moment	Insert		
	mm	mm	mm	mm	mm	Nm			
DTJN R/L 2020 K16	20	20	125	23	25	2	TNM. 1604	**820**	**820**
DTJN R/L 2525 M16	25	25	150	24	32	2	TNM. 1604	**825**	**825**

XPress type

Key D

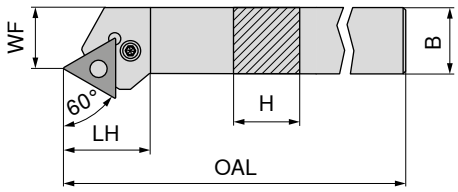
Clamping screw

Solid Carbide Seat T

	70 950 ...		**80 950 ...**		**70 950 ...**	**70 950 ...**
Spare parts for Article no.						
70 590 820 / 70 591 820	**823**	T09 - IP	**126**	M3x7 - IP	**819**	**847**
70 590 825 / 70 591 825	**823**	T09 - IP	**126**	M3x7 - IP	**819**	**847**

MaxiLock-N – PTTN 60° – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key



Illustrations show right-hand versions

								Left-hand	Right-hand
								70 529 ...	**70 528 ...**
ISO designation	H	B	OAL	LH	WF	torque moment	Insert		
	mm	mm	mm	mm	mm	Nm			
PTTN R/L 2020 K16	20	20	125	25,9	17	3	TNM. 1604	**020**	**020**
PTTN R/L 2525 M22	25	25	150	32,7	22	4	TNM. 2204	**025**	**025**

Key I

Shim

Assembly pin

Lever

Clamping screw

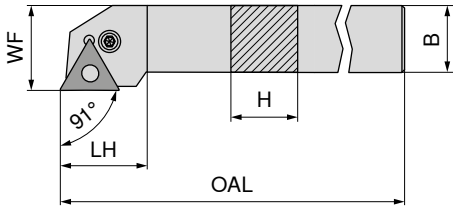
Solid Carbide Seat T

			70 950 ...		**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.									
70 529 020 / 70 528 020	SW2,5	**175**		**197**		**191**		**185**	**208**	**225**
70 529 025 / 70 528 025	SW3	**176**		**198**		**192**		**187**	**209**	**226**

MaxiLock-N – PTGN 91° – Toolholder with lever clamping

Scope of supply:

Tool holder with allen key



Illustrations show right-hand versions

								Left-hand	Right-hand
								70 533 ...	**70 532 ...**
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert		
PTGN R/L 1616 H16	16	16	100	20	20	3	TNM. 1604	**016**	**016**
PTGN R/L 2020 K16	20	20	125	20	25	3	TNM. 1604	**020**	**020**
PTGN R/L 2525 M16	25	25	150	22	32	3	TNM. 1604	**025**	**025**
PTGN R/L 3225 P16	32	25	170	22	32	3	TNM. 1604	**032**	**032**
PTGN R/L 2525 M22	25	25	150	29	32	4	TNM. 2204	**125**	**125**
PTGN R/L 3232 P22	32	32	170	29	40	4	TNM. 2204	**132**	**132**

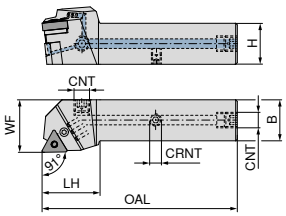
		Key I	Shim	Assembly pin	Lever	Clamping screw	Solid Carbide Seat T
		70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.							
70 532 016 / 70 533 016	SW2,5	**175**	**197**	**191**	**185**	**208**	**225**
70 532 020 / 70 533 020	SW2,5	**175**	**197**	**191**	**185**	**208**	**225**
70 532 025 / 70 533 025	SW2,5	**175**	**197**	**191**	**185**	**208**	**225**
70 532 032 / 70 533 032	SW2,5	**175**	**197**	**191**	**185**	**208**	**225**
70 532 125 / 70 533 125	SW3	**176**	**198**	**192**	**187**	**209**	**226**
70 532 132 / 70 533 132	SW3	**176**	**198**	**192**	**187**	**209**	**226**

MaxiLock-N – PTGN 91° DC – Toolholder with lever clamping

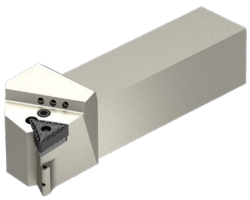
Scope of supply:

Tool holder with allen key

Direct Cooling



Illustrations show right-hand versions



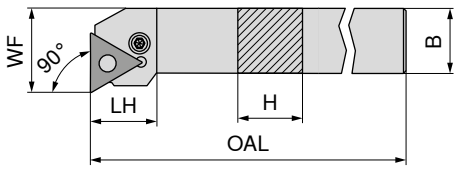
ISO designation	H	B	OAL	LH	WF	CRNT	CNT	torque moment	Insert	NEW Left-hand	NEW Right-hand
	mm	mm	mm	mm	mm			Nm		70 598 ...	70 598 ...
PTGN R/L 2020 X16-T DC	20	20	101	32	25	M6	G1/8"	3	TNM. 1604	**02000**	**02001**
PTGN R/L 2525 X16-T DC	25	25	119	35	32	M6	G1/8"	3	TNM. 1604	**02500**	**02501**
PTGN R/L 3225 X16-T DC	32	25	136	36	32	M6	G1/8"	3	TNM. 1604	**03200**	**03201**
PTGN R/L 2525 X22-T DC	25	25	122	38	32	M6	G1/8"	4	TNM. 2204	**12500**	**12501**
PTGN R/L 3232 X22-T DC	32	32	138	38	40	M6	G1/8"	4	TNM. 2204	**13200**	**13201**

Spare parts for Article no.	Key I	Shim	Assembly pin	Coolant screw plug	Lever	Clamping screw	Solid Carbide Seat T	Grubscrew
	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
70 598 02001 / 70 598 02000	**175**	**197**	**192**	**294**	**185**	**208**	**225**	**86700**
70 598 02501	**175**	**197**	**192**	**294**	**185**	**208**	**225**	**86700**
70 598 02500	**175**	**197**	**191**	**294**	**185**	**208**	**225**	**86700**
70 598 03201 / 70 598 03200	**175**	**197**	**192**	**294**	**185**	**208**	**225**	**86700**
70 598 12501 / 70 598 12500	**176**	**198**	**192**	**294**	**187**	**209**	**226**	**86700**
70 598 13201 / 70 598 13200	**176**	**198**	**192**	**294**	**187**	**209**	**226**	**86700**

MaxiLock-N – PTFN 90° – Toolholder with lever clamping

Scope of supply:

Tool holder with allen key



Illustrations show right-hand versions

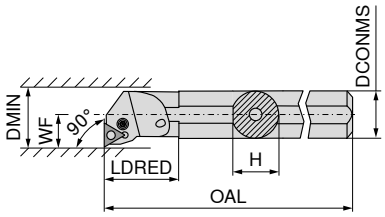
ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand	Right-hand
	mm	mm	mm	mm	mm	Nm		70 535 ...	70 534 ...
PTFN R/L 1616 H16	16	16	100	19,7	20	3	TNM. 1604	**016**	**016**
PTFN R/L 2020 K16	20	20	125	20,2	25	3	TNM. 1604	**020**	**020**
PTFN R/L 2525 M16	25	25	150	20,2	32	3	TNM. 1604	**025**	**025**
PTFN R/L 2525 M22	25	25	150	25,2	32	4	TNM. 2204	**125**	**125**
PTFN R/L 3225 P22	32	25	170	25,2	32	4	TNM. 2204	**132**	**132**

Spare parts for Article no.		Key I	Shim	Assembly pin	Lever	Clamping screw	Solid Carbide Seat T
		70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
70 534 016 / 70 535 016	SW2,5	**175**	**197**	**191**	**185**	**208**	**225**
70 534 020 / 70 535 020	SW2,5	**175**	**197**	**191**	**185**	**208**	**225**
70 534 025 / 70 535 025	SW2,5	**175**	**197**	**191**	**185**	**208**	**225**
70 534 125 / 70 535 125	SW3	**176**	**198**	**192**	**187**	**209**	**226**
70 534 132 / 70 535 132	SW3	**176**	**198**	**192**	**187**	**209**	**226**

MaxiLock-N – PTFN 90° – Boring bar with lever clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant

Scope of supply:
Boring bar with Allen key



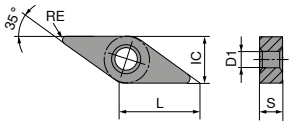
Illustrations show right-hand versions

									Left-hand	Right-hand
									70 565 ...	**70 564 ...**
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert		
S25T PTFN R 16	25	23	300	36	17	32	3	TNM. 1604		**02500**
A25R PTFN R/L 16	25	23	200	36	17	32	3	TNM. 1604	**225**	**225**
A32S PTFN R/L 16	32	30	250	50	22	40	3	TNM. 1604	**232**	**232**
A40T PTFN R/L 22	40	38	300	60	27	50	4	TNM. 2204	**240**	**240**
S50W PTFN R 22	50	47	450	35	35	63	4	TNM. 2204		**050**

	Key I	Shim	Assembly pin	Lever	Clamping screw	Solid Carbide Seat T
	70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.						
70 564 02500	**175**	**197**	**191**	**185**	**208**	**225**
70 564 225 / 70 565 225	**175**	**197**	**191**	**185**	**208**	**225**
70 564 232 / 70 565 232	**175**	**197**	**191**	**185**	**208**	**225**
70 564 240 / 70 565 240	**176**	**198**	**192**	**187**	**209**	**226**
70 564 050	**176**	**198**	**192**	**187**	**209**	**226**

VNMG

Designation	L mm	S mm	D1 mm	IC mm
VNMG 1604..	16,6	4,76	3,81	9,52



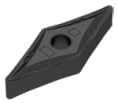
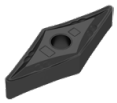
VNMG

		NEW	NEW	NEW	NEW	NEW	NEW	NEW
		-F40 CTCP125-P	-F50 CTCP115-P	-F50 CTCP125-P	-F50 CTCP135-P	-XU CTCP115-P	-XU CTCP125-P	-M40 CTCP125-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F VNMG	F VNMG	F VNMG	F VNMG	M VNMG	M VNMG	M VNMG
		76 000 ...	76 156 ...	76 156 ...	76 156 ...	76 294 ...	76 294 ...	76 001 ...
ISO	RE mm							
160404EN	0,4	51601	31601	51601	71601	31601	51601	51601
160408EN	0,8	51801	31801	51801	71801	31801	51801	51801
P		●	●	●	●	●	●	●
M					○			
K		○	○	○		○	○	○
N								
S								
H								
O								

VNMG

		NEW		NEW	NEW			
		-M50 CTCK110	-M50 CTCK120	-M50 CTCP115-P	-M50 CTCP125-P	-F30 CTCM120	-F30 CTPM125	-F30 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		M VNMG	M VNMG	M VNMG	M VNMG	F VNMG	F VNMG	F VNMG
		70 190 ...	70 131 ...	76 131 ...	76 131 ...	75 022 ...	75 022 ...	75 022 ...
ISO	RE mm							
160404EN	0,4			31601	51601	11600	216	31600
160408EN	0,8		518	31801	51801	11800	218	31800
160412EN	1,2	01200	520	32001	52001			
P		○	○	●	●	○	○	○
M						●	●	●
K		●	●	○	○			
N								
S								○
H								
O								

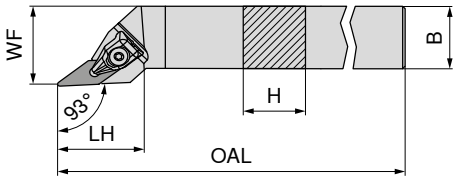
VNMG

		-M30 CTCM120	-M30 CTPM125	-M30 CTCM130	-M34 CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		M	M	M	M
		VNMG	VNMG	VNMG	VNMG
		75 023 ...	75 023 ...	75 023 ...	75 009 ...
ISO	RE mm				
160404EN	0,4				61600
160408EN	0,8	11800	218	31800	61800
160412EN	1,2				62000
P		○	○	○	●
M		●	●	●	●
K					
N					○
S				○	●
H					
O					

9

MaxiLock-D – DVJN 93° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

								Left-hand	Right-hand
								70 503 ...	**70 502 ...**
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert		
DVJN R/L 2020 K16	20	20	125	39	25	2	VN.. 1604	**620**	**620**
DVJN R/L 2525 M16	25	25	150	39	32	2	VN.. 1604	**725**	**725**

XPress type

Key D

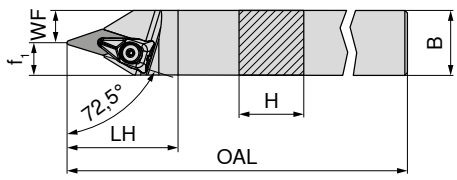
Clamping screw

Solid Carbide Seat V

	XPress type	Key D	Clamping screw	Solid Carbide Seat V
	70 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.				
70 502 620 / 70 503 620	**835**	T09 - IP **126**	M3x7 - IP **819**	**806**
70 502 725 / 70 503 725	**835**	T09 - IP **126**	M3x7 - IP **819**	**806**

MaxiLock-D – DVVN 72.5° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



									Neutral
									70 506 ...
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	f_1 mm	torque moment Nm	Insert	
DVVN N 2020 K16	20	20	125	43	7,5	12,5	2	VN.. 1604	**620**
DVVN N 2525 M16	25	25	150	43	12,5	12,5	2	VN.. 1604	**625**

XPress type

Key D

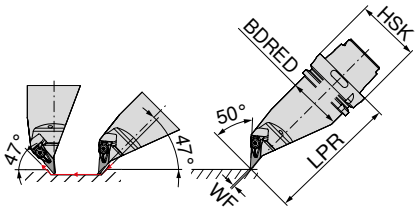
Clamping screw

Solid Carbide Seat V

	XPress type	Key D	Clamping screw	Solid Carbide Seat V
	70 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.				
70 506 620	**835**	T09 - IP **126**	M3x7 - IP **819**	**806**
70 506 625	**835**	T09 - IP **126**	M3x7 - IP **819**	**806**

MaxiLock-D – DVMN 50° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Left-hand 74 525 ...
HSK T63 DVMN L 16	HSK-T 63	130	53	0	2	VN.. 1604	**516**
HSK T100 DVMN L 16	HSK-T 100	160	88	0	2	VN.. 1604	**716**

XPress type

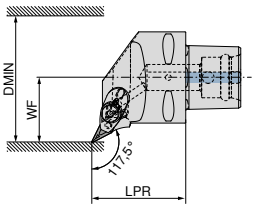
Key D

Clamping screw

Solid Carbide Seat V

Spare parts for Article no.	70 950 ...		80 950 ...		70 950 ...		70 950 ...
74 525 516	**835**	T09 - IP	**126**	M3x7 - IP	**819**		**806**
74 525 716	**835**	T09 - IP	**126**	M3x7 - IP	**819**		**806**

MaxiLock-D – DVPN 117,5° – Toolholder with top clamping



Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 84 673 ...	Right-hand 84 672 ...
PSC40 DVPN R/L 50050-16	PSC 40	50	27	50	10	VN.. 1604	**01695**	**01695**
PSC50 DVPN R/L 65060-16	PSC 50	60	35	65	10	VN.. 1604	**01694**	**01694**
PSC63 DVPN R/L 80065-16	PSC 63	65	45	80	10	VN.. 1604	**01693**	**01693**

Clamping Screw

Clamping claw

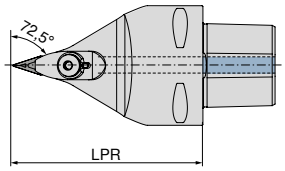
Ring-shaped nozzle

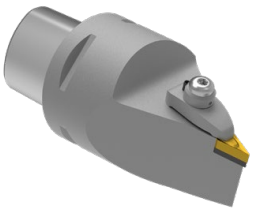
Clamping screw

Solid Carbide Seat V

Spare parts for Article no.		84 950 ...	84 950 ...	84 950 ...	84 950 ...	84 950 ...
84 672 01695 / 84 673 01695	M6X28 SW4	**28300**	**28500**	**28400**	**27600**	**28000**
84 672 01694 / 84 673 01694	M6X28 SW4	**28300**	**28500**	**28400**	**27600**	**28000**
84 672 01693 / 84 673 01693	M6X28 SW4	**28300**	**28500**	**28400**	**27600**	**28000**

MaxiLock-D – DVVN 72,5° – Toolholder with top clamping





Neutral

84 679 ...

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	
PSC63 DVVN N 0100-16	PSC 63	100	10	VN.. 1604	**01693**
PSC63 DVVN N 0130-16	PSC 63	130	10	VN.. 1604	**11693**

Clamping Screw

Clamping claw

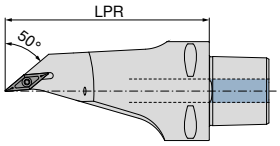
Ring-shaped nozzle

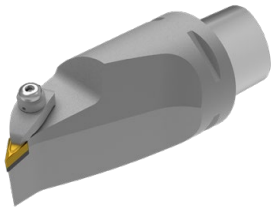
Clamping screw

Solid Carbide Seat V

		84 950 ...	**84 950 ...**	**84 950 ...**	**84 950 ...**	**84 950 ...**
Spare parts for Article no.						
84 679 01693	M6X28 SW4	**28300**	**28500**	**28400**	**27600**	**28000**
84 679 11693	M6X28 SW4	**28300**	**28500**	**28400**	**27600**	**28000**

MaxiLock-D – DVMN 50° – Toolholder with top clamping





Neutral

84 682 ...

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	
PSC63 DVMN L 0130-16	PSC 63	130	10	VN.. 1604	**01693**

Clamping Screw

Clamping claw

Ring-shaped nozzle

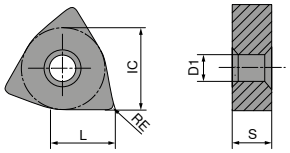
Clamping screw

Solid Carbide Seat V

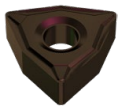
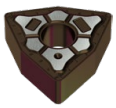
		84 950 ...	**84 950 ...**	**84 950 ...**	**84 950 ...**	**84 950 ...**
Spare parts for Article no.						
84 682 01693	M6X28 SW4	**28300**	**28600**	**28400**	**27600**	**28000**

WNMG / WNMA

Designation	L	S	D1	IC
	mm	mm	mm	mm
WNMG 0604..	6,5	4,76	3,81	9,52
WNM. 0804..	8,6	4,76	5,16	12,70

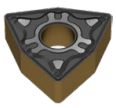
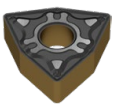
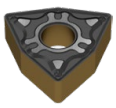


WNMG

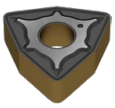
				NEW	NEW	NEW	NEW	NEW
		-CF20 CTEP110	-TFQ CTEP110	-F50 CTCP115-P	-F50 CTCP125-P	-F50 CTCP135-P	-TFQ CTCP115-P	-TFQ CTCP125-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	F	F	F	F	F	F
		CERMET WNMG	CERMET WNMG	WNMG	WNMG	WNMG	WNMG	WNMG
		76 171 ...	76 177 ...	76 157 ...	76 157 ...	76 157 ...	76 177 ...	76 177 ...
ISO	RE mm							
060404EN	0,4	004		30401	50401	70401	30401	51401
060408EN	0,8	006	006	30601	50601	70601	30601	50601
080404EN	0,4		016	31601	51601	71601		
080408EN	0,8	018	018	31801	51801	71801	31801	51801
080412EN	1,2			32001	52001	72001	32001	52001
P		●	●	●	●	●	●	●
M		○	○			○		
K		○	○	○	○		○	○
N								
S								
H								
O								

9

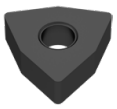
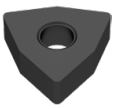
WNMG

		NEW	NEW			NEW	NEW	NEW
		-XU CTCP115-P	-XU CTCP125-P	-M50 CTCK110	-M50 CTCK120	-M50 CTCP115-P	-M50 CTCP125-P	-M50 CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	M	M	M	M	M
		WNMG	WNMG	WNMG	WNMG	WNMG	WNMG	WNMG
		76 295 ...	76 295 ...	70 139 ...	70 139 ...	76 139 ...	76 139 ...	76 139 ...
ISO	RE mm							
060404EN	0,4					30401	50401	70401
060408EN	0,8					30601	50601	70601
060412EN	1,2					30801	50801	70801
080404EN	0,4	31601	51601			31601	51601	71601
080408EN	0,8	31801	51801	018	518	31801	51801	71801
080412EN	1,2	32001	52001	020	520	32001	52001	72001
080416EN	1,6					32201	52201	72201
P		●	●	○	○	●	●	●
M								○
K		○	○	●	●	○	○	
N								
S								
H								
O								

WNMG

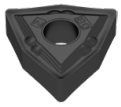
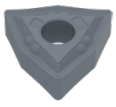
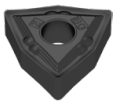
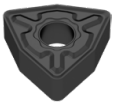
		NEW	NEW			NEW	NEW	NEW
		-TMQ CTCP115-P	-TMQ CTCP125-P	-M70 CTCK110	-M70 CTCK120	-M70 CTCP115-P	-M70 CTCP125-P	-M70 CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	M	M	M	M	M
		WNMG	WNMG	WNMG	WNMG	WNMG	WNMG	WNMG
		76 198 ...	76 198 ...	70 273 ...	70 273 ...	76 273 ...	76 273 ...	76 273 ...
ISO	RE mm							
060408EN	0,8					30601	50601	70601
060412EN	1,2					30801	50801	70801
080408EN	0,8	31801	51801	018	518	31801	51801	71801
080412EN	1,2	32001	52001	020	520	32001	52001	72001
080416EN	1,6			022	522	32201	52201	72201
P		●	●	○	○	●	●	●
M								○
K		○	○	●	●	○	○	
N								
S								
H								
O								

WNMA / WNMG

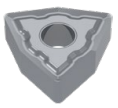
		CTCK110	CTCK120	-F30 CTCM120	-F30 CTPM125	-F30 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		R	R	F	F	F
		WNMA	WNMA	WNMG	WNMG	WNMG
		70 169 ...	70 169 ...	75 024 ...	75 024 ...	75 024 ...
ISO	RE mm					
060404EN	0,4			10400	204	30400
060408EN	0,8			10600	206	30600
080404EN	0,4			11600	216	31600
080408EN	0,8	018	518	11800	218	31800
080412EN	1,2	020	520			
080416EN	1,6	022	522			
P		○	○	○	○	○
M				●	●	●
K		●	●			
N						
S						○
H						
O						

WNMG

9

		NEW						
		-M30 CTCM120	-M30 CTPM125	-M30 CTCM130	-M42 CTCM130	-M60 CTCM120	-M60 CTPM125	-M60 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	M	M	M	M	M
		WNMG	WNMG	WNMG	WNMG	WNMG	WNMG	WNMG
		75 025 ...	75 025 ...	75 025 ...	75 036 ...	75 026 ...	75 026 ...	75 026 ...
ISO	RE mm							
060404EN	0,4				30400			
060408EN	0,8	10600	206	30600	30600	10600	206	30600
060412EN	1,2	10800	208	30800		10800	208	30800
080404EN	0,4				31600			
080408EN	0,8	11800	218	31800	31800	11800	218	31800
080412EN	1,2	12000	220	32000	32000	12000	220	32000
P		○	○	○	○	○	○	○
M		●	●	●	●	●	●	●
K								
N								
S				○	○			○
H								
O								

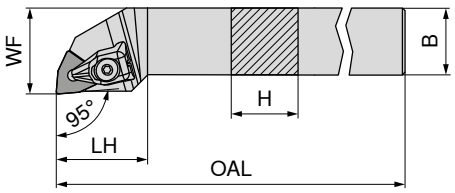
WNMG

		NEW	NEW	
		-M70 CTCM130	-F34 CTPX710	-M34 CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
		M	F	M
		WNMG	WNMG	WNMG
		75 041 ...	75 313 ...	75 008 ...
ISO	RE mm			
060408EN	0,8	30600		
080408EN	0,8	31800	61800	61800
080412EN	1,2	32000		62000
P		○	●	●
M		●	●	●
K				
N			○	○
S		○	●	●
H				
O				

→ v_c Page 196–209

MaxiLock-D – DWLN 95° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 543 ...	Right-hand 70 542 ...
DWLN R/L 1616 H06	16	16	100	25	20	2	WN.. 0604	**716**	**716**
DWLN R/L 2020 K06	20	20	125	27	25	2	WN.. 0604	**720**	**720**
DWLN R/L 2525 M06	25	25	150	27	32	2	WN.. 0604	**725**	**725**
DWLN R/L 2020 K08	20	20	125	34	25	4	WN.. 0804	**620**	**620**
DWLN R/L 2525 M08	25	25	150	34	32	4	WN.. 0804	**625**	**625**

Spare parts for Article no.	XPress type 70 950 ...		Key D 80 950 ...		Clamping screw 70 950 ...		Solid Carbide Seat W 70 950 ...	
70 543 716 / 70 542 716	**823**	T09 - IP	**126**	M3x7 - IP	**819**			**807**
70 543 720 / 70 542 720	**823**	T09 - IP	**126**	M3x7 - IP	**819**			**807**
70 543 725 / 70 542 725	**823**	T09 - IP	**126**	M3x7 - IP	**819**			**807**
70 543 620 / 70 542 620	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**			**812**
70 543 625 / 70 542 625	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**			**812**

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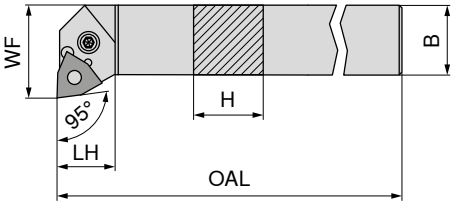
MaxiLock-N – PWLN 95° – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key



Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 543 ...	Right-hand 70 542 ...
PWLN R/L 1616 H06	16	16	100	20	22,5	3	WNMG 0604	**116**	**11600**[1)]
PWLN R/L 2020 K06	20	20	125	26	25,0	3	WNMG 0604	**12000**[1)]	**12000**[1)]
PWLN R/L 2525 M06	25	25	150	19	32,0	3	WNMG 0604	**125**	**12500**[1)]
PWLN R/L 2020 K08	20	20	125	22	25,0	4	WNMG 0804	**020**	**020**
PWLN R/L 2525 M08	25	25	150	22	32,0	4	WNMG 0804	**025**	**025**
PWLN R/L 3225 P08	32	25	170	22	32,0	4	WNMG 0804	**032**	**032**

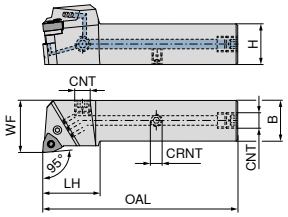
1) nickel-plated

Spare parts for Article no.		Key I 70 950 ...		Shim 70 950 ...		Assembly pin 70 950 ...		Lever 70 950 ...		Clamping screw 70 950 ...		Solid Carbide Seat W 70 950 ...	
70 542 11600 / 70 543 116	SW2,5	**175**		**122**		**191**		**185**		**208**			**127**
70 542 12000 / 70 543 12000	SW2,5	**175**		**122**		**191**		**185**		**208**			**127**
70 542 12500 / 70 543 125	SW2,5	**175**		**122**		**191**		**185**		**208**			**127**
70 542 020 / 70 543 020	SW3	**176**		**198**		**192**		**187**		**209**			**235**
70 542 025 / 70 543 025	SW3	**176**		**198**		**192**		**187**		**209**			**235**
70 542 032 / 70 543 032	SW3	**176**		**198**		**192**		**187**		**209**			**235**

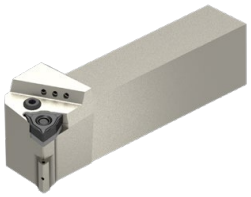
MaxiLock-N – PWLN 95° DC – Toolholder with lever clamping

Scope of supply:

Tool holder with allen key



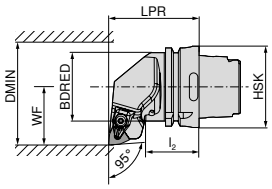
Illustrations show right-hand versions



										NEW		NEW	
										Left-hand		Right-hand	
										70 599 ...		**70 599 ...**	
ISO designation	H	B	OAL	LH	WF	CRNT	CNT	torque moment	Insert				
	mm	mm	mm	mm	mm			Nm					
PWLN R/L 2020 X06-T DC	20	20	104	35	25	M6	G1/8"	3	WNMG 0604	**02000**		**02001**	
PWLN R/L 2525 X06-T DC	25	25	120	35	32	M6	G1/8"	3	WNMG 0604	**02500**		**02501**	
PWLN R/L 2020 X08-T DC	20	20	104	35	25	M6	G1/8"	4	WNMG 0804	**12000**		**12001**	
PWLN R/L 2525 X08-T DC	25	25	120	35	32	M6	G1/8"	4	WNMG 0804	**12500**		**12501**	
PWLN R/L 3225 X08-T DC	32	25	135	35	32	M6	G1/8"	4	WNMG 0804	**03200**		**03201**	

MaxiLock-D – DWLN 95° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	Insert	Left-hand 74 529 ...	Right-hand 74 528 ...
HSK T63 DWLN R/L 08	HSK-T 63	70	42,00	52,6	45	125	WN.. 0804	**508**	**508**
HSK T100 DWLN R 08	HSK-T 100	80	45,00	87,6	55	125	WN.. 0804		**708**
HSK T100 DWLN L 08	HSK-T 100	80	53,96	87,6	55	125	WN.. 0804	**708**	

XPress type **70 950 ...**

Key D **80 950 ...**

Clamping screw **70 950 ...**

Solid Carbide Seat W **70 950 ...**

Spare parts for Article no.						
74 528 508 / 74 529 508	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**812**
74 528 708 / 74 529 708	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**812**

MaxiLock-N – PWLN 95° – Toolholder with lever clamping

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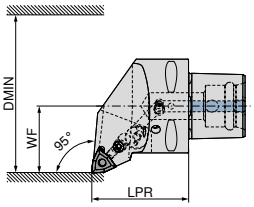
Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	Left-hand 84 653 ...	Right-hand 84 652 ...
PSC40 PWLN R/L 50050-08	PSC 40	50	27	50	5	WN.. 0804	DC	**00895**	**00895**
PSC50 PWLN R/L 65060-08	PSC 50	60	35	65	5	WN.. 0804	DC	**00894**	**00894**
PSC63 PWLN R/L 80065-08	PSC 63	65	45	80	5	WN.. 0804	DC	**00893**	**00893**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**

Shim **84 950 ...**

Elbow lever screw **84 950 ...**

Lever **84 950 ...**

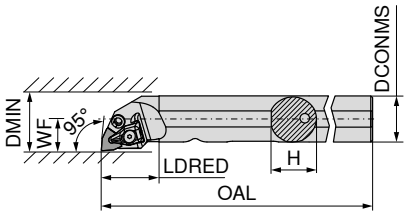
Solid Carbide Seat W **84 950 ...**

Spare parts for Article no.						
84 652 00895 / 84 653 00895	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27700**	
84 652 00894 / 84 653 00894	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27700**	
84 652 00893 / 84 653 00893	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27700**	

MaxiLock-D – DWLN 95° – Boring bar with top clamping

Scope of supply:

Boring bar with Torx key



Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 573 ...	Right-hand 70 572 ...
A25R DWLN R/L 06	25	24	200	32	17	32	2	WN.. 0604	**725**	**725**
A32S DWLN R/L 08	32	31	250	40	22	44	4	WN.. 0804	**732**	**732**
A40T DWLN R/L 08	40	39	300	45	27	50	4	WN.. 0804	**64000**	**640**

XPress type

Key D

Clamping screw

Hydrant

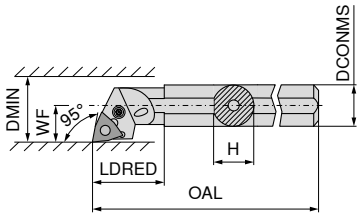
Solid Carbide Seat W

Spare parts for Article no.		70 950 ...		80 950 ...		70 950 ...		70 950 ...		70 950 ...	
70 572 725 / 70 573 725		**823**	T09 - IP	**126**	M3x7 - IP	**819**		**834**		**807**	
70 572 732 / 70 573 732		**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**834**		**812**	
70 572 640 / 70 573 64000		**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**834**		**812**	

MaxiLock-N – PWLN 95° – Boring bar with lever clamping

Scope of supply:

Boring bar with Allen key



Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 573 ...	Right-hand 70 572 ...
A16M PWLN R/L 06	16	15	150	20	11	20	3	WNMG 0604	**11600**[1)]	**11600**[1)]
A20Q PWLN R/L 06-1	20	19	180	30	13	25	3	WNMG 0604	**12100**[1)]	**12100**[1)]
A25R PWLN R/L 06	25	23	200	25	17	32	3	WNMG 0604	**12500**[1)]	**12500**[1)]
A32S PWLN R/L 06	32	30	250	50	22	40	3	WNMG 0604	**132**	**132**
A25R PWLN R/L 08	25	23	200	40	17	31	4	WNMG 0804	**225**	**225**
A32S PWLN R/L 08	32	30	250	50	22	40	4	WNMG 0804	**032**	**032**
A40T PWLN R/L 08	40	39	300	60	27	50	4	WNMG 0804	**040**	**040**

1) nickel-plated

Key I

Shim

Assembly pin

Lever

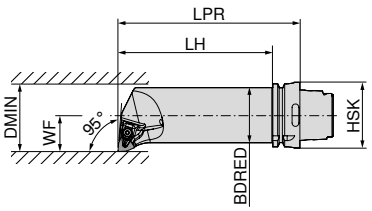
Clamping screw

Solid Carbide Seat W

Spare parts for Article no.		70 950 ...		70 950 ...		70 950 ...		70 950 ...		70 950 ...	
70 572 11600 / 70 573 11600	SW2	**177**					**129**		**217**		
70 572 12100 / 70 573 12100	SW2	**177**					**129**		**217**		
70 572 12500 / 70 573 12500	SW2,5	**175**		**122**		**191**	**185**		**208**		**127**
70 572 132 / 70 573 132	SW2,5	**175**		**122**		**191**	**185**		**208**		**127**
70 572 225 / 70 573 225	SW3	**176**					**187**		**205**		
70 572 032 / 70 573 032	SW3	**176**		**198**		**192**	**187**		**209**		**235**
70 572 040 / 70 573 040	SW3	**176**		**198**		**192**	**187**		**209**		**235**

MaxiLock-D – DWLN 95° – Boring bar with top clamping

Scope of supply:
Boring bar with Torx key



Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 537 ...		Right-hand 74 536 ...	
HSK T63 50Q DWLN R/L 08	HSK-T 63	175	149	50	35	63	4	WN.. 0804		**508**		**508**

XPress type

70 950 ... **824**

Key D

80 950 ... **128**

Clamping screw

70 950 ... **820**

Solid Carbide Seat W

70 950 ... **812**

Spare parts for Article no.
74 536 508 / 74 537 508

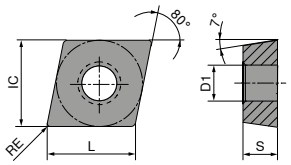
T15 - IP **128**

M4,5x12 - IP **820**

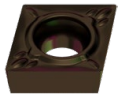
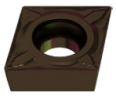
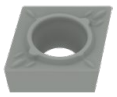
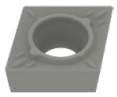
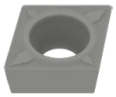
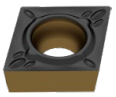
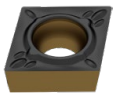
9

CCGT / CCMT / CCET

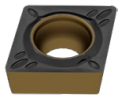
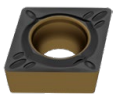
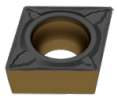
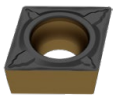
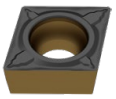
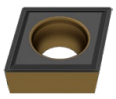
Designation	L	S	D1	IC
	mm	mm	mm	mm
CC.T 0602..	6,4	2,38	2,8	6,35
CC.T 09T3..	9,7	3,97	4,4	9,52
CC.T 1204..	12,9	4,76	5,5	12,70



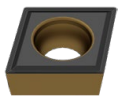
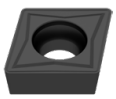
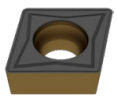
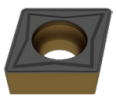
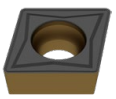
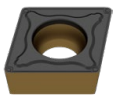
CCGT / CCMT

		NEW	NEW
	-CF05 CTEP110	-CF55 CTEP110	-SF TCM407	-SF TCM10	-SMF TCM10	-SF CTCP125-P	-SF CTCP135-P
	DRAGONSKIN	DRAGONSKIN				DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	F	F
	CERMET CCGT	CERMET CCMT	CERMET CCGT	CERMET CCGT	CERMET CCMT	CCGT	CCGT
	76 247 ...	76 248 ...	70 251 ...	70 251 ...	70 249 ...	76 251 ...	76 251 ...
ISO / RE mm							
060202EN 0,2	002		850	900		50201	70201
060204EN 0,4	004	004	852	902	900		
09T302EN 0,2	014		854	904			
09T304EN 0,4	016	016		906	904		
09T308EN 0,8	018	018		908	906		
120404EN 0,4		028		910			
P	●	●	●	●	●	●	●
M	○	○	○	○	○		○
K	○	○	○	○	○	○	
N							
S							
H							
O							

CCMT / CCGT

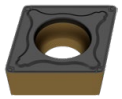
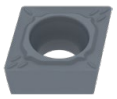
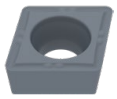
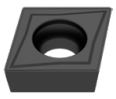
		NEW	NEW	NEW	NEW	NEW	NEW	NEW
		-SF CTCP115-P	-SF CTCP125-P	-SF CTCP135-P	-SMF CTCP115-P	-SMF CTCP125-P	-SMF CTCP135-P	-SM CTCP125-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	F	F	F	F	F	M
		CCMT	CCMT	CCMT	CCMT	CCMT	CCMT	CCGT
		76 253 ...	76 253 ...	76 253 ...	76 249 ...	76 249 ...	76 249 ...	76 250 ...
ISO	RE mm							
060202EN	0,2							50201
060204EN	0,4	30401	50401	70401		50401	70401	
060208EN	0,8					50601		
09T304EN	0,4	31601	51601	71601	31601	51601	71601	
09T308EN	0,8	31801	51801		31801	51801		
120404EN	0,4		52801			52801		
120408EN	0,8		53001		33001		73001	
P		●	●	●	●	●	●	●
M				○			○	
K		○	○		○	○		○
N								
S								
H								
O								

CCGT / CCMT

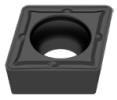
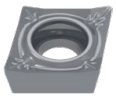
		NEW		NEW	NEW	NEW	NEW	NEW
		-SM CTCP135-P	-SM CTCK110	-SM CTCK120	-SM CTCP115-P	-SM CTCP125-P	-SM CTCP135-P	-SMQ CTCP115-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	M	M	M	M	F
		CCGT	CCMT	CCMT	CCMT	CCMT	CCMT	CCMT
		76 250 ...	70 252 ...	70 252 ...	76 252 ...	76 252 ...	76 252 ...	76 194 ...
ISO	RE mm							
060202EN	0,2	70201						
060204EN	0,4		004	554	30401	50401	70401	
060208EN	0,8		006	506	30601		70601	
09T304EN	0,4		016	516	31601	51601	71601	31601
09T308EN	0,8		018	518	31801	51801	71801	31801
09T312EN	1,2		020	520				
120404EN	0,4		028	528	32801	52801	72801	32801
120408EN	0,8		030	530	33001	53001	73001	33001
120412EN	1,2					53201		
P		●	○	○	●	●	●	●
M		○					○	
K			●	●	○	○		○
N								
S								
H								
O								

9

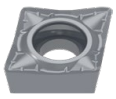
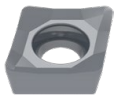
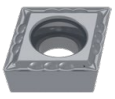
CCMT

		NEW		NEW		NEW		NEW
		-SMQ CTCP125-P	-M25 CTCM120	-SF CTPM125	-M25 CTPM125	-F43 CTCM130	-M25 CTCM130	-SM CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	F	F	F	F	F	M
		CCMT	CCMT	CCMT	CCMT	CCMT	CCMT	CCMT
		76 194 ...	75 210 ...	75 042 ...	75 210 ...	75 031 ...	75 210 ...	75 047 ...
ISO	RE mm							
060204EN	0,4		10400	20400	204		30400	30400
09T304EN	0,4	51601	11600	21600	216	31600	31600	31600
09T308EN	0,8	51801	11800		218	31800	31800	31800
120404EN	0,4	52801						32800
120408EN	0,8	53001						33000
P		●	○	○	○	○	○	○
M			●	●	●	●	●	●
K		○						
N								
S						○	○	○
H								
O								

CCMT / CCGT

		-M55 CTCM120	-M55 CTPM125	-M55 CTCM130	-23P H216T	-25P H210T	-25P CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN			DRAGONSKIN
							
		M	M	M	F	F	M
		CCMT	CCMT	CCMT	CCGT	CCGT	CCGT
		75 211 ...	75 211 ...	75 211 ...	70 255 ...	70 248 ...	70 248 ...
ISO	RE mm						
060202FN	0,2				652	636	70200
060204EN	0,4	10400	204	30400			
060204FN	0,4				654	638	70400
09T302FN	0,2					639	71400
09T304EN	0,4	11600	216	31600			
09T304FN	0,4				656	640	71600
09T308EN	0,8	11800	218	31800			
09T308FN	0,8				658	641	71800
120402FN	0,2					643	
120404EN	0,4	12800	228	32800			
120404FN	0,4					642	72800
120408EN	0,8	13000	230	33000			
120408FN	0,8					644	73000
P		○	○	○			●
M		●	●	●			●
K					○	○	
N					●	●	●
S				○		○	●
H							
O					○	○	

CCGT / CCMT / CCET

		-25Q H210T	-25Q CTPX710	-27 H10T	-27 CTPX715	-29 H216T	NEW -29 CTPX715	NEW -F05 CTPX710
			DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	DRAGONSKIN
								
		M	M	M	M	M	M	F
		CCGT	CCGT	CCGT	CCGT	CCMT	CCMT	CCET
		70 248 ...	70 248 ...	70 254 ...	70 254 ...	70 245 ...	70 245 ...	76 243 ...
ISO	RE mm							
060201FN	0,1							10100
060202FN	0,2			600	80200			10200
060204EN	0,4					60400	70400	
060204FN	0,4	678	75400	602	80400			10400
09T302FN	0,2			604	81400			
09T304EN	0,4					61600	71600	
09T304FN	0,4	680	76600	606	81600			
09T308EN	0,8					61800	71800	
09T308FN	0,8	681	76800	608	81800			
09T316FN	1,6				72200			
120402FN	0,2			610	82600			
120404FN	0,4	682	77800	612	82800			
120408FN	0,8	686	78000	614	83000			
P			●		●		●	●
M			●		●		●	●
K		○		○	○	○	○	
N		●	●	●	●	●	●	●
S		○	●		●		●	●
H								
O		○		○	○	○	○	

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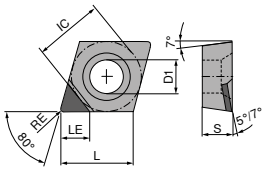
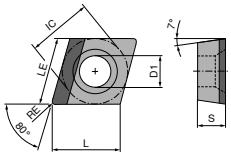
CCGW / CCGT

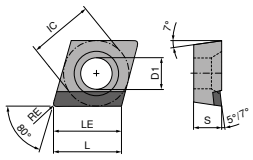
Designation	L	S	D1	IC
	mm	mm	mm	mm
CCG. 0602..	6,4	2,38	2,8	6,35
CCG. 09T3..	9,7	3,97	4,4	9,52
CCG. 1204..	12,9	4,76	5,5	12,70



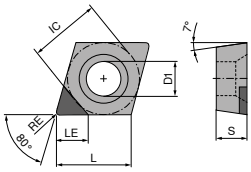
CCGT A



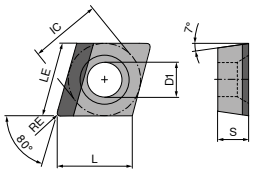
CCGT A LL



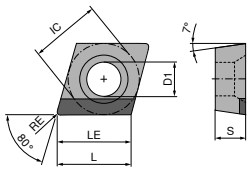
CCGT A RR



CCGW A



CCGW A LL



CCGW A RR

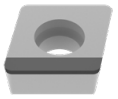
CCGW / CCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDMD05	CTDPD20	CTDPD20	-Q CTDPD20	-Q CTDPD20
				F	F	F	F	F
				DIAMOND CCGW	DIAMOND CCGW	DIAMOND CCGT	DIAMOND CCGW	DIAMOND CCGT
				71 120 ...	71 120 ...	71 124 ...	71 125 ...	71 126 ...
ISO	RE mm	TCE (NOI)	LE mm					
060201FN	0,1	A (1)	3,4					101
060201FN	0,1	A (1)	3,5			10100		
060202FN	0,2	A (1)	2,5	050				
060202FN	0,2	A (1)	3,3				102	102
060202FN	0,2	A (1)	3,4		100	100		
060204FN	0,4	A (1)	2,5	052				
060204FN	0,4	A (1)	3,1					104
060204FN	0,4	A (1)	3,2		102	102	104	
060208FN	0,8	A (1)	2,5	05300				
060208FN	0,8	A (1)	3,0		10300	10300		
09T301FN	0,1	A (1)	4,5				111	111
09T302FN	0,2	A (1)	4,4				112	112
09T302FN	0,2	A (1)	4,5		10500	10500		
09T304FN	0,4	A (1)	2,5	054				
09T304FN	0,4	A (1)	4,2				114	114
09T304FN	0,4	A (1)	4,3		104	104		
09T308FN	0,8	A (1)	2,5	056				
09T308FN	0,8	A (1)	4,1		106	106		
120402FN	0,2	A (1)	4,4				122	122
120404FN	0,4	A (1)	4,2				124	124
120404FN	0,4	A (1)	4,3		108	108		
120408FN	0,8	A (1)	4,1		110	110		
P								
M								
K								
N				●	●	●	●	●
S								
H								
O				●	●	●	●	●

CCGW / CCGT

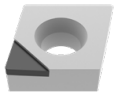
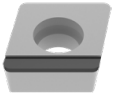
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDPD20	CTDPD20	-CB1 CTDPD20	-CB2 CTDPD20	-CB1 CTDPD20	-Q-CB2 CTDPD20
									
				F	F	F	M	F	M
				DIAMOND CCGW	DIAMOND CCGW	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT
				71 172 ...	71 172 ...	71 300 ...	71 168 ...	71 305 ...	71 169 ...
ISO	RE mm	TCE (NOI)	LE mm						
060202FN	0,2	A (1)	3,40			102			
060204FN	0,4	A (1)	3,10					104	
060204FN	0,4	A (1)	3,20			104	10001		
060204FRR	0,4	A (1)	6,45		10101				
060204FLL	0,4	A (1)	6,45	10001					
060208FN	0,8	A (1)	3,00			10600			
09T302FN	0,2	A (1)	4,40						10001
09T302FN	0,2	A (1)	4,50			112			
09T304FN	0,4	A (1)	4,20					114	10101
09T304FN	0,4	A (1)	4,30			114			
09T308FN	0,8	A (1)	4,10			118			
09T308FRR	0,8	A (1)	9,70		10301				
09T308FLL	0,8	A (1)	9,70	10201					
09T312FLL	1,2	A (1)	9,70	10401					
120404FN	0,4	A (1)	4,20					124	10201
120404FN	0,4	A (1)	4,30			124			
120408FN	0,8	A (1)	4,10			128			
120412FRR	1,2	A (1)	12,90		10601				
120412FLL	1,2	A (1)	12,90	10501					
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

9

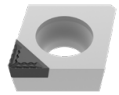
CCGT / CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDPS30	-Q CTDPS30	-Q CTDPS30	CTDPS30	CTDPS30	-CB2 CTDPS30
									
				F	F	F	F	F	M
				DIAMOND CCGT	DIAMOND CCGW	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT
				71 166 ...	71 125 ...	71 126 ...	71 170 ...	71 170 ...	71 301 ...
ISO	RE mm	TCE (NOI)	LE mm						
060201FN	0,1	A (1)	3,50	20001					
060202FN	0,2	A (1)	3,30		152	152			
060202FN	0,2	A (1)	3,40	20101					202
060204FN	0,4	A (1)	3,20						204
060204FRR	0,4	A (1)	6,45					20101	
060204FLL	0,4	A (1)	6,45				20001		
060208FN	0,8	A (1)	3,00						208
060208FRR	0,8	A (1)	6,45					20301	
060208FLL	0,8	A (1)	6,45				20201		
09T301FN	0,1	A (1)	4,50		16300				
09T302FN	0,2	A (1)	4,40		162	162			
09T302FN	0,2	A (1)	4,50	20201					212
09T304FN	0,4	A (1)	4,30						214
09T308FN	0,8	A (1)	4,10						218
09T308FRR	0,8	A (1)	9,70					20501	
09T308FLL	0,8	A (1)	9,70				20401		
120402FN	0,2	A (1)	4,40			172			
120404FN	0,4	A (1)	4,20			174			
120404FN	0,4	A (1)	4,30	20301					224
120408FN	0,8	A (1)	4,10						228
120412FRR	1,2	A (1)	12,90					20701	
120412FLL	1,2	A (1)	12,90				20601		
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

CCGT / CCGW

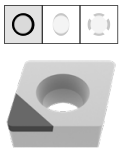
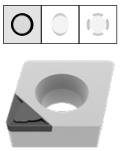
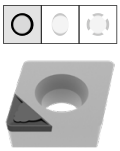
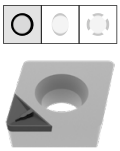
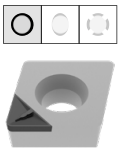
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				-Q-CB2 CTDPS30	CTDPU20	-CB3 CTDPU20	CTDPS30
							
				M	F	R	F
				DIAMOND CCGT	DIAMOND CCGW	DIAMOND CCGT	DIAMOND CCGW
				71 306 ...	71 171 ...	71 302 ...	71 171 ...
ISO	RE mm	TCE (NOI)	LE mm				
060201FN	0,1	A (1)	3,5				20001
060202FN	0,2	A (1)	3,3	202			
060202FN	0,2	A (1)	3,4				20101
060204FN	0,4	A (1)	3,1	204			
060204FN	0,4	A (1)	3,2			204	20201
09T302FN	0,2	A (1)	4,4	212			
09T302FN	0,2	A (1)	4,5				20301
09T304FN	0,4	A (1)	4,2	214			
09T304FN	0,4	A (1)	4,3		30001	214	20401
09T308FN	0,8	A (1)	4,1		30101	218	
120402FN	0,2	A (1)	4,4	222			
120404FN	0,4	A (1)	4,2	224			
120404FN	0,4	A (1)	4,3				20501
P							
M							
K							
N				●	●	●	●
S							
H							
O				●	●	●	●

9

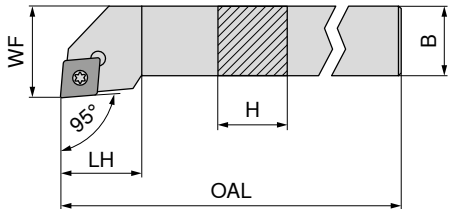
CCGW / CCGT

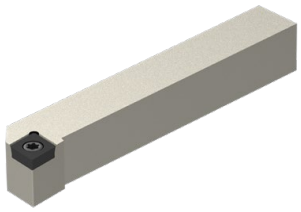
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDCD10	-CB1 CTDCD10	-Q-CB1 CTDCD10	-CB2 CTDCD10	-Q-CB2 CTDCD10
								
				F	F	F	M	M
				DIAMOND CCGW	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT
				71 171 ...	71 300 ...	71 167 ...	71 301 ...	71 306 ...
ISO	RE mm	TCE (NOI)	LE mm					
060202FN	0,2	A (1)	2,3			40001		
060202FN	0,2	A (1)	2,4	40001	302		30200	
060204FN	0,4	A (1)	2,1			40101		304
060204FN	0,4	A (1)	2,2	40101	304		304	
060208FN	0,8	A (1)	2,0		30600			
09T302FN	0,2	A (1)	2,3					31200
09T302FN	0,2	A (1)	2,4	40201			31200	
09T304FN	0,4	A (1)	2,1			40201		314
09T304FN	0,4	A (1)	2,2	40301	314		314	
09T308FN	0,8	A (1)	2,0	40401			31600	
120404FN	0,4	A (1)	2,1			40301		324
120404FN	0,4	A (1)	2,2				32600	
120408FN	0,8	A (1)	2,0	40501				
120408FN	0,8	A (1)	2,1				328	
P								
M								
K								
N				●	●	●	●	●
S								
H								
O				●	●	●	●	●

MaxiLock-S – SCLC 95° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key





Illustrations show right-hand versions

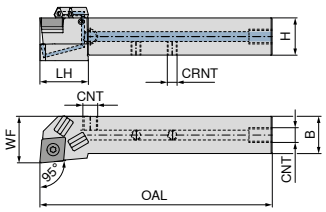
								NEW Left-hand		NEW Right-hand	
								70 636 ...		70 636 ...	
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert				
SCLC R/L 0808 D06	8	8	60	9	10	1,2	CC.. 0602	**00800**		**00801**	
SCLC R/L 1010 E06	10	10	70	9	12	1,2	CC.. 0602	**01000**		**01001**	
SCLC R/L 1212 F09	12	12	80	15	16	3,2	CC.. 09T3	**01200**		**01201**	
SCLC R/L 1616 H09	16	16	100	17	20	3,2	CC.. 09T3	**01600**		**01601**	
SCLC R/L 2020 K09	20	20	125	17	25	3,2	CC.. 09T3	**02000**		**02001**	
SCLC R/L 1616 H12	16	16	100	20	20	5	CC.. 1204	**11600**		**11601**	
SCLC R/L 2020 K12	20	20	125	20	25	5	CC.. 1204	**12000**		**12001**	
SCLC R/L 2525 M12	25	25	150	20	32	5	CC.. 1204	**12500**		**12501**	
SCLC R/L 3225 P12	32	25	170	20	32	5	CC.. 1204	**13200**		**13201**	

	Key D	Clamping screw	Carbide type C	Threaded sleeve
	80 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.				
70 636 00800 / 70 636 00801	**039**	**857**		
70 636 01000 / 70 636 01001	**039**	**857**		
70 636 01200 / 70 636 01201	**120**	**87900**		
70 636 01600 / 70 636 01601	**120**	**87900**		
70 636 02000 / 70 636 02001	**120**	**87900**		
70 636 11600 / 70 636 11601	**120**	**820**	**166**	**170**
70 636 12000 / 70 636 12001	**120**	**820**	**166**	**170**
70 636 12500 / 70 636 12501	**120**	**820**	**166**	**170**
70 636 13200 / 70 636 13201	**120**	**820**	**166**	**170**

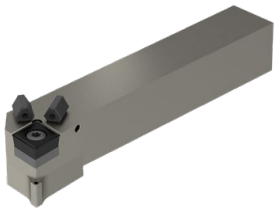
MaxiLock-S – SCLC 95° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key



Illustrations show right-hand versions



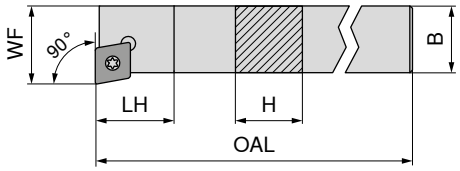
										NEW		NEW	
										Left-hand		Right-hand	
										70 770 ...		70 770 ...	
ISO designation	H	B	OAL	LH	WF	CRNT	CNT	torque moment	Insert				
	mm	mm	mm	mm	mm			Nm					
SCLC R/L 1010 E06 DC	10	10	70	14	12	M6	M6	1,2	CC.. 0602		**01001**		**01000**
SCLC R/L 1212 F09 DC	12	12	80	19	16	M6	M6	3,2	CC.. 09T3		**01201**		**01200**
SCLC R/L 1616 H09 DC	16	16	100	26	20	M6	G1/8"	3,2	CC.. 09T3		**11601**		**01600**
SCLC R/L 2020 K09 DC	20	20	125	28	25	M6	G1/8"	3,2	CC.. 09T3		**12001**		**02000**
SCLC R/L 1616 H12 DC	16	16	100	28	20	M6	G1/8"	5	CC.. 1204		**01601**		**11600**
SCLC R/L 2020 K12 DC	20	20	125	26	25	M6	G1/8"	5	CC.. 1204		**02001**		**12000**
SCLC R/L 2525 M12 DC	25	25	150	28	30	M6	G1/8"	5	CC.. 1204		**02501**		**02500**
SCLC R/L 3225 P12 DC	32	25	170	26	32	G1/8"	G1/8"	5	CC.. 1204		**03201**		**03200**

	Clamping screw	Carbide type C	Grubscrew	Grubscrew	Threaded sleeve
	70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
70 770 01000 / 70 770 01001	**857**			**86700**	
70 770 01200 / 70 770 01201	**859**			**86700**	
70 770 01600 / 70 770 11601	**87900**	**165**	**88000**	**86700**	**171**
70 770 02000 / 70 770 12001	**87900**	**165**	**88000**	**86700**	**171**
70 770 11600 / 70 770 01601	**820**	**166**	**88000**	**86700**	**170**
70 770 12000 / 70 770 02001	**820**	**166**	**88000**	**86700**	**170**
70 770 02500 / 70 770 02501	**820**	**166**	**88000**	**86700**	**170**
70 770 03200 / 70 770 03201	**820**	**166**	**88000**		**170**

	Sealing plugs DC	Key D	O-Ring	Coolant nozzle DC	Coolant screw plug
	70 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
70 770 01000 / 70 770 01001		**039**			
70 770 01200 / 70 770 01201		**120**			
70 770 01600 / 70 770 11601	**87600**	**120**	**88100**	**87700**	**294**
70 770 02000 / 70 770 12001	**87600**	**120**	**88100**	**87700**	**294**
70 770 11600 / 70 770 01601	**87600**	**120**	**88100**	**87700**	**294**
70 770 12000 / 70 770 02001	**87600**	**120**	**88100**	**87700**	**294**
70 770 02500 / 70 770 02501	**87600**	**120**	**88100**	**87700**	**294**
70 770 03200 / 70 770 03201	**87600**	**120**	**88100**	**87700**	**294**

MaxiLock-S – SCFC 90° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 761 ...	Right-hand 70 760 ...
SCFC R 0808 D06	8	8	60	10	10	1,2	CC.. 0602		**008**
SCFC R 1010 E06	10	10	70	10	12	1,2	CC.. 0602		**010**
SCFC R 1212 F09	12	12	80	13	16	3,2	CC.. 09T3		**012**
SCFC R 1616 H09	16	16	100	13	20	3,2	CC.. 09T3		**016**
SCFC R/L 2020 K12	20	20	125	17	25	5	CC.. 1204	**02000**[1]	**020**

1) nickel-plated

Spare parts for Article no.	Key D 80 950 ...	Combination Key 70 950 ...	Clamping screw 70 950 ...	Carbide type C 70 950 ...	Threaded sleeve 70 950 ...
70 760 008	**110**		**13800**		
70 760 010	**110**		**13800**		
70 760 012	**113**		**113**		
70 760 016		**398**	**113**	**165**	**171**
70 760 020 / 70 761 02000		**398**	**114**	**166**	**170**

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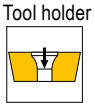
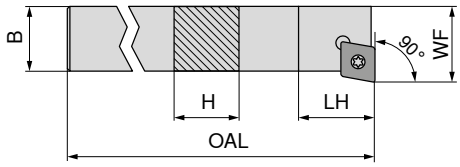
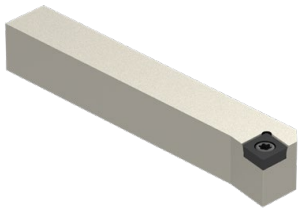
MaxiLock-S – SCFC 90° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key







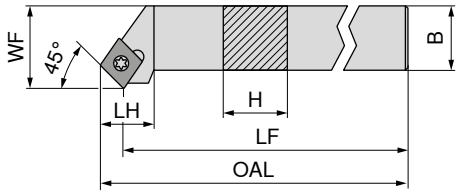
NEW

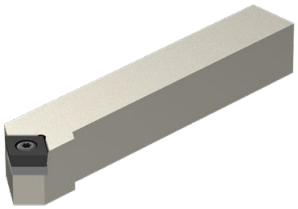
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 635 ...
SCFC L 0808 D06	8	8	60	10	10	1,2	CC.. 0602	**00800**
SCFC L 1010 E06	10	10	70	10	12	1,2	CC.. 0602	**01000**
SCFC L 1212 F09	12	12	80	13	16	3,2	CC.. 09T3	**01200**
SCFC L 1616 H09	16	16	100	13	20	3,2	CC.. 09T3	**01600**

for Article no.	Key D 80 950 ...	Clamping screw 70 950 ...
70 635 00800	**039**	**857**
70 635 01000	**039**	**857**
70 635 01200	**120**	**87900**
70 635 01600	**120**	**87900**

MaxiLock-S – SCSC 45° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key





Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	NEW Left-hand 70 638 ...	NEW Right-hand 70 638 ...
	mm	mm	mm	mm	mm	Nm			
SCSC R 1616 H12	16	16	100	20	20	5	CC.. 1204		**01601**
SCSC R/L 2020 K12	20	20	125	20	25	5	CC.. 1204	**02000**	**02001**
SCSC R/L 2525 M12	25	25	150	20	32	5	CC.. 1204	**02500**	**02501**

Key D

Clamping screw

Carbide type C

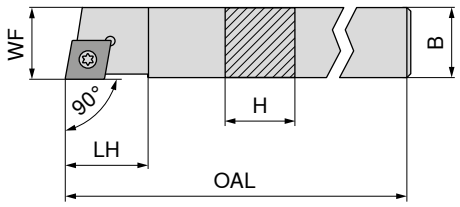
Threaded sleeve

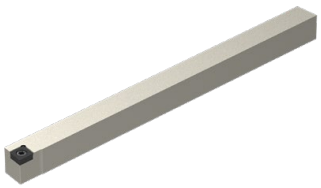
Spare parts for Article no.		80 950 ...		70 950 ...		70 950 ...		70 950 ...
70 638 01601	T15 - IP	**120**	M4,5x12 - IP	**820**		**166**	M4,5	**170**
70 638 02001 / 70 638 02000	T15 - IP	**120**	M4,5x12 - IP	**820**		**166**	M4,5	**170**
70 638 02501 / 70 638 02500	T15 - IP	**120**	M4,5x12 - IP	**820**		**166**	M4,5	**170**

MaxiLock-S – SCAC 90° – Toolholder with screw clamping

▲ for sliding head lathes

Scope of supply:
Tool holder with Torx key





Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	NEW Left-hand 70 633 ...	NEW Right-hand 70 633 ...
	mm	mm	mm	mm	mm	Nm			
SCAC R/L 0808 K06	8	8	125	9	8	1,2	CC.. 0602	**10800**	**10801**
SCAC R/L 0808 D06	8	8	60	9	8	1,2	CC.. 0602	**00800**	**00801**
SCAC R/L 1010 E06	10	10	70	9	10	1,2	CC.. 0602	**01000**	**01001**
SCAC R/L 1010 M06	10	10	150	9	10	1,2	CC.. 0602	**11000**	**11001**
SCAC R/L 1212 F09	12	12	80	13	12	3,2	CC.. 09T3	**01200**	**01201**
SCAC R/L 1212 M09	12	12	150	13	12	3,2	CC.. 09T3	**11200**	**11201**
SCAC R/L 1616 H09	16	16	100	13	16	3,2	CC.. 09T3	**11600**	**11601**
SCAC R/L 2020 K12	20	20	125	17	20	5	CC.. 1204	**12000**	**12001**

Key D

Clamping screw

Carbide type C

Threaded sleeve

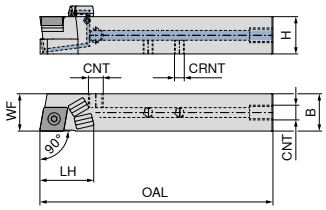
Spare parts for Article no.	80 950 ...		70 950 ...		70 950 ...		70 950 ...
70 633 10801 / 70 633 10800	**039**		**857**				
70 633 00801 / 70 633 00800	**039**		**857**				
70 633 01001 / 70 633 01000	**039**		**857**				
70 633 11001 / 70 633 11000	**039**		**857**				
70 633 01201 / 70 633 01200	**120**		**87900**				
70 633 11201 / 70 633 11200	**120**		**87900**				
70 633 11601 / 70 633 11600	**120**		**87900**				
70 633 12001 / 70 633 12000	**120**		**820**		**166**		**170**

MaxiLock-S – SCAC 90° DC – Tool holder with screw clamping

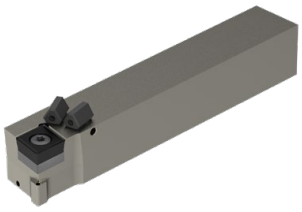
▲ for sliding head lathes

Scope of supply:

Tool holder with blind plug and Torx key



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	NEW Left-hand 70 766 ...	NEW Right-hand 70 766 ...
SCAC R/L 1212 M09 DC	12	12	150	21	12	M6	M6	3,2	CC.. 09T3	**11201**	**11200**
SCAC R/L 1212 F09 DC	12	12	80	22	12	M6	M6	3,2	CC.. 09T3	**01201**	**01200**
SCAC R/L 1616 H09 DC	16	16	100	30	16	M6	G1/8"	3,2	CC.. 09T3	**01601**	**01600**
SCAC R/L 2020 K12 DC	20	20	125	30	20	M6	G1/8"	5	CC.. 1204	**02001**	**02000**

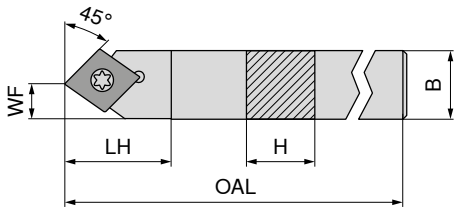
Spare parts for Article no.	Clamping screw 70 950 ...	Carbide type C 70 950 ...	Grubscrew 70 950 ...	Grubscrew 70 950 ...	Threaded sleeve 70 950 ...
70 766 11200 / 70 766 11201	**859**			**86700**	
70 766 01200 / 70 766 01201	**859**			**86700**	
70 766 01600 / 70 766 01601	**87900**	**165**	**88000**	**86700**	**171**
70 766 02000 / 70 766 02001	**820**	**166**	**88000**	**86700**	**170**

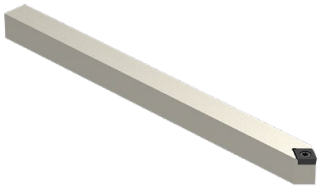
Spare parts for Article no.	Sealing plugs DC 70 950 ...	Key D 80 950 ...	O-Ring 70 950 ...	Coolant nozzle DC 70 950 ...	Coolant screw plug 70 950 ...
70 766 11200 / 70 766 11201		**120**			
70 766 01200 / 70 766 01201		**120**			
70 766 01600 / 70 766 01601	**87600**	**120**	**88100**	**87700**	**294**
70 766 02000 / 70 766 02001	**87600**	**120**	**88100**	**87700**	**294**

9

MaxiLock-S – SCDC 45° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key





NEW
Left-hand

70 634 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	
SCDC L 0808 K06	8	8	125	13	4	1,2	CC.. 0602	**00800**
SCDC L 1010 M06	10	10	150	13	5	1,2	CC.. 0602	**01000**
SCDC L 1212 M09	12	12	150	18	6	3,2	CC.. 09T3	**01200**
SCDC L 1414 M09	14	14	150	18	7	3,2	CC.. 09T3	**01400**

Key D

80 950 ...

Clamping screw

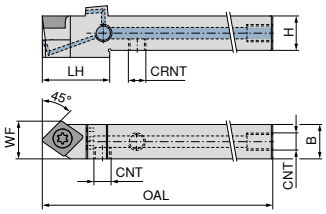
70 950 ...

Spare parts for Article no.				
70 634 00800	T08 - IP	**039**	M2,5x6 - IP	**857**
70 634 01000	T08 - IP	**039**	M2,5x6 - IP	**857**
70 634 01200	T15 - IP	**120**	M3,5x11	**87900**
70 634 01400	T15 - IP	**120**	M3,5x11	**87900**

MaxiLock-S – SCDC 45° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key



NEW

Left-hand

70 767 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	
SCDC L 0808 K06 DC	8	8	125	17	8,5	M5	M5	1,2	CC.. 0602	**00801**
SCDC L 1010 M06 DC	10	10	150	17	10,0	M6	M6	1,2	CC.. 0602	**01001**
SCDC L 1212 M09 DC	12	12	150	23	13,0	M6	M6	3,2	CC.. 09T3	**01201**
SCDC L 1414 M09 DC	14	14	150	25	14,0	M6	G1/8"	3,2	CC.. 09T3	**01401**

Coolant screw plug

70 950 ...

Clamping screw

70 950 ...

Grubscrew

70 950 ...

Spare parts for Article no.					
70 767 00801			M2,5x6 - T08	**13800**	
70 767 01001			M2,5x6 - T08	**13800**	M6x6 **86700**
70 767 01201			M3,5x11	**113**	M6x6 **86700**
70 767 01401	G 1/8"	**294**	M3,5x11	**113**	M6x6 **86700**

Cylindrical screw

83 950 ...

Key D

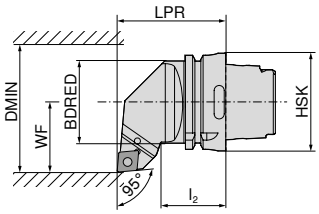
80 950 ...

Spare parts for Article no.			
70 767 00801	M5x5 - SW2,5	**157**	T08 - IP **039**
70 767 01001			T08 - IP **039**
70 767 01201			T15 - IP **120**
70 767 01401			T15 - IP **120**

9

MaxiLock-S – SCLC 95° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

	Left-hand	Right-hand
	74 541 ...	**74 540 ...**

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert		
HSK T63 SCLC R/L 12	HSK-T 63	70	42	53	45	100	5	CC.. 1204	**512**	**512**

Combination Key

Clamping screw

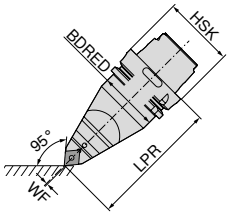
Carbide type C

Threaded sleeve

			70 950 ...		**70 950 ...**	**70 950 ...**		**70 950 ...**	
Spare parts for Article no.									
74 540 512 / 74 541 512	T15/SW	**398**		M4,5x12	**114**	**166**	M4,5		**170**

MaxiLock-S – SCMC 50° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key



	Neutral
	74 542 ...

ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	
HSK T63 SCMC N 12	HSK-T 63	115	53	0	5	CC.. 1204	**512**

Combination Key

Clamping screw

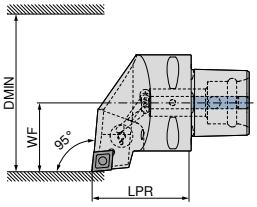
Carbide type C

Threaded sleeve

			70 950 ...		**70 950 ...**	**70 950 ...**		**70 950 ...**	
Spare parts for Article no.									
74 542 512	T15/SW	**398**		M4,5x12	**114**	**166**	M4,5		**170**

MaxiLock-S – SCLC 95° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	Left-hand 84 655 ...	Right-hand 84 654 ...
PSC40 SCLC R/L 50050-12	PSC 40	50	27	50	5	CC.. 1204	DC	**01295**	**01295**
PSC50 SCLC R/L 65060-12	PSC 50	60	35	65	5	CC.. 1204	DC	**01294**	**01294**
PSC63 SCLC R/L 80065-12	PSC 63	65	45	80	5	CC.. 1204	DC	**01293**	**01293**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**

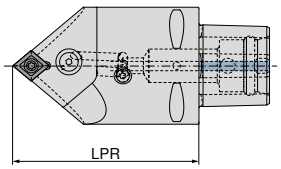
Clamping screw
84 950 ...

Spare parts for Article no.	
84 654 01295 / 84 655 01295	**27500**
84 654 01294 / 84 655 01294	**27500**
84 654 01293 / 84 655 01293	**27500**

9

MaxiLock-S – SCMC 50° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set



Neutral
84 674 ...

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	
PSC63 SCMC N 0100-12	PSC 63	100	5	CC.. 1204	DC	**01293**
PSC63 SCMC N 0130-12	PSC 63	130	5	CC.. 1204	DC	**11293**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**

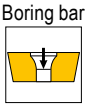
Clamping screw
84 950 ...

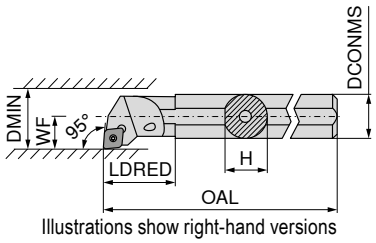
Spare parts for Article no.	
84 674 01293	**27500**
84 674 11293	**27500**

MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions

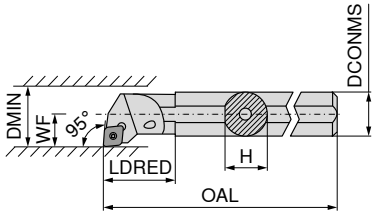
	Left-hand	Right-hand
	70 717 ...	**70 716 ...**

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert				
S08H SCLC R/L 06	8	7,2	100	11,0	5	11	1,2	CC.. 0602		**008**		**008**
A08F SCLC R/L 06	8	7,6	80	17,0	5	11	1,2	CC.. 0602		**208**		**208**
S10K SCLC R/L 06	10	9,0	125	15,0	7	13	1,2	CC.. 0602		**010**		**010**
A10H SCLC R/L 06	10	9,5	100	19,0	7	13	1,2	CC.. 0602		**210**		**210**
S12Q SCLC R/L 06	12	11,0	180	18,8	9	16	1,2	CC.. 0602		**012**		**012**
A12K SCLC R/L 06	12	11,5	125	22,0	9	16	1,2	CC.. 0602		**212**		**212**
A16M SCLC R/L 06	16	14,0	150	50,0	9	18	1,2	CC.. 0602		**116**		**116**
S16R SCLC R/L 09	16	14,5	200	25,0	11	20	3,2	CC.. 09T3		**016**		**016**
A16M SCLC R/L 09	16	15,0	150	29,0	11	20	3,2	CC.. 09T3		**216**		**216**
S20S SCLC R/L 09	20	18,0	250	25,0	13	25	3,2	CC.. 09T3		**020**		**020**
A20Q SCLC R/L 09	20	18,5	180	32,0	13	25	3,2	CC.. 09T3		**220**		**220**
S25T SCLC R/L 09	25	23,0	300	20,0	17	32	3,2	CC.. 09T3		**025**		**025**
A25R SCLC R/L 09	25	23,0	200	36,0	17	32	3,2	CC.. 09T3		**225**		**225**
A32S SCLC R/L 12	32	30,0	250	50,0	22	40	5	CC.. 1204		**232**		**232**
A40T SCLC R/L 12	40	38,0	300	60,0	27	50	5	CC.. 1204		**240**		**240**

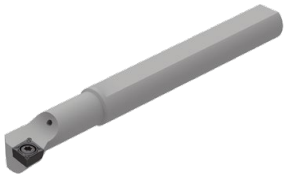
	Key D	Combination Key	Clamping screw	Carbide type C	Threaded sleeve
	80 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
70 716 008 / 70 717 008	**110**		**116**		
70 716 208 / 70 717 208	**110**		**116**		
70 716 010 / 70 717 010	**110**		**116**		
70 716 210 / 70 717 210	**110**		**116**		
70 716 012 / 70 717 012	**110**		**116**		
70 716 212 / 70 717 212	**110**		**116**		
70 716 116 / 70 717 116	**110**		**116**		
70 716 016 / 70 717 016	**113**		**110**		
70 716 216 / 70 717 216	**113**		**110**		
70 716 020 / 70 717 020	**113**		**110**		
70 716 220 / 70 717 220	**113**		**304**		
70 716 025 / 70 717 025	**113**		**113**		
70 716 225 / 70 717 225	**113**		**304**		
70 716 232 / 70 717 232		**398**	**114**	**166**	**170**
70 716 240 / 70 717 240		**398**	**114**	**166**	**170**

MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 719 ...	Right-hand 70 718 ...
E-A08F SCLC R/L 06	8	7,5	80	20,60	6	12	1,2	CC.. 0602	**208**	**208**
E-A10H SCLC R/L 06	10	9,0	100	31,75	7	14	1,2	CC.. 0602	**210**	**210**
E-A12K SCLC R/L 06	12	11,0	125	20,00	9	18	1,2	CC.. 0602	**212**	**212**
E-A16M SCLC R/L 09	16	15,0	150	45,30	11	22	3,2	CC.. 09T3	**216**	**216**
E-A20Q SCLC R/L 09	20	18,0	180	38,00	13	26	3,2	CC.. 09T3	**220**	**220**
E-A25R SCLC R/L 09	25	23,0	200	40,25	17	34	3,2	CC.. 09T3	**225**	**225**
E-A32S SCLC R/L 12	32	30,0	250	50,25	22	39	5	CC.. 1204	**232**	**232**

Key D

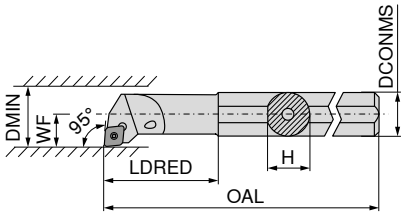
Clamping screw

Spare parts for Article no.		Key D 80 950 ...		Clamping screw 70 950 ...	
70 718 208 / 70 719 208	T08	**110**	M2,5x5	**116**
70 718 210 / 70 719 210	T08	**110**	M2,5x5	**116**
70 718 212 / 70 719 212	T08	**110**	M2,5x5	**116**
70 718 216 / 70 719 216	T15	**113**	M4x9,5	**449**
70 718 220 / 70 719 220	T15	**113**	M4x9,5	**449**
70 718 225 / 70 719 225	T15	**113**	M4x9,5	**449**
70 718 232 / 70 719 232	T15	**113**	M4x11	**174**

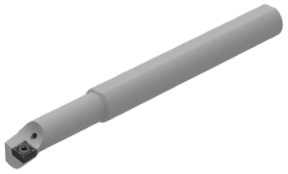
9

MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 719 ...	Right-hand 70 718 ...
E-A0608F SCLC R/L 06	8	7,5	100	25	4	8	1,2	CC.. 0602	**308**	**308**
E-A0810H SCLC R/L 06	10	9,0	110	32	6	12	1,2	CC.. 0602	**310**	**310**
E-A1012K SCLC R/L 06	12	11,0	125	38	7	14	1,2	CC.. 0602	**312**	**312**
E-A1216M SCLC R/L 06	16	15,0	150	50	9	18	1,2	CC.. 0602	**316**	**316**

Key D **80 950 ...**

Clamping screw **70 950 ...**

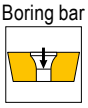
Spare parts for Article no.				
70 718 308 / 70 719 308	T08	**110**	M2,5x5	**116**
70 718 310 / 70 719 310	T08	**110**	M2,5x5	**116**
70 718 312 / 70 719 312	T08	**110**	M2,5x5	**116**
70 718 316 / 70 719 316	T08	**110**	M2,5x5	**116**

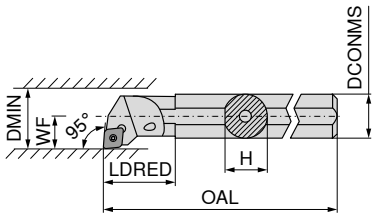
MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ Type: Solid carbide

Scope of supply:

Boring bar with Torx key





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 719 ...	Right-hand 70 718 ...
E08H SCLC R/L 06	8	7,6	100	20	6	11	1,2	CC.. 0602	**008**	**008**
E10K SCLC R/L 06	10	9,0	125	22	7	13	1,2	CC.. 0602	**010**	**010**
E12Q SCLC R/L 06	12	11,5	180	26	9	16	1,2	CC.. 0602	**012**	**012**
E16R SCLC R/L 09	16	15,0	200	34	11	20	3,2	CC.. 09T3	**016**	**016**
E20S SCLC R/L 09	20	18,5	250	38	13	25	3,2	CC.. 09T3	**020**	**020**
E25T SCLC R/L 09	25	23,0	300	43	17	32	3,2	CC.. 09T3	**025**	**025**

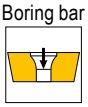
Key D **80 950 ...**

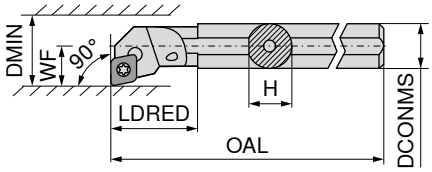
Clamping screw **70 950 ...**

Spare parts for Article no.				
70 719 008 / 70 718 008	T08	**110**	M2,5x5	**116**
70 719 010 / 70 718 010	T08	**110**	M2,5x5	**116**
70 719 012 / 70 718 012	T08	**110**	M2,5x5	**116**
70 719 016 / 70 718 016	T15	**113**	M3,5x7,2	**110**
70 719 020 / 70 718 020	T15	**113**	M3,5x8,6	**304**
70 719 025 / 70 718 025	T15	**113**	M3,5x11	**113**

MaxiLock-S – SCFC 90° – Boring bar with screw clamping

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions

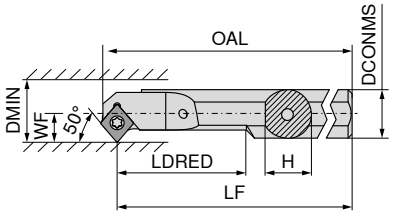
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 793 ...	Right-hand 70 792 ...
A08F SCFC R/L 06	8	7,6	80	17	5	11	1,2	CC.. 0602	**208**	**208**
A10H SCFC R/L 06	10	9,5	100	19	7	13	1,2	CC.. 0602	**210**	**210**
A12K SCFC R/L 06	12	11,5	125	22	9	16	1,2	CC.. 0602	**212**	**212**

Key D

Clamping screw

Spare parts for Article no.		80 950 ...		70 950 ...
70 792 208 / 70 793 208	T08	**110**	M2,5x5	**116**
70 792 210 / 70 793 210	T08	**110**	M2,5x5	**116**
70 792 212 / 70 793 212	T08	**110**	M2,5x5	**116**

MaxiLock-S – SCMC 50° – Boring bar with screw clamping



Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LF mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 723 ...	Right-hand 70 722 ...
A08H SCMC R/L 06	8	7	104,15	100	20	5,5	10,5	1,2	CC.. 0602	**208**	**208**
A10H SCMC R/L 06	10	9	114,15	110	26	6,0	11,0	1,2	CC.. 0602	**210**	**210**
A12K SCMC R/L 06	12	11	129,15	125	32	7,0	13,0	1,2	CC.. 0602	**212**	**212**
A16M SCMC R/L 06	16	15	154,15	150	40	9,0	16,0	1,2	CC.. 0602	**216**	**216**

Key D

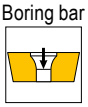
Clamping screw

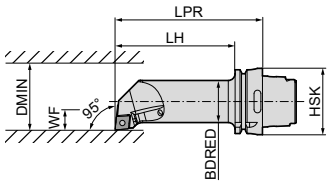
Spare parts for Article no.		80 950 ...		70 950 ...
70 723 208 / 70 722 208	T08	**110**	M2,5x5	**116**
70 723 210 / 70 722 210	T08	**110**	M2,5x5	**116**
70 723 212 / 70 722 212	T08	**110**	M2,5x5	**116**
70 723 216 / 70 722 216	T08	**110**	M2,5x5	**116**

9

MaxiLock-S – SCLC 95° – Boring bar with screw clamping

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 564 ...	Right-hand 74 563 ...
HSK T63 40L SCLC R/L 12	HSK-T 63	140	114	40	27	50	5	CC.. 1204	**512**	**512**

Combination Key **70 950 ...**

Clamping screw **70 950 ...**

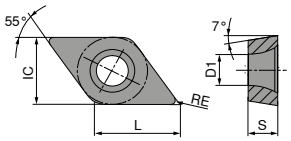
Carbide type C **70 950 ...**

Threaded sleeve **70 950 ...**

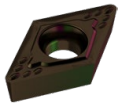
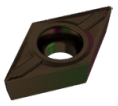
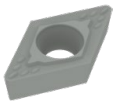
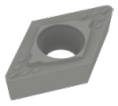
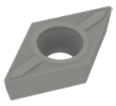
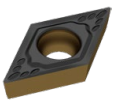
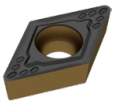
Spare parts for Article no.					
74 563 512 / 74 564 512	T15/SW	**398**	M4,5x12	**114**	**166**	M4,5	**170**

DCGT / DCMT / DCET

Designation	L	S	D1	IC
	mm	mm	mm	mm
DC.T 0702..	7,75	2,38	2,8	6,35
DC.T 11T3..	11,60	3,97	4,4	9,52



DCGT / DCMT

		-CF05 CTEP110	-CF55 CTEP110	-SF TCM407	-SF TCM10	-SMF TCM10	NEW -SF CTCP125-P	NEW -SF CTCP115-P
		DRAGONSKIN	DRAGONSKIN				DRAGONSKIN	DRAGONSKIN
								
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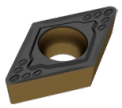
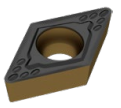
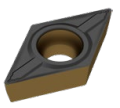
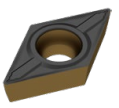
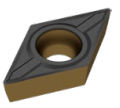
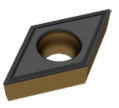
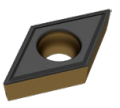
		76 245 ...	76 246 ...	70 257 ...	70 257 ...	70 265 ...	76 257 ...	76 259 ...
ISO	RE mm							
070201EN	0,1				898			
070202EN	0,2	002	002		900	898	50201	
070204EN	0,4	004	004	852	902	900		30401
11T302EN	0,2	014		854	904			
11T304EN	0,4	016	016	856	906	904		31601
11T308EN	0,8	018	018	858	908	906		31801
P		●	●	●	●	●	●	●
M		○	○	○	○	○		
K		○	○	○	○	○	○	○
N								
S								
H								
O								

9

DCMT / DCGT

	NEW	NEW	NEW	NEW	NEW	NEW	NEW
	-SF CTCP125-P	-SF CTCP135-P	-SMF CTCP115-P	-SMF CTCP125-P	-SMF CTCP135-P	-SM CTCP125-P	-SM CTCP135-P
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
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	DCMT	DCMT	DCMT	DCMT	DCMT	DCGT	DCGT
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ISO / RE mm							
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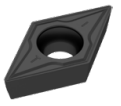
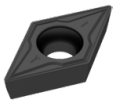
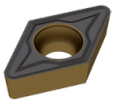
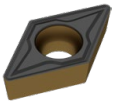
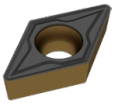
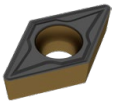
070204EN 0,4	50401	70401		50401	70401		
070208EN 0,8					70601		
11T304EN 0,4	51601	71601	31601	51601	71601		
11T308EN 0,8	51801	71801	31801	51801	71801		
P	●	●	●	●	●	●	●
M		○			○		○
K	○		○	○		○	
N							
S							
H							
O							

DCMT

			NEW	NEW	NEW	NEW
	-SM CTCK110	-SM CTCK120	-SM CTCP115-P	-SM CTCP115-P	-SM CTCP125-P	-SM CTCP135-P
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
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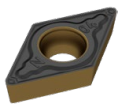
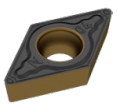
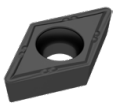
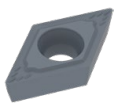
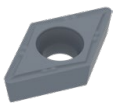
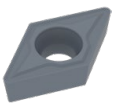
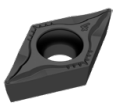
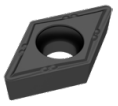
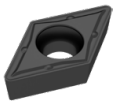
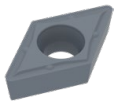
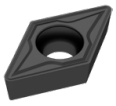
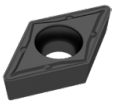
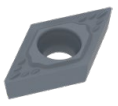
	DCMT	DCMT	DCMT	DCMT	DCMT	DCMT
	70 258 ...	70 258 ...	76 183 ...	76 258 ...	76 258 ...	76 258 ...
ISO / RE mm						
070204EN 0,4	004	554		30401	50401	70401
070208EN 0,8	006	506		30601	50601	70601
11T304EN 0,4	016	516		31601	51601	71601
11T308EN 0,8	018	518		31801	51801	71801
11T312EN 1,2			32001		52001	
P	○	○	●	●	●	●
M						○
K	●	●	○	○	○	
N						
S						
H						
O						

DCMT

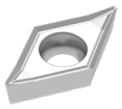
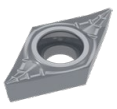
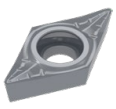
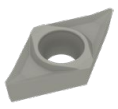
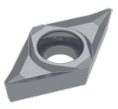
		NEW	NEW		NEW		NEW	NEW
		-SMQ CTCP115-P	-SMQ CTCP125-P	-M25 CTCM120	-SF CTPM125	-M25 CTPM125	-SM CTPM125	-F43 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	F	F	F	M	F
		DCMT	DCMT	DCMT	DCMT	DCMT	DCMT	DCMT
		76 195 ...	76 195 ...	75 213 ...	75 044 ...	75 213 ...	75 048 ...	75 032 ...
ISO	RE mm							
070202EN	0,2			10200		202		30200
070204EN	0,4	30401	50401	10400	20400	204		30400
11T302EN	0,2			11400		214		31400
11T304EL	0,4	31601	51601					
11T304EN	0,4	31501	51501	11600	21600	216		31600
11T304ER	0,4	31701	51701					
11T308EN	0,8	31801	51801	11800	21800	218	21800	31800
P		●	●	○	○	○	○	○
M				●	●	●	●	●
K		○	○					
N								
S								○
H								
O								

9

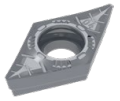
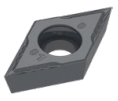
DCMT / DCGT

					NEW		NEW
		-M25 CTCM130	-M55 CTCM120	-M55 CTPM125	-SM CTCM130	-M55 CTCM130	-SF CTPM125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		F	M	M	M	M	F
		DCMT	DCMT	DCMT	DCMT	DCMT	DCGT
		75 213 ...	75 214 ...	75 214 ...	75 048 ...	75 214 ...	75 043 ...
ISO	RE mm						
070202EN	0,2	30200					20200
070204EN	0,4	30400	10400	204	30400	30400	
070208EN	0,8		10600	206	30600	30600	
11T302EN	0,2	31400					
11T304EN	0,4	31600	11600	216	31600	31600	
11T308EN	0,8	31800	11800	218	31800	31800	
P		○	○	○	○	○	○
M		●	●	●	●	●	●
K							
N							
S		○			○	○	
H							
O							

DCGT

	-23P H216T	-25P H210T	-25P CTPX710 DRAGONSKIN	-25Q H210T	-25Q CTPX710 DRAGONSKIN	-27 H10T	-27 CTPX715 DRAGONSKIN
							
	F	F	M	M	M	M	M
	DCGT	DCGT	DCGT	DCGT	DCGT	DCGT	DCGT
	70 261 ...	70 263 ...	70 263 ...	70 263 ...	70 263 ...	70 260 ...	70 260 ...
ISO	RE mm						
070202FN	0,2		632	70200		600	80200
070204FN	0,4	654	634	70400		602	80400
11T302FN	0,2		635	71400		604	81400
11T304FN	0,4	664	636	71600	660 / 75600	606	81600
11T304FL	0,4				670 / 75700		
11T304FR	0,4				680 / 75800		
11T308FN	0,8	666	638	71800	662 / 76000	608	81800
11T308FL	0,8				672		
11T308FR	0,8				682		
P			●		●		●
M			●		●		●
K		○	○		○	○	○
N		●	●	●	●	●	●
S		○	●	○	●		●
H							
O		○	○		○	○	○

DCMT / DCET

		NEW		
		-29 H216T	-29 CTPX715	-F05 CTPX710
			DRAGONSKIN	DRAGONSKIN
				
		M	M	F
		DCMT	DCMT	DCET
		70 246 ...	70 246 ...	76 254 ...
ISO	RE mm			
0702005FN	0,05			10200
070201FN	0,10			10400
0702015FN	0,15			10600
070202FN	0,20			10800
070204EN	0,40	60400	70400	
11T3005FN	0,05			11400
11T301FN	0,10			11600
11T3015FN	0,15			11800
11T302FN	0,20			12000
11T304EN	0,40	61600	71600	
11T304FN	0,40			12200
11T308EN	0,80	61800	71800	
P			●	●
M			●	●
K		○	○	
N		●	●	●
S			●	●
H				
O		○	○	

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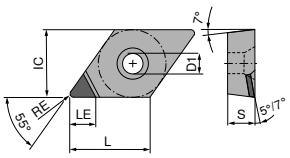
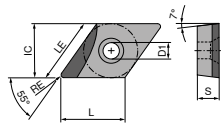
DCGW / DCGT

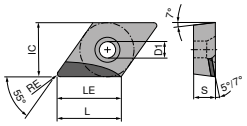
Designation	L	S	D1	IC
	mm	mm	mm	mm
DCG. 0702..	7,75	2,38	2,8	6,35
DCG. 11T3..	11,60	3,97	4,4	9,52



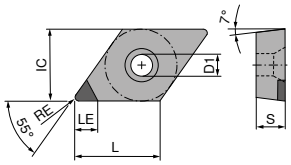
DCGT A



DCGT A L



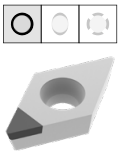
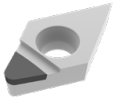
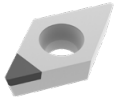
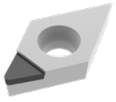
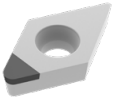
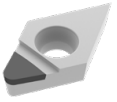
DCGT A R



DCGW A

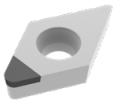
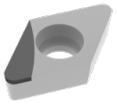
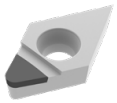
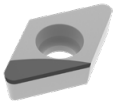
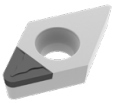
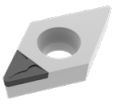
DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDMD05	CTDMD05	-Q CTDMD05	-Q CTDMD05	CTDPD20	CTDPD20
									
				F	F	F	F	F	F
				DIAMOND DCGW	DIAMOND DCGT	DIAMOND DCGW	DIAMOND DCGT	DIAMOND DCGW	DIAMOND DCGT
				71 130 ...	71 134 ...	71 178 ...	71 176 ...	71 130 ...	71 134 ...
ISO	RE mm	TCE (NOI)	LE mm						
070202FN	0,2	A (1)	2,5	00200	050				
070202FN	0,2	A (1)	3,7					100	100
070204FN	0,4	A (1)	2,5	00400	052				
070204FR	0,4	A (1)	2,5				50001		
070204FN	0,4	A (1)	3,4					102	102
070208FN	0,8	A (1)	2,5	00600	054				
070208FN	0,8	A (1)	3,0					104	104
11T302FN	0,2	A (1)	2,5		056				
11T302FN	0,2	A (1)	3,0	056					
11T302FN	0,2	A (1)	4,7					106	106
11T304FN	0,4	A (1)	2,5		058				
11T304FL	0,4	A (1)	3,0			50001			
11T304FN	0,4	A (1)	3,0	058					
11T304FN	0,4	A (1)	4,3					108	108
11T308FN	0,8	A (1)	2,5		060				
11T308FN	0,8	A (1)	4,0					110	110
11T312FN	1,2	A (1)	3,5						11200
11T312FN	1,2	A (1)	3,6					11200	
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDPS30	CTDPS30	CTDPS30	CTDPS30	-CB1 CTDPU20	-CB2 CTDPU20
									
				F	F	F	F	F	M
				DIAMOND DCGW	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT
				71 177 ...	71 173 ...	71 173 ...	71 173 ...	71 174 ...	71 175 ...
ISO	RE mm	TCE (NOI)	LE mm						
070201FN	0,1	A (1)	3,8	20001		20001			
070202FN	0,2	A (1)	3,7	20101		20101		30001	
070204FN	0,4	A (1)	3,4	20201				30101	30001
070204FL	0,4	A (1)	5,5		20201				
070208FN	0,8	A (1)	3,0	20301					
11T301FN	0,1	A (1)	4,8	20401		20301			
11T302FN	0,2	A (1)	4,7	20501		20401			
11T304FN	0,4	A (1)	4,3	20601				30201	30101
11T304FL	0,4	A (1)	7,5		20501				
11T308FN	0,8	A (1)	4,0	20701				30301	
11T308FL	0,8	A (1)	7,0		20601				
11T308FR	0,8	A (1)	7,0				20701		
11T312FN	1,2	A (1)	3,6	20801					
11T312FL	1,2	A (1)	6,5		20801				
11T312FR	1,2	A (1)	6,5				20901		
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

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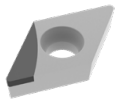
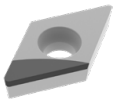
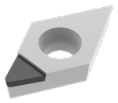
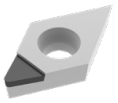
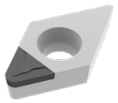
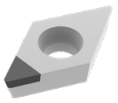
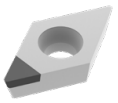
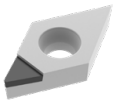
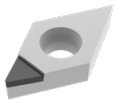
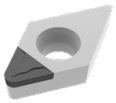
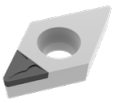
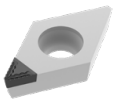
DCGT / DCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDPD20	CTDPD20	-Q CTDPD20	-Q CTDPD20	-CB1 CTDPD20	-Q CTDPS30
									
				F	F	F	F	F	F
				DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGW
				71 136 ...	71 135 ...	71 144 ...	71 145 ...	71 310 ...	71 138 ...
ISO	RE mm	TCE (NOI)	LE mm						
070201FN	0,1	A (1)	3,8					10100	
070202FN	0,2	A (1)	3,7					102	
070204FL	0,4	A (1)	3,0				104		
070204FR	0,4	A (1)	3,0			104			
070204FN	0,4	A (1)	3,4					104	
070204FRR	0,4	A (1)	5,5		102				
070204FLL	0,4	A (1)	5,5	102					
070208FN	0,8	A (1)	3,0					108	
070208FRR	0,8	A (1)	5,0		104				
070208FLL	0,8	A (1)	5,0	104					
11T301FN	0,1	A (1)	4,8					11100	
11T302FR	0,2	A (1)	4,0						162
11T302FN	0,2	A (1)	4,7					112	
11T304FL	0,4	A (1)	4,0				114		
11T304FR	0,4	A (1)	4,0			114			164
11T304FN	0,4	A (1)	4,3					114	
11T304FRR	0,4	A (1)	7,5		108				
11T304FLL	0,4	A (1)	7,5	108					
11T308FN	0,8	A (1)	4,0					118	
11T308FRR	0,8	A (1)	7,0		110				
11T308FLL	0,8	A (1)	7,0	110					
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

DCGW / DCGT

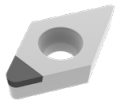
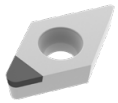
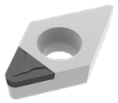
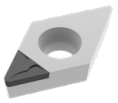
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				-Q CTDPS30	-Q CTDPS30	-Q CTDPS30	-CB1 CTDPS30	-CB2 CTDPS30	-CB3 CTDPU20
									
				F	F	F	F	M	R
				DIAMOND DCGW	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT
				71 139 ...	71 144 ...	71 145 ...	71 310 ...	71 311 ...	71 312 ...
ISO	RE mm	TCE (NOI)	LE mm						
070201FL	0,1	A (1)	3,0			151			
070201FR	0,1	A (1)	3,0		15000				
070201FN	0,1	A (1)	3,8				20100		
070202FL	0,2	A (1)	3,0			152			
070202FR	0,2	A (1)	3,0		152				
070202FN	0,2	A (1)	3,7				202	202	
070204FN	0,4	A (1)	3,4				204	204	204
070208FN	0,8	A (1)	3,0					208	
11T301FR	0,1	A (1)	4,0		161				
11T301FL	0,1	A (1)	4,0			161			
11T301FN	0,1	A (1)	4,8				21100	21100	
11T302FL	0,2	A (1)	4,0			162			
11T302FR	0,2	A (1)	4,0		162				
11T302FN	0,2	A (1)	4,7				212	212	
11T304FL	0,4	A (1)	4,0	164					
11T304FN	0,4	A (1)	4,3				214	214	214
11T308FN	0,8	A (1)	4,0				218	218	218
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

9

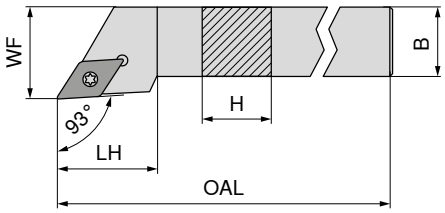
DCGW / DCGT

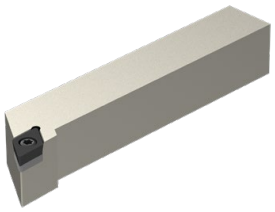
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDPU20	CTDCD10	-CB1 CTDCD10	-CB2 CTDCD10
							
				F	F	F	M
				DIAMOND DCGW	DIAMOND DCGW	DIAMOND DCGT	DIAMOND DCGT
				71 177 ...	71 177 ...	71 310 ...	71 311 ...
ISO	RE mm	TCE (NOI)	LE mm				
070202FN	0,2	A (1)	2,6		40001	302	30200
070204FN	0,4	A (1)	2,3		40101	304	304
070204FN	0,4	A (1)	3,4	30001			
070208FN	0,8	A (1)	2,0		40201		308
070208FN	0,8	A (1)	3,0	30101			
11T302FN	0,2	A (1)	2,6		40301	31200	31200
11T304FN	0,4	A (1)	2,3		40401	314	314
11T304FN	0,4	A (1)	4,3	30201			
11T308FN	0,8	A (1)	2,0		40501	318	318
11T308FN	0,8	A (1)	4,0	30301			
P							
M							
K							
N				●	●	●	●
S							
H							
O				●	●	●	●

MaxiLock-S – SDJC 93° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key





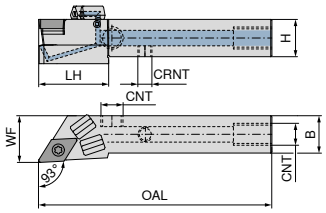
Illustrations show right-hand versions

								NEW		NEW		
								Left-hand		Right-hand		
								70 643 ...		**70 643 ...**		
ISO designation	H	B	OAL	LH	WF	torque moment	Insert					
	mm	mm	mm	mm	mm	Nm						
SDJC R/L 0808 D07	8	8	60	13,0	10	1,2	DC.. 0702	**00800**		**00801**		
SDJC R/L 1010 E07	10	10	70	13,0	12	1,2	DC.. 0702	**01000**		**01001**		
SDJC R/L 1212 F07	12	12	80	14,3	16	1,2	DC.. 0702	**01200**		**01201**		
SDJC R/L 1616 H11	16	16	100	19,3	20	3,2	DC.. 11T3	**01600**		**01601**		
SDJC R/L 2020 K11	20	20	125	19,9	25	3,2	DC.. 11T3	**02000**		**02001**		
SDJC R/L 2525 M11	25	25	150	21,2	32	3,2	DC.. 11T3	**02500**		**02501**		
SDJC R/L 3225 P11	32	25	170	21,2	32	3,2	DC.. 11T3	**03200**		**03201**		

MaxiLock-S – SDJC 93° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key



Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	NEW Left-hand 70 773 ...	NEW Right-hand 70 773 ...
SDJC R/L 1010 E07 DC	10	10	70	20	12	M6	M6	1,2	DC.. 0702	**01001**	**01000**
SDJC R/L 1212 F07 DC	12	12	80	21	16	M6	M6	1,2	DC.. 0702	**01201**	**01200**
SDJC R/L 1616 H11 DC	16	16	100	30	20	M6	G1/8"	3,2	DC.. 11T3	**01601**	**01600**
SDJC R/L 2020 K11 DC	20	20	125	30	25	M6	G1/8"	3,2	DC.. 11T3	**02001**	**02000**
SDJC R/L 2525 M11 DC	25	25	150	35	32	M6	G1/8"	3,2	DC.. 11T3	**02501**	**02500**

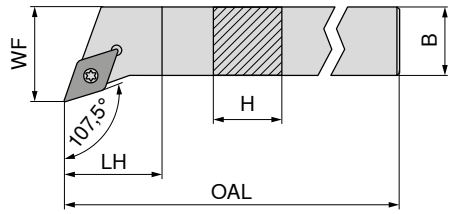
Spare parts for Article no.	Clamping screw 70 950 ...	Solid Carbide Seat D 70 950 ...	Grubscrew 70 950 ...	Grubscrew 70 950 ...	Threaded sleeve 70 950 ...
70 773 01000 / 70 773 01001	**857**			**86700**	
70 773 01200 / 70 773 01201	**857**			**86700**	
70 773 01600 / 70 773 01601	**87900**	**106**	**88000**	**86700**	**171**
70 773 02000 / 70 773 02001	**87900**	**106**	**88000**	**86700**	**171**
70 773 02500 / 70 773 02501	**87900**	**106**	**88000**	**86700**	**171**

Spare parts for Article no.	Sealing plugs DC 70 950 ...	Key D 80 950 ...	O-Ring 70 950 ...	Coolant nozzle DC 70 950 ...	Coolant screw plug 70 950 ...
70 773 01000 / 70 773 01001		**039**			
70 773 01200 / 70 773 01201		**039**			
70 773 01600 / 70 773 01601	**87600**	**120**	**88100**	**87700**	**294**
70 773 02000 / 70 773 02001	**87600**	**120**	**88100**	**87700**	**294**
70 773 02500 / 70 773 02501	**87600**	**120**	**88100**	**87700**	**294**

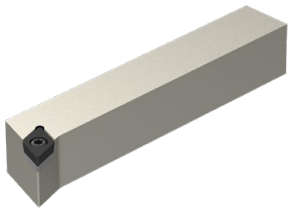
MaxiLock-S – SDHC 107.5° – Toolholder with screw clamping

Scope of supply:

Tool holder with Torx key



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	NEW Left-hand 70 642 ...	NEW Right-hand 70 642 ...
SDHC R/L 1010 E07	10	10	70	7,6	12	1,2	DC.. 0702	**01000**	**01001**
SDHC R/L 1212 F07	12	12	80	12,2	16	1,2	DC.. 0702	**01200**	**01201**
SDHC R/L 1616 H11	16	16	100	11,6	20	3,2	DC.. 11T3	**01600**	**01601**
SDHC R/L 2020 K11	20	20	125	14,1	25	3,2	DC.. 11T3	**02000**	**02001**
SDHC R/L 2525 M11	25	25	150	20,5	32	3,2	DC.. 11T3	**02500**	**02501**

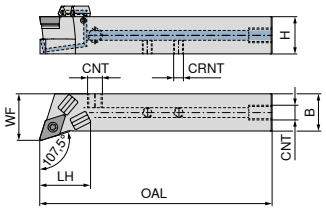
Spare parts for Article no.	Key D 80 950 ...	Clamping screw 70 950 ...	Solid Carbide Seat D 70 950 ...	Threaded sleeve 70 950 ...
70 642 01000 / 70 642 01001	**039**	**857**		
70 642 01200 / 70 642 01201	**039**	**857**		
70 642 01600 / 70 642 01601	**120**	**87900**	**106**	**171**
70 642 02000 / 70 642 02001	**120**	**87900**	**106**	**171**
70 642 02500 / 70 642 02501	**120**	**87900**	**106**	**171**

9

MaxiLock-S – SDHC 107.5° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key



Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	NEW Left-hand 70 772 ...	NEW Right-hand 70 772 ...
SDHC R/L 1212 F07 DC	12	12	80	20	16	M6	M6	1,2	DC.. 0702	**01201**	**01200**
SDHC R/L 1616 H11 DC	16	16	100	25	20	M6	G1/8"	3,2	DC.. 11T3	**01601**	**01600**
SDHC R/L 2020 K11 DC	20	20	125	28	25	M6	G1/8"	3,2	DC.. 11T3	**02001**	**02000**
SDHC R/L 2525 M11 DC	25	25	150	27	32	M6	G1/8"	3,2	DC.. 11T3	**02501**	**02500**

Spare parts for Article no.	Clamping screw 70 950 ...	Solid Carbide Seat D 70 950 ...	Grubscrew 70 950 ...	Grubscrew 70 950 ...	Threaded sleeve 70 950 ...
70 772 01201 / 70 772 01200	**857**			**86700**	
70 772 01601 / 70 772 01600	**87900**	**106**	**88000**	**86700**	**171**
70 772 02001 / 70 772 02000	**87900**	**106**	**88000**	**86700**	**171**
70 772 02501 / 70 772 02500	**87900**	**106**	**88000**	**86700**	**171**

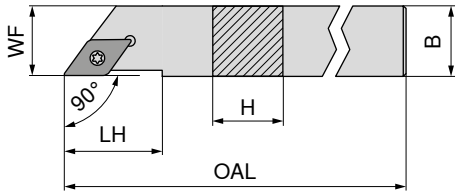
Spare parts for Article no.	Sealing plugs DC 70 950 ...	Key D 80 950 ...	O-Ring 70 950 ...	Coolant nozzle DC 70 950 ...	Coolant screw plug 70 950 ...
70 772 01201 / 70 772 01200		**039**			
70 772 01601 / 70 772 01600	**87600**	**120**	**88100**	**87700**	**294**
70 772 02001 / 70 772 02000	**87600**	**120**	**88100**	**87700**	**294**
70 772 02501 / 70 772 02500	**87600**	**120**	**88100**	**87700**	**294**

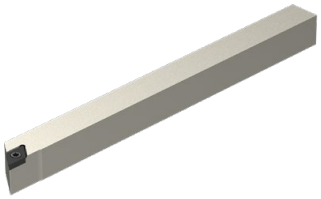
MaxiLock-S – SDAC 90° – Toolholder with screw clamping

▲ for sliding head lathes

Scope of supply:

Tool holder with Torx key





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	NEW Left-hand 70 639 ...	NEW Right-hand 70 639 ...
SDAC R/L 0808 K07	8	8	125	14	8	1,2	DC.. 0702	**00800**	**00801**
SDAC R/L 1010 M07	10	10	150	14	10	1,2	DC.. 0702	**01000**	**01001**
SDAC R/L 1212 M07	12	12	150	14	12	1,2	DC.. 0702	**01200**	**01201**
SDAC R/L 1212 M11	12	12	150	21	12	3,2	DC.. 11T3	**11200**	**11201**
SDAC R/L 1414 M11	14	14	150	21	14	3,2	DC.. 11T3	**01400**	**01401**

Key D

80 950 ...

Clamping screw

70 950 ...

Spare parts for Article no.				
70 639 00800 / 70 639 00801	T08 - IP	**039**	M2,5x6 - IP	**857**
70 639 01000 / 70 639 01001	T08 - IP	**039**	M2,5x6 - IP	**857**
70 639 01200 / 70 639 01201	T08 - IP	**039**	M2,5x6 - IP	**857**
70 639 11200 / 70 639 11201	T15 - IP	**120**	M3,5x11	**87900**
70 639 01400 / 70 639 01401	T15 - IP	**120**	M3,5x11	**87900**

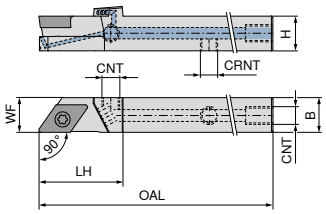
9

MaxiLock-S – SDAC 90° DC – Tool holder with screw clamping

▲ for sliding head lathes

Scope of supply:

Tool holder with blind plug and Torx key



Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	NEW Left-hand 70 771 ...	NEW Right-hand 70 771 ...
SDAC R/L 0808 K07 DC	8	8	125	21	8	M5	M5	1,2	DC.. 0702	**00801**	**00800**
SDAC R/L 1010 M07 DC	10	10	150	21	10	M6	M6	1,2	DC.. 0702	**01001**	**01000**
SDAC R/L 1212 M07 DC	12	12	150	21	12	M6	M6	1,2	DC.. 0702	**01201**	**01200**
SDAC R/L 1212 M11 DC	12	12	150	29	12	M6	M6	3,2	DC.. 11T3	**11201**	**11200**

Cylindrical screw

83 950 ...

Key D

80 950 ...

Clamping screw

70 950 ...

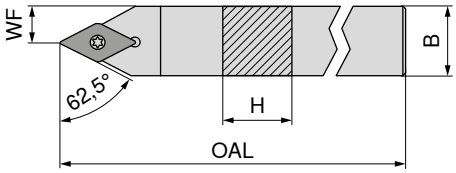
Grubscrew

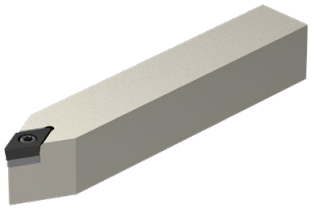
70 950 ...

Spare parts for Article no.						
70 771 00800 / 70 771 00801	**157**		**039**		**13800**	
70 771 01000 / 70 771 01001			**039**		**13800**	**86700**
70 771 01200 / 70 771 01201			**039**		**13800**	**86700**
70 771 11200 / 70 771 11201			**120**		**113**	**86700**

MaxiLock-S – SDNC 62.5° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key





NEW
Neutral
70 645 ...

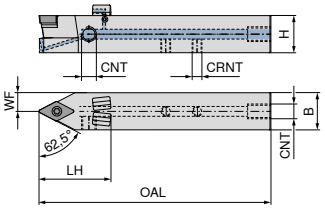
ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	
SDNC N 0808 K07	8	8	125	4,0	1,2	DC.. 0702	**00800**
SDNC N 1010 M07	10	10	150	5,0	1,2	DC.. 0702	**11000**
SDNC N 1010 E07	10	10	70	5,0	1,2	DC.. 0702	**01000**
SDNC N 1212 F07	12	12	80	6,0	1,2	DC.. 0702	**01200**
SDNC N 1212 M07	12	12	150	6,0	1,2	DC.. 0702	**11200**
SDNC N 1212 M11	12	12	150	6,0	3,2	DC.. 11T3	**21200**
SDNC N 1616 H11	16	16	100	8,0	3,2	DC.. 11T3	**01600**
SDNC N 2020 K11	20	20	125	10,0	3,2	DC.. 11T3	**02000**
SDNC N 2525 M11	25	25	150	12,5	3,2	DC.. 11T3	**02500**

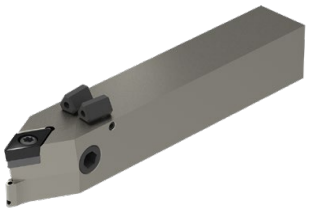
	Key D		Clamping screw		Solid Carbide Seat D		Threaded sleeve	
	80 950 ...		**70 950 ...**		**70 950 ...**		**70 950 ...**	
Spare parts for Article no.								
70 645 00800	T08 - IP	**039**	M2,5x6 - IP	**857**				
70 645 11000	T08 - IP	**039**	M2,5x6 - IP	**857**				
70 645 01000	T08 - IP	**039**	M2,5x6 - IP	**857**				
70 645 01200	T08 - IP	**039**	M2,5x6 - IP	**857**				
70 645 11200	T08 - IP	**039**	M2,5x6 - IP	**857**				
70 645 21200	T15 - IP	**120**	M3,5x11	**87900**				
70 645 01600	T15 - IP	**120**	M3,5x11	**87900**	**106**		M3,5	**171**
70 645 02000	T15 - IP	**120**	M3,5x11	**87900**	**106**		M3,5	**171**
70 645 02500	T15 - IP	**120**	M3,5x11	**87900**	**106**		M3,5	**171**

MaxiLock-S – SDNC 62.5° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key





NEW

Neutral

70 774 ...

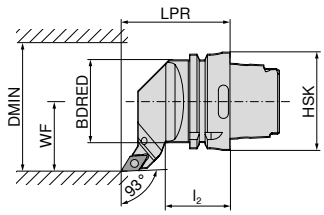
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	
SDNC N 1212 M07 DC	12	12	150	24	6,0	M6	M6	1,2	DC.. 0702	**11200**
SDNC N 1212 F07 DC	12	12	80	24	6,0	M6	M6	1,2	DC.. 0702	**01200**
SDNC N 1212 M11 DC	12	12	150	31	6,0	M6	M6	3,2	DC.. 11T3	**21200**
SDNC N 1616 H11 DC	16	16	100	30	8,0	M6	G1/8"	3,2	DC.. 11T3	**01600**
SDNC N 2020 K11 DC	20	20	125	39	10,0	M6	G1/8"	3,2	DC.. 11T3	**02000**
SDNC N 2525 M11 DC	25	25	150	30	12,5	M6	G1/8"	3,2	DC.. 11T3	**02500**

	Clamping screw	Solid Carbide Seat D	Grubscrew	Grubscrew	Threaded sleeve
	70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
70 774 11200	**857**			**86700**	
70 774 01200	**857**			**86700**	
70 774 21200	**859**			**86700**	
70 774 01600	**87900**	**106**	**88000**	**86700**	**171**
70 774 02000	**87900**	**106**	**88000**	**86700**	**171**
70 774 02500	**87900**	**106**	**88000**	**86700**	**171**

	Sealing plugs DC	Key D	O-Ring	Coolant nozzle DC	Coolant screw plug
	70 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
70 774 11200		**039**			
70 774 01200		**039**			
70 774 21200		**120**			
70 774 01600	**87600**	**120**	**88100**	**87700**	**294**
70 774 02000	**87600**	**120**	**88100**	**87700**	**294**
70 774 02500	**87600**	**120**	**88100**	**87700**	**294**

MaxiLock-S – SDJC 93° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

	Left-hand	Right-hand
	74 544 ...	**74 543 ...**

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert		
HSK T63 SDJC R/L 11	HSK-T 63	70	42	53	45	100	3.2	DC.. 11T3	**511**	**511**

Combination Key

70 950 ...

Clamping screw

70 950 ...

Solid Carbide Seat D

70 950 ...

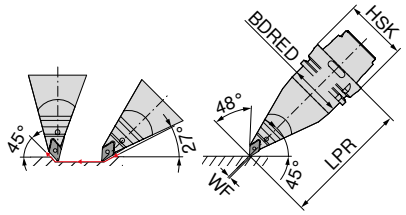
Threaded sleeve

70 950 ...

Spare parts for Article no.							
74 543 511 / 74 544 511	T15/SW	**398**	M3,5x11	**113**	**106**	M3,5	**171**

MaxiLock-S – SDMC 48° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key



	Left-hand
	74 546 ...

ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	
HSK T63 SDMC L 11	HSK-T 63	130	53	0	3.2	DC.. 11T3	**511**

Combination Key

70 950 ...

Clamping screw

70 950 ...

Solid Carbide Seat D

70 950 ...

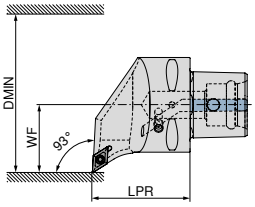
Threaded sleeve

70 950 ...

Spare parts for Article no.							
74 546 511	T15/SW	**398**	M3,5x11	**113**	**106**	M3,5	**171**

MaxiLock-S – SDUC 93° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

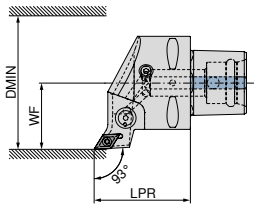
ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 84 659 ...	Right-hand 84 658 ...
PSC40 SDUC R/L 50050-11	PSC 40	50	27	50	3	DC.. 11T3	**01195**	**01195**
PSC50 SDUC R/L 65060-11	PSC 50	60	35	65	3	DC.. 11T3	**01194**	**01194**
PSC63 SDUC R/L 80065-11	PSC 63	65	45	80	3	DC.. 11T3	**01193**	**01193**

Clamping screw
84 950 ...

Spare parts for Article no.	
84 658 01195 / 84 659 01195	**27600**
84 658 01194 / 84 659 01194	**27600**
84 658 01193 / 84 659 01193	**27600**

MaxiLock-S – SDJC 93° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	Left-hand 84 663 ...	Right-hand 84 662 ...
PSC40 SDJC R/L 50050-11	PSC 40	50	27	50	3	DC.. 11T3	DC	**01195**	**01195**
PSC50 SDJC R/L 65060-11	PSC 50	60	35	65	3	DC.. 11T3	DC	**01194**	**01194**
PSC63 SDJC R/L 80065-11	PSC 63	65	45	80	3	DC.. 11T3	DC	**01193**	**01193**

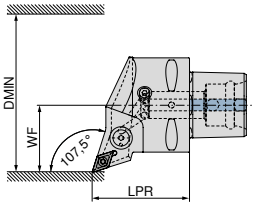
The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**

Clamping screw
84 950 ...

Spare parts for Article no.	
84 662 01195 / 84 663 01195	**27600**
84 662 01194 / 84 663 01194	**27600**
84 662 01193 / 84 663 01193	**27600**

MaxiLock-S – SDHC 107.5° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	Left-hand 84 667 ...	Right-hand 84 666 ...
PSC40 SDHC R/L 50050-11	PSC 40	50	27	50	3	DC.. 11T3	DC	**01195**	**01195**
PSC50 SDHC R/L 65060-11	PSC 50	60	35	65	3	DC.. 11T3	DC	**01194**	**01194**
PSC63 SDHC R/L 80065-11	PSC 63	65	45	80	3	DC.. 11T3	DC	**01193**	**01193**

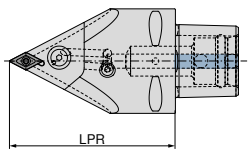
The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**

Clamping screw **84 950 ...**

Spare parts for Article no.	
84 666 01195 / 84 667 01195	**27600**
84 666 01194 / 84 667 01194	**27600**
84 666 01193 / 84 667 01193	**27600**

MaxiLock-S – SDNC 62.5° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set



Neutral **84 677 ...**

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	
PSC63 SDNC N 0100-11	PSC 63	100	3	DC.. 11T3	DC	**01193**
PSC63 SDNC N 0130-11	PSC 63	130	3	DC.. 11T3	DC	**11193**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**

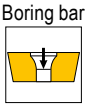
Clamping screw **84 950 ...**

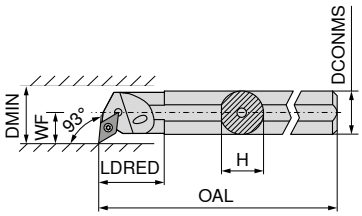
Spare parts for Article no.	
84 677 01193	**27600**
84 677 11193	**27600**

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions

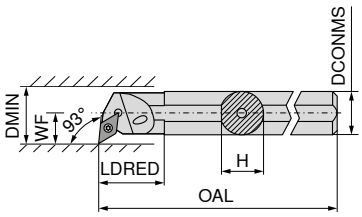
									Left-hand		Right-hand
									70 737 ...		**70 736 ...**
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert			
S12Q SDUC R/L 07	12	11,0	180	12,5	9	17	1,2	DC.. 0702	**012**		**012**
A12K SDUC R/L 07	12	11,5	125	22,0	9	16	1,2	DC.. 0702	**212**		**212**
S16R SDUC R/L 07	16	15,0	200	13,0	11	21	1,2	DC.. 0702	**016**		**016**
A16M SDUC R/L 07	16	15,0	150	29,0	11	20	1,2	DC.. 0702	**216**		**216**
S20S SDUC R 07	20	18,0	250	20,0	13	25	1,2	DC.. 0702			**020**
A20Q SDUC R/L 07	20	18,5	180	32,0	13	25	1,2	DC.. 0702	**220**		**220**
S20S SDUC R 11	20	18,0	250	20,0	13	25	3,2	DC.. 11T3			**120**
A20Q SDUC R/L 11	20	19,0	180	32,0	13	25	3,2	DC.. 11T3	**320**		**320**
S25T SDUC R/L 11	25	23,0	300		17	32	3,2	DC.. 11T3	**125**		**125**
A25R SDUC R/L 11	25	24,0	200	36,0	17	32	3,2	DC.. 11T3	**325**		**325**
S32U SDUC R 11	32	30,0	350		22	40	3,2	DC.. 11T3			**132**
A32S SDUC R/L 11	32	31,0	250	50,0	22	40	3,2	DC.. 11T3	**332**		**332**
A40T SDUC R/L 11	40	39,0	300	60,0	27	50	3,2	DC.. 11T3	**340**		**340**

	Key D		Combination Key		Clamping screw		Solid Carbide Seat D		Threaded sleeve	
	80 950 ...		**70 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**	
Spare parts for Article no.										
70 736 012 / 70 737 012	**110**				**13800**					
70 736 212 / 70 737 212	**110**				**13800**					
70 736 016 / 70 737 016	**110**				**13800**					
70 736 216 / 70 737 216	**110**				**13800**					
70 736 020	**110**				**13800**					
70 736 220 / 70 737 220	**110**				**13800**					
70 736 120	**113**				**110**					
70 736 320 / 70 737 320	**113**				**110**					
70 736 125 / 70 737 125			**398**		**113**		**106**		**171**	
70 736 325 / 70 737 325	**113**				**113**					
70 736 132			**398**		**113**		**106**		**171**	
70 736 332 / 70 737 332			**398**		**113**		**106**		**171**	
70 736 340 / 70 737 340			**398**		**113**		**106**		**171**	

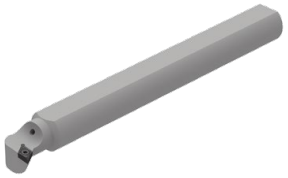
9

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 739 ...	Right-hand 70 738 ...
E-A10H SDUC R/L 07	10	9	100	28,0	8	13	1,2	DC.. 0702	**210**	**210**
E-A12K SDUC R/L 07	12	11	125	18,0	9	18	1,2	DC.. 0702	**212**	**212**
E-A16M SDUC R/L 07	16	15	150	30,0	11	22	1,2	DC.. 0702	**216**	**216**
E-A20Q SDUC R/L 07	20	18	180	38,0	13	26	1,2	DC.. 0702	**220**	**220**
E-A20Q SDUC R/L 11	20	18	180	38,0	13	26	3,2	DC.. 11T3	**320**	**320**
E-A25R SDUC R/L 11	25	23	200	40,0	17	34	3,2	DC.. 11T3	**225**	**225**
E-A32S SDUC R/L 11	32	30	250	39,5	22	39	3,2	DC.. 11T3	**232**	**232**

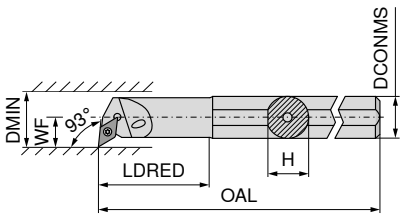
Key D

Clamping screw

Spare parts for Article no.	Key D 80 950 ...	Clamping screw 70 950 ...
70 738 210 / 70 739 210	**110**	**13800**
70 738 212 / 70 739 212	**110**	**13800**
70 738 216 / 70 739 216	**110**	**13800**
70 738 220 / 70 739 220	**110**	**13800**
70 738 320 / 70 739 320	**113**	**449**
70 738 225 / 70 739 225	**113**	**449**
70 738 232 / 70 739 232	**113**	**449**

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 739 ...	Right-hand 70 738 ...
E-A0810H SDUC R/L 07	10	9	100	22	7	12,5	1,2	DC.. 0702	**410**	**410**
E-A1012K SDUC R/L 07	12	11	125	28	9	15,5	1,2	DC.. 0702	**412**	**412**
E-A1216M SDUC R/L 07	16	15	150	36	11	19,5	1,2	DC.. 0702	**416**	**416**

Key D

Clamping screw

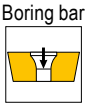
Spare parts for Article no.	Key D 80 950 ...	Clamping screw 70 950 ...
70 738 410 / 70 739 410	**110**	**13800**
70 738 412 / 70 739 412	**110**	**13800**
70 738 416 / 70 739 416	**110**	**13800**

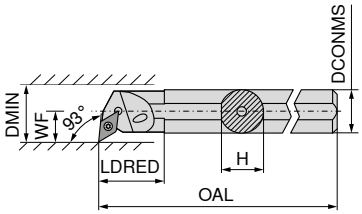
MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ Type: Solid carbide

Scope of supply:

Boring bar with Torx key





Illustrations show right-hand versions

	Left-hand	Right-hand
	70 739 ...	**70 738 ...**

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert		
E12Q SDUC R/L 07	12	11,5	180	26	9	16	1,2	DC.. 0702	**012**	**012**
E16R SDUC R/L 07	16	15,0	200	34	11	20	1,2	DC.. 0702	**016**	**016**
E20S SDUC R/L 11	20	18,5	250	38	13	25	3,2	DC.. 11T3	**120**	**120**
E25T SDUC R/L 11	25	23,0	300	43	17	32	3,2	DC.. 11T3	**125**	**125**

Key D

Clamping screw

	80 950 ...	**70 950 ...**

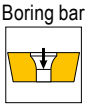
Spare parts for Article no.		
70 739 012 / 70 738 012	**110**	**13800**
70 739 016 / 70 738 016	**110**	**13800**
70 739 120 / 70 738 120	**113**	**304**
70 739 125 / 70 738 125	**113**	**113**

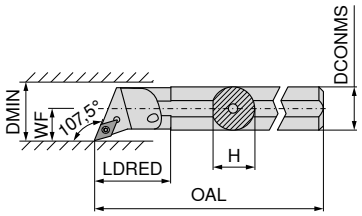
9

MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping

Scope of supply:

Boring bar with Torx key





Illustrations show right-hand versions

	Left-hand	Right-hand
	70 741 ...	**70 740 ...**

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert		
A10H SDQC R/L 07	10	9,0	100	22	7	12,5	1,2	DC.. 0702	**210**	**210**
A12K SDQC R/L 07	12	11,5	125	22	9	16,0	1,2	DC.. 0702	**212**	**212**
A16M SDQC R/L 07	16	15,0	150	29	11	20,0	1,2	DC.. 0702	**216**	**216**
A20Q SDQC R/L 07	20	18,5	180	32	13	25,0	1,2	DC.. 0702	**220**	**220**
A25R SDQC R/L 11	25	23,0	200	36	17	32,0	3,2	DC.. 11T3	**225**	**225**
A32S SDQC R/L 11	32	30,0	250	50	22	40,0	3,2	DC.. 11T3	**232**	**232**
A40T SDQC R/L 11	40	38,0	300	60	27	50,0	3,2	DC.. 11T3	**240**	**240**

Key D

Combination Key

Clamping screw

Solid Carbide Seat D

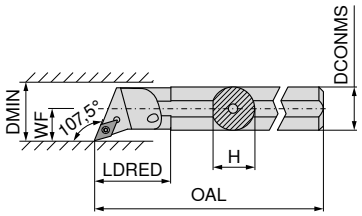
Threaded sleeve

	80 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**

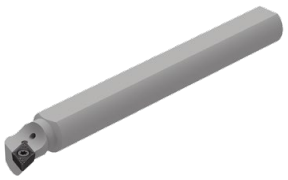
Spare parts for Article no.					
70 740 210 / 70 741 210	**110**		**13800**		
70 740 212 / 70 741 212	**110**		**13800**		
70 740 216 / 70 741 216	**110**		**13800**		
70 740 220 / 70 741 220	**110**		**13800**		
70 740 225 / 70 741 225		**398**	**113**		
70 740 232 / 70 741 232		**398**	**113**	**106**	**171**
70 740 240 / 70 741 240		**398**	**113**	**106**	**171**

MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions



ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment	Insert	Left-hand	Right-hand
	mm	mm	mm	mm	mm	mm	Nm		70 751 ...	70 750 ...
E-A12K SDQC R/L 07	12	11	125	24	9	18	1,2	DC.. 0702	**012**	**012**
E-A16M SDQC R/L 07	16	15	150	30	11	22	1,2	DC.. 0702	**016**	**016**
E-A20Q SDQC R/L 07	20	18	180	38	13	26	1,2	DC.. 0702	**020**	**020**
E-A20Q SDQC R/L 11	20	18	180	45	13	26	3,2	DC.. 11T3	**120**	**120**
E-A25R SDQC R/L 11	25	23	200	38	17	34	3,2	DC.. 11T3	**025**	**025**
E-A32S SDQC R/L 11	32	30	250	43	22	39	3,2	DC.. 11T3	**032**	**032**

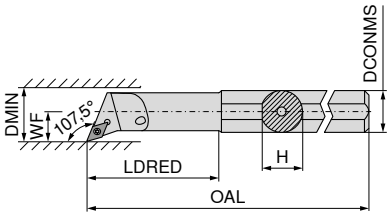
Key D

Clamping screw

Spare parts for Article no.	80 950 ...	70 950 ...
70 750 012 / 70 751 012	**110**	**13800**
70 750 016 / 70 751 016	**110**	**13800**
70 750 020 / 70 751 020	**110**	**13800**
70 750 120 / 70 751 120	**113**	**449**
70 750 025 / 70 751 025	**113**	**449**
70 750 032 / 70 751 032	**113**	**449**

MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions

ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment	Insert	Left-hand	Right-hand
	mm	mm	mm	mm	mm	mm	Nm		70 751 ...	70 750 ...
E-A0810H SDQC R/L 07	10	9	100	22	7	12,5	1,2	DC.. 0702	**210**	**210**
E-A1012K SDQC R/L 07	12	11	125	28	9	15,5	1,2	DC.. 0702	**212**	**212**
E-A1216M SDQC R/L 07	16	15	150	36	11	19,5	1,2	DC.. 0702	**216**	**216**

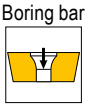
Key D

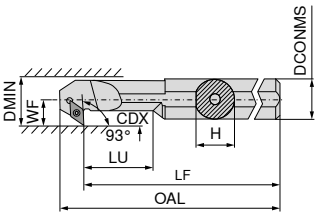
Clamping screw

Spare parts for Article no.	80 950 ...	70 950 ...
70 750 210 / 70 751 210	**110**	**13800**
70 750 212 / 70 751 212	**110**	**13800**
70 750 216 / 70 751 216	**110**	**13800**

MaxiLock-S – SDXC 93° – Boring bar with screw clamping

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LU mm	WF mm	DMIN mm	CDX mm	torque moment Nm	Insert	Left-hand 70 733 ...	Right-hand 70 732 ...
A12K SDXC R/L 07	12	11,5	125	137,0	24	9	16	4,5	1,2	DC.. 0702	**212**	**212**
A16M SDXC R/L 07	16	15,0	150	162,0	36	11	20	4,5	1,2	DC.. 0702	**216**	**216**
A20Q SDXC R/L 11	20	18,5	180	196,5	40	13	25	6,5	3,2	DC.. 11T3	**220**	**220**
A25R SDXC R/L 11	25	23,0	200	216,8	50	17	32	9,5	3,2	DC.. 11T3	**225**	**225**

Key D

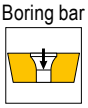
Clamping screw

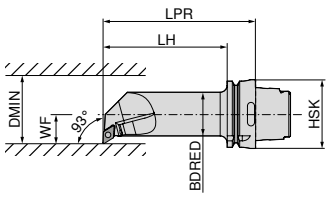
Spare parts for Article no.	Key D 80 950 ...	Clamping screw 70 950 ...
70 733 212 / 70 732 212	**110**	**13800**
70 733 216 / 70 732 216	**110**	**13800**
70 733 220 / 70 732 220	**113**	**304**
70 733 225 / 70 732 225	**113**	**304**

9

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 566 ...	Right-hand 74 565 ...
HSK T63 40L SDUC R/L 11	HSK-T 63	140	114	40	27	50	3.2	DC.. 11T3	**511**	**511**

Combination Key

Clamping screw

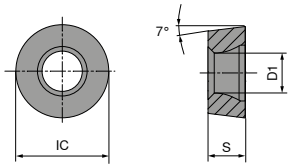
Solid Carbide Seat D

Threaded sleeve

Spare parts for Article no.	Combination Key 70 950 ...		Clamping screw 70 950 ...		Solid Carbide Seat D 70 950 ...		Threaded sleeve 70 950 ...	
74 565 511 / 74 566 511	T15/SW	**398**	M3,5x11	**113**	**106**	M3,5		**171**

RCMT / RCGT / RCMX

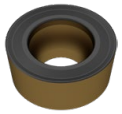
Designation	S mm	D1 mm	IC mm
RCGT 0602..	2,38	2,8	6
RCGT 0803..	3,18	3,4	8
RC.T 1003..	3,18	4,0	10
RCMT 10T3..	3,97	4,4	10
RCMT 1204..	4,76	4,9	12
RCMT 1606..	6,35	5,3	16
RCMT 2006..	6,35	6,5	20
RCMT 2507..	7,94	7,2	25
RCMX 2507..	7,94	10,5	25



RCMT / RCGT

			NEW	NEW	NEW	NEW	NEW	NEW
		-SMF CTCK110	-SM CTCP115-P	-SM CTCP115-P	-SM CTCP115-P	-SM CTCP125-P	-SM CTCP125-P	-SM CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	M	M	M	M	M	M
		RCMT	RCGT	RCMT	RCMT	RCGT	RCMT	RCGT
		70 188 ...	76 185 ...	76 186 ...	76 264 ...	76 262 ...	76 264 ...	76 262 ...
ISO	RE mm							
0602M0EN	3,0					50201		70201
0803M0EN	4,0		30401			51201		71201
1003M0SN	5,0						51401	
1204M0SN	6,0				32801		52601	
1606M0EN	8,0	038						
1606M0SN	8,0				34001		53801	
2006M0SN	10,0			35001			55001	
2507M0SN	12,5				36201		56201	
P		○	●	●	●	●	●	●
M								○
K		●	○	○	○	○	○	
N								
S								
H								
O								

RCMT / RCMX

	NEW	NEW	NEW	NEW	NEW	NEW	NEW
	-SM CTCP135-P	-M23 CTCP115-P	-M23 CTCP115-P	-M23 CTCP115-P	-M23 CTCP125-P	-SM CTCM120	-SM CTPM125
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	M	M	M	M	M	M	M
	RCMT	RCMT	RCMX	RCMT	RCMT	RCMT	RCMT
	76 264 ...	74 117 ...	74 117 ...	74 121 ...	74 121 ...	75 221 ...	75 221 ...
ISO	RE mm						
1003M0SN	5,0	71401			21400		11400	
10T3M0SN	5,0							
1204M0SN	6,0	72601			22600	62600		
1606M0SN	8,0	73801			23800	63800		
2006M0SN	10,0	75001	25000			65000		25000
2507M0SN	12,5	76201		25400				
2507MOSN	12,5							26200
P		●	●	●	●	●	○	○
M		○					●	●
K			○	○	○	○		
N								
S								
H								
O								

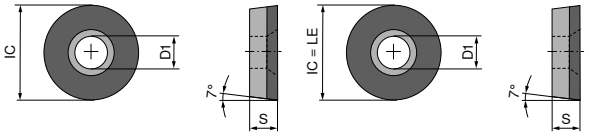
9

RCGT / RCMT

				NEW	
		-25P H210T	-27 H10T	-SM CTPX710	-27 CTPX715
				DRAGONSKIN	DRAGONSKIN
		F	M	M	M
		RCGT	RCGT	RCMT	RCGT
		70 241 ...	70 266 ...	75 221 ...	70 266 ...
ISO	RE mm				
0602M0FN	3		600		70200
0803M0FN	4	60200	602		80200
1003M0FN	5		604		80400
1003M0SN	5			61400	
1204M0FN	6				72800
P				●	●
M				●	●
K		○	○		○
N		●	●	○	●
S		○		●	●
H					
O		○	○		○

RCGW / RCGT

Designation	S mm	D1 mm	IC mm
RCG. 0602..	2,38	2,8	6
RCGW 0803..	3,18	3,4	8
RCGW 1003..	3,18	4,4	10
RCGT 10T3..	3,97	4,4	10
RCGW 1204..	4,76	4,4	12



RCGT F RCGW F

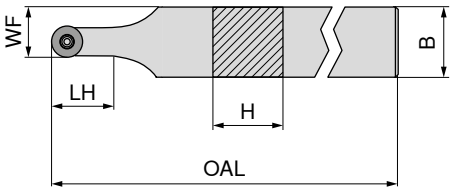
RCGW / RCGT

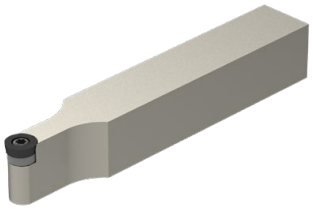
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDPD20	-CB1 CTDPD20	CTDPS30	-CB1 CTDPS30	-CB2 CTDPS30
				F	F	F	F	M
				DIAMOND RCGW	DIAMOND RCGT	DIAMOND RCGW	DIAMOND RCGT	DIAMOND RCGT
				71 179 ...	71 315 ...	71 179 ...	71 315 ...	71 316 ...
ISO	RE mm	TCE (NOI)	LE mm					
0602M0FN	3	F	6	10001	102	20001	202	202
0803M0FN	4	F	8	10101		20101		
1003M0FN	6	F	10	10201				
10T3M0FN	5	F	10		104		204	204
1204M0FN	6	F	12	10301				
P								
M								
K								
N				●	●	●	●	●
S								
H								
O				●	●	●	●	●

MaxiLock-S – SRDC 0° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key





NEW

Neutral

70 646 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	
SRDC N 1212 F06	12	12	80	12,0	9,0	1,2	RC.. 0602	**01200**
SRDC N 1616 H06	16	16	100	12,0	11,0	1,2	RC.. 0602	**01600**
SRDC N 2020 K06	20	20	125	12,0	13,0	1,2	RC.. 0602	**02000**
SRDC N 2525 M06	25	25	150	12,4	15,5	1,2	RC.. 0602	**02500**
SRDC N 1616 H08	16	16	100	16,0	12,0	1,8	RC.. 0803	**11600**
SRDC N 2020 K08	20	20	125	16,5	14,0	1,8	RC.. 0803	**12000**
SRDC N 2525 M08	25	25	150	16,5	16,5	1,8	RC.. 0803	**12500**
SRDC N 1616 H10	16	16	100	20,9	13,0	3,2	RC.. 1003 / RC.. 10T3	**21600**
SRDC N 2020 K10	20	20	125	20,0	15,0	3,2	RC.. 1003 / RC.. 10T3	**22000**
SRDC N 2525 M10	25	25	150	20,9	17,5	3,2	RC.. 1003 / RC.. 10T3	**22500**

When using WSP RC .. 10T3 indexable inserts, use insert seat article no. 70 950 92100.

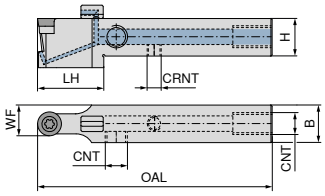
	Key D	Clamping screw	Solid carbide support R	Threaded sleeve
	80 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.				
70 646 01200	**039**	**857**		
70 646 01600	**039**	**857**		
70 646 02000	**039**	**857**		
70 646 02500	**039**	**857**		
70 646 11600	**118**	**819**		
70 646 12000	**118**	**819**		
70 646 12500	**118**	**819**		
70 646 21600	**120**	**87900**	**117**	**171**
70 646 22000	**120**	**87900**	**117**	**171**
70 646 22500	**120**	**87900**	**117**	**171**

9

MaxiLock-S – SRDC 0° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key



NEW

Neutral

70 775 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	
SRDC N 1212 F06 DC	12	12	80	26	9,0	M6	M6	1,2	RC.. 0602	**01200**
SRDC N 1616 H06 DC	16	16	100	30	11,0	M6	G1/8"	1,2	RC.. 0602	**01600**
SRDC N 2020 K06 DC	20	20	125	30	13,0	M6	G1/8"	1,2	RC.. 0602	**02000**
SRDC N 2525 M06 DC	25	25	150	30	15,5	M6	G1/8"	1,2	RC.. 0602	**02500**
SRDC N 1616 H08 DC	16	16	100	30	12,0	M6	G1/8"	1,8	RC.. 0803	**11600**
SRDC N 2020 K08 DC	20	20	125	30	14,0	M6	G1/8"	1,8	RC.. 0803	**12000**
SRDC N 2525 M08 DC	25	25	150	31	16,5	M6	G1/8"	1,8	RC.. 0803	**12500**
SRDC N 1616 H10 DC	16	16	100	30	13,0	M6	G1/8"	3,2	RC.. 1003 / RC.. 10T3	**21600**
SRDC N 2020 K10 DC	20	20	125	30	15,0	M6	G1/8"	3,2	RC.. 1003 / RC.. 10T3	**22000**
SRDC N 2525 M10 DC	25	25	150	36	17,5	M6	G1/8"	3,2	RC.. 1003 / RC.. 10T3	**22500**

When using WSP RC .. 10T3 indexable inserts, use insert seat article no. 70 950 92100.

Clamping screw

Solid carbide support R

Grubscrew

Grubscrew

Threaded sleeve

	70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
70 775 01200	**857**			**86700**	
70 775 01600	**857**		**88000**	**86700**	
70 775 02000	**857**		**88000**	**86700**	
70 775 02500	**857**		**88000**	**86700**	
70 775 11600	**819**		**88000**	**86700**	
70 775 12000	**819**		**88000**	**86700**	
70 775 12500	**819**		**88000**	**86700**	
70 775 21600	**87900**	**117**	**88000**	**86700**	**171**
70 775 22000	**87900**	**117**	**88000**	**86700**	**171**
70 775 22500	**87900**	**117**	**88000**	**86700**	**171**

Sealing plugs DC

Key D

O-Ring

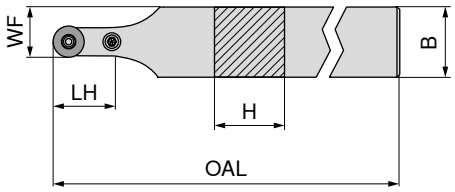
Coolant nozzle DC

Coolant screw plug

	70 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
70 775 01200		**039**			
70 775 01600	**87600**	**039**	**88100**	**87700**	**294**
70 775 02000	**87600**	**039**	**88100**	**87700**	**294**
70 775 02500	**87600**	**039**	**88100**	**87700**	**294**
70 775 11600	**87600**	**118**	**88100**	**87700**	**294**
70 775 12000	**87600**	**118**	**88100**	**87700**	**294**
70 775 12500	**87600**	**118**	**88100**	**87700**	**294**
70 775 21600	**87600**	**120**	**88100**	**87700**	**294**
70 775 22000	**87600**	**120**	**88100**	**87700**	**294**
70 775 22500	**87600**	**120**	**88100**	**87700**	**294**

MaxiLock-N – PRDC 0° – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key



Neutral

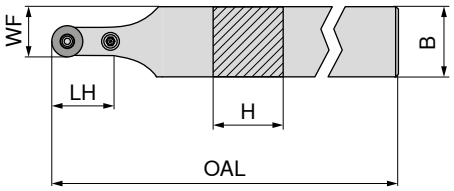
70 544 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	
PRDC N 2525 M12	25	25	150	24	18,5	3	RC.. 1204	**025**
PRDC N 3225 P12	32	25	170	24	18,5	3	RC.. 1204	**032**
PRDC N 3225 P16	32	25	170	28	20,5	4	RC.. 1606	**132**

		Key I	Shim	Assembly pin	Lever	Clamping screw	Solid carbide support R
		70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.							
70 544 025	SW2,5	**175**	**197**	**191**	**178**	**208**	**215**
70 544 032	SW2,5	**175**	**197**	**191**	**178**	**208**	**215**
70 544 132	SW3	**176**	**196**	**192**	**387**	**390**	**384**

MaxiLock-N – PRDC 0° – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key



Neutral

70 545 ...

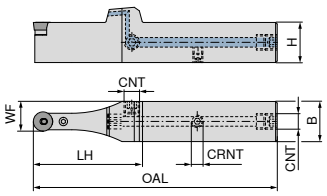
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	
PRDC N 3232 P20	32	32	170	32	26,0	5	RC.. 2006	**23200**
PRDC N 4040 S25	40	40	250	42	32,5	6	RCMT 2507 / RCMX 2507	**40400**

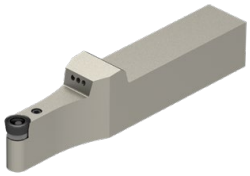
		Key I	Shim	Assembly pin	Lever	Clamping screw	Solid carbide support R
		70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.							
70 545 23200		**177**	**391**	**394**	**28100**	**28500**	**27400**
70 545 40400		**396**	**392**	**395**	**28400**	**28600**	**27500**

MaxiLock-N – PRDC 0° DC – Toolholder with lever clamping

Scope of supply:

Tool holder with allen key





NEW

Neutral

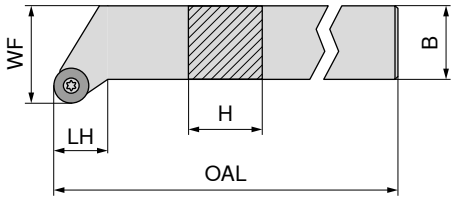
70 595 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	
PRDC N 2020 X12-T DC	20	20	132	63	16,0	M6	G1/8"	3	RC.. 1204	**02000**
PRDC N 2525 X12-T DC	25	25	152	68	18,5	M6	G1/8"	3	RC.. 1204	**02500**
PRDC N 3225 X12-T DC	32	25	168	68	18,5	M6	G1/8"	3	RC.. 1204	**03200**
PRDC N 3225 X16-T DC	32	25	172	72	20,5	M6	G1/8"	4	RC.. 1606	**13200**
PRDC N 3232 X20-T DC	32	32	176	76	26,0	M6	G1/8"	5	RC.. 2006	**23200**
PRDC N 4040 X25-T DC	40	40	216	91	32,5	M6	G1/8"	6	RCMT 2507 / RCMX 2507	**04000**

	Key I	Shim	Assembly pin	Coolant screw plug	Lever	Clamping screw	Solid carbide support R	Grubscrew
	70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.								
70 595 02000	**175**	**197**	**191**	**294**	**178**	**208**	**215**	**86700**
70 595 02500	**175**	**197**	**191**	**294**	**178**	**208**	**215**	**86700**
70 595 03200	**175**	**197**	**191**	**294**	**178**	**208**	**215**	**86700**
70 595 13200	**175**	**196**	**192**	**294**	**387**	**390**	**384**	**86700**
70 595 23200	**177**	**391**	**394**	**294**	**28100**	**28500**	**27400**	**86700**
70 595 04000	**396**	**392**	**395**	**294**	**28400**	**28600**	**27500**	**86700**

MaxiLock-S – SRGC – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

NEW Left-hand
NEW Right-hand

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	70 647 ...	70 647 ...
SRGC R/L 1212 F06	12	12	80	12,5	16	1,2	RC.. 0602	**01200**	**01201**
SRGC R 1616 H06	16	16	100	12,5	20	1,2	RC.. 0602		**01601**
SRGC R/L 2020 K06	20	20	125	15,0	25	1,2	RC.. 0602	**02000**	**02001**
SRGC R/L 2525 M06	25	25	150	18,5	32	1,2	RC.. 0602	**02500**	**02501**
SRGC R/L 1616 H08	16	16	100	13,6	20	1,8	RC.. 0803	**11600**	**11601**
SRGC R 2020 K08	20	20	125	16,1	25	1,8	RC.. 0803		**12001**
SRGC R/L 2525 M08	25	25	150	19,6	32	1,8	RC.. 0803	**12500**	**12501**
SRGC R/L 2020 K10	20	20	125	16,1	25	3,2	RC.. 1003 / RC.. 10T3	**22000**	**22001**
SRGC R/L 2525 M10	25	25	150	19,6	32	3,2	RC.. 1003 / RC.. 10T3	**22500**	**22501**

When using WSP RC .. 10T3 indexable inserts, use insert seat article no. 70 950 92100.

Key D

Clamping screw

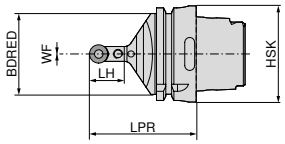
Solid carbide support R

Threaded sleeve

Spare parts for Article no.	80 950 ...		70 950 ...		70 950 ...		70 950 ...	
70 647 01200 / 70 647 01201	T08 - IP	**039**	M2,5x6 - IP	**857**				
70 647 01601	T08 - IP	**039**	M2,5x6 - IP	**857**				
70 647 02000 / 70 647 02001	T08 - IP	**039**	M2,5x6 - IP	**857**				
70 647 02500 / 70 647 02501	T08 - IP	**039**	M2,5x6 - IP	**857**				
70 647 11600 / 70 647 11601	T09 - IP	**118**	M3x7 - IP	**819**				
70 647 12001	T09 - IP	**118**	M3x7 - IP	**819**				
70 647 12500 / 70 647 12501	T09 - IP	**118**	M3x7 - IP	**819**				
70 647 22000 / 70 647 22001	T15 - IP	**120**	M3,5x11	**87900**	**117**	M3,5	**171**	
70 647 22500 / 70 647 22501	T15 - IP	**120**	M3,5x11	**87900**	**117**	M3,5	**171**	

MaxiLock-N – PRDC 0° – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key

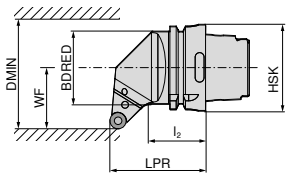


							Neutral
							74 548 ...
ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	
HSK T63 PRDC N 12	HSK-T 63	70	53	0	3	RC.. 1204 M0	**512**
HSK T100 PRDC N 12	HSK-T 100	80	88	0	3	RC.. 1204 M0	**712**
HSK T100 PRDC N 16	HSK-T 100	80	88	0	4	RC.. 1606 M0	**716**

				Key I	Shim	Assembly pin	Lever	Clamping screw	Solid carbide support R
				70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.									
74 548 512		SW2,5		**175**	**197**	**191**	**178**	**208**	**215**
74 548 712		SW2,5		**175**	**197**	**191**	**178**	**208**	**215**
74 548 716		SW3		**176**	**196**	**192**	**387**	**390**	**384**

MaxiLock-N – PRSC – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key



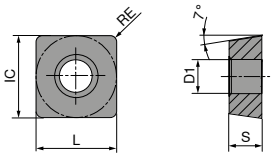
Illustrations show right-hand versions

								Left-hand	Right-hand
								74 552 ...	**74 551 ...**
ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	
HSK T63 PRSC R/L 12	HSK-T 63	70	44	53	45	100	3	RC.. 1204 M0	**512** **512**
HSK T100 PRSC R/L 12	HSK-T 100	80	57	88	55	106	3	RC.. 1204 M0	**712** **712**
HSK T100 PRSC R/L 16	HSK-T 100	80	55	88	55	125	4	RC.. 1606 M0	**716** **716**

				Key I	Shim	Assembly pin	Lever	Clamping screw	Solid carbide support R
				70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.									
74 551 512 / 74 552 512		SW2,5		**175**	**197**	**191**	**178**	**208**	**215**
74 551 712 / 74 552 712		SW2,5		**175**	**197**	**191**	**178**	**208**	**215**
74 551 716 / 74 552 716		SW3		**176**	**196**	**192**	**387**	**390**	**384**

SCGT / SCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
SC.T 09T3..	9,52	3,97	4,4	9,52
SC.T 1204..	12,70	4,76	5,5	12,70



SCGT / SCMT

		-CF05 CTEP110	-CF55 CTEP110	-SF TCM10	NEW -SF CTCP115-P	NEW -SF CTCP125-P	NEW -SMF CTCP115-P	NEW -SMF CTCP135-P
		DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	F	F	F	F	F	F
		CERMET SCGT	CERMET SCMT	CERMET SCGT	SCMT	SCMT	SCMT	SCMT
		76 261 ...	76 260 ...	70 271 ...	76 187 ...	76 269 ...	76 267 ...	76 267 ...
ISO	RE mm							
09T304EN	0,4	004	004	902		50401	30401	
09T308EN	0,8	006	006	904	30601	50601	30601	
120408EN	0,8					51801		71801
P		●	●	●	●	●	●	●
M		○	○	○				○
K		○	○	○	○	○	○	
N								
S								
H								
O								

SCMT

		-SM CTCK110	-SM CTCK120	NEW -SM CTCP115-P	NEW -SM CTCP125-P	NEW -SM CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		M	M	M	M	M
		SCMT	SCMT	SCMT	SCMT	SCMT
		70 268 ...	70 268 ...	76 268 ...	76 268 ...	76 268 ...
ISO	RE mm					
09T304EN	0,4	004	504	30401	50401	70401
09T308EN	0,8	006	506	30601	50601	70601
120408EN	0,8	018	518	31801	51801	71801
120412EN	1,2	020	520		52001	
P		○	○	●	●	●
M						○
K		●	●	○	○	
N						
S						
H						
O						

9

SCMT

		NEW	NEW			
		-M25 CTPM125	-SM CTPM125	-M55 CTCM120	-M55 CTPM125	-M55 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	M	M	M	M
		SCMT	SCMT	SCMT	SCMT	SCMT
		75 222 ...	75 049 ...	75 216 ...	75 216 ...	75 216 ...
ISO	RE mm					
09T304EN	0,4	70400				
09T308EN	0,8		20600	10600	206	30600
120408EN	0,8		21800	11800	218	31800
P		○	○	○	○	○
M		●	●	●	●	●
K						
N						
S						○
H						
O						

SCGT

		-25P H210T	-25P CTPX710	-27 CTPX715	-27 H10T
			DRAGONSKIN	DRAGONSKIN	
		F	M	M	M
		SCGT	SCGT	SCGT	SCGT
		70 283 ...	70 283 ...	70 270 ...	70 270 ...
ISO	RE mm				
09T304FN	0,4			80400	600
09T308FN	0,8			80600	602
120408FN	0,8	634	71600	71800	604
P			●	●	
M			●	●	
K		○		○	○
N		●	●	●	●
S		○	●	●	
H					
O		○		○	○

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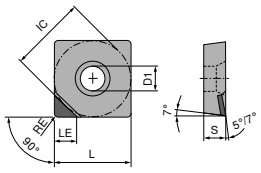
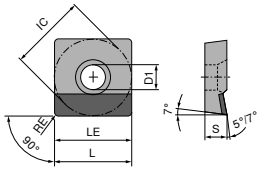
SCGW / SCGT

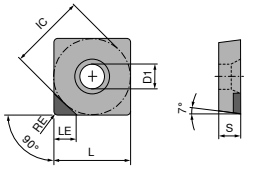
Designation	L	S	D1	IC
	mm	mm	mm	mm
SCG. 09T3..	9,52	3,97	4,4	9,52
SCG. 1204..	12,70	4,76	5,5	12,70



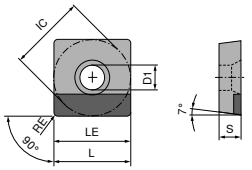
SCGT A



SCGT A



SCGW A



SCGW A

SCGW / SCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDPD20	CTDPD20	-CB1 CTDPD20	CTDPS30	CTDPS30
				F	F	F	F	F
				DIAMOND SCGW	DIAMOND SCGW	DIAMOND SCGT	DIAMOND SCGW	DIAMOND SCGT
				71 182 ...	71 183 ...	71 320 ...	71 182 ...	71 180 ...
ISO	RE mm	TCE (NOI)	LE mm					
09T304FN	0,4	A (1)	9,52		10001			
09T304FN	0,4	A (1)	4,40	10001		114	20601	20001
09T308FN	0,8	A (1)	9,52		10101			
09T308FN	0,8	A (1)	4,30	10101		118		20101
09T312FN	1,2	A (1)	4,20	10201				20201
120404FN	0,4	A (1)	12,70		10201			
120404FN	0,4	A (1)	4,40	10301				
120408FN	0,8	A (1)	4,30	10401				
120408FN	0,8	A (1)	12,70		10301			
120412FN	1,2	A (1)	4,20	10501				
120412FN	1,2	A (1)	12,70		10401			
P								
M								
K								
N				●	●	●	●	●
S								
H								
O				●	●	●	●	●

9

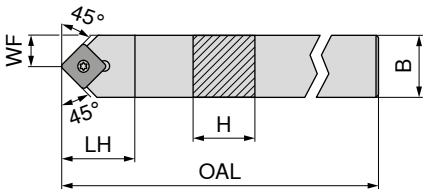
SCGT

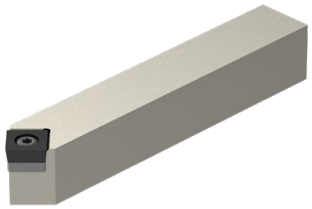
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDPS30	-CB2 CTDPS30	-CB3 CTDPU20
				F	M	R
				DIAMOND SCGT	DIAMOND SCGT	DIAMOND SCGT
				71 181 ...	71 321 ...	71 322 ...
ISO	RE mm	**TCE (NOI)**	LE mm			
09T304FN	0,4	**A (1)**	4,4		214	214
09T308FN	0,8	**A (1)**	9,5	20001		
09T308FN	0,8	**A (1)**	4,3		218	218
120408FN	0,8	**A (1)**	12,7	20101		
120412FN	1,2	**A (1)**	12,0	20201		
P						
M						
K						
N				●	●	●
S						
H						
O				●	●	●

MaxiLock-S – SSDC 45° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key





NEW

Neutral

70 651 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	
SSDC N 1212 F09	12	12	80	16	6,0	3,2	SC.. 09T3..	**01200**
SSDC N 1616 H09	16	16	100	20	8,0	3,2	SC.. 09T3..	**01600**
SSDC N 2020 K09	20	20	125	20	10,0	3,2	SC.. 09T3..	**02000**
SSDC N 1616 H12	16	16	100	25	8,0	5	SC.. 1204..	**11600**
SSDC N 2020 K12	20	20	125	25	10,0	5	SC.. 1204..	**12000**
SSDC N 2525 M12	25	25	150	25	12,5	5	SC.. 1204..	**12500**

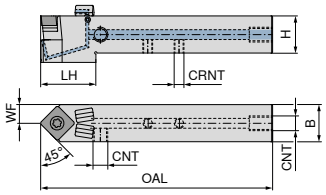
	Key D	Clamping screw	Solid Carbide support S	Threaded sleeve
	80 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.				
70 651 01200	**120**	**87900**		
70 651 01600	**120**	**87900**		
70 651 02000	**120**	**87900**	**167**	**171**
70 651 11600	**120**	**820**	**168**	**170**
70 651 12000	**120**	**820**	**168**	**170**
70 651 12500	**120**	**820**	**168**	**170**

9

MaxiLock-S – SSDC 45° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key



NEW

Neutral

70 776 ...

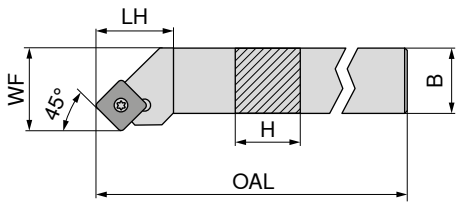
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	
SSDC N 1212 F09 DC	12	12	80	25	12,8	M6	M6	3,2	SC.. 09T3..	**01200**
SSDC N 1616 H09 DC	16	16	100	30	16,0	M6	G1/8"	3,2	SC.. 09T3..	**01600**
SSDC N 2020 K09 DC	20	20	125	30	20,0	M6	G1/8"	3,2	SC.. 09T3..	**02000**
SSDC N 1616 H12 DC	16	16	100	29	17,3	M6	G1/8"	5	SC.. 1204..	**11600**
SSDC N 2020 K12 DC	20	20	125	30	20,0	M6	G1/8"	5	SC.. 1204..	**12000**
SSDC N 2525 M12 DC	25	25	150	30	25,0	M6	G1/8"	5	SC.. 1204..	**02500**

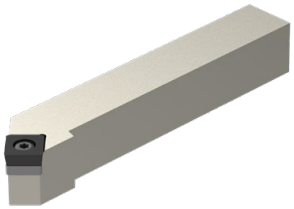
	Clamping screw	Solid Carbide support S	Grubscrew	Grubscrew	Threaded sleeve
	70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
70 776 01200	**87900**			**86700**	
70 776 01600	**87900**	**167**	**88000**	**86700**	**171**
70 776 02000	**87900**	**167**	**88000**	**86700**	**171**
70 776 11600	**820**	**168**	**88000**	**86700**	**170**
70 776 12000	**820**	**168**	**88000**	**86700**	**170**
70 776 02500	**820**	**168**	**88000**	**86700**	**170**

	Sealing plugs DC	Key D	O-Ring	Coolant nozzle DC	Coolant screw plug
	70 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
70 776 01200		**120**			
70 776 01600	**87600**	**120**	**88100**	**87700**	**294**
70 776 02000	**87600**	**120**	**88100**	**87700**	**294**
70 776 11600	**87600**	**120**	**88100**	**87700**	**294**
70 776 12000	**87600**	**120**	**88100**	**87700**	**294**
70 776 02500	**87600**	**120**	**88100**	**87700**	**294**

MaxiLock-S – SSSC 45° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key





Illustrations show right-hand versions

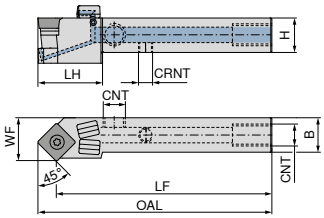
ISO designation	H	B	OAL	LH	WF	torque moment	Insert	NEW Left-hand 70 654 ...	NEW Right-hand 70 654 ...
	mm	mm	mm	mm	mm	Nm			
SSSC R/L 1212 F09	12	12	80	18	16	3,2	SC.. 09T3..	**01200**	**01201**
SSSC R/L 1616 H09	16	16	100	20	20	3,2	SC.. 09T3..	**01600**	**01601**
SSSC R/L 2020 K09	20	20	125	20	25	3,2	SC.. 09T3..	**02000**	**02001**
SSSC R/L 1616 H12	16	16	100	25	20	5	SC.. 1204..	**11600**	**11601**
SSSC R/L 2020 K12	20	20	125	25	25	5	SC.. 1204..	**12000**	**12001**
SSSC R/L 2525 M12	25	25	150	25	32	5	SC.. 1204..	**12500**	**12501**
SSSC R 3225 P12	32	25	170	25	32	5	SC.. 1204..		**13201**

Spare parts for Article no.	Key D 80 950 ...	Clamping screw 70 950 ...	Solid Carbide support S 70 950 ...	Threaded sleeve 70 950 ...
70 654 01201 / 70 654 01200	**120**	**87900**		
70 654 01601 / 70 654 01600	**120**	**87900**	**167**	**171**
70 654 02001 / 70 654 02000	**120**	**87900**	**167**	**171**
70 654 11601 / 70 654 11600	**120**	**820**	**168**	**170**
70 654 12001 / 70 654 12000	**120**	**820**	**168**	**170**
70 654 12501 / 70 654 12500	**120**	**820**	**168**	**170**
70 654 13201	**120**	**820**	**168**	**170**

MaxiLock-S – SSSC 45° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key



Illustrations show right-hand versions

NEW Left-hand

NEW Right-hand

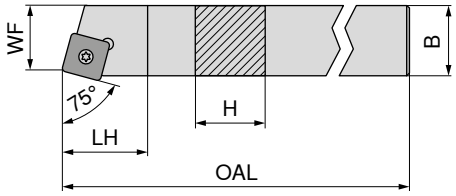
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	70 777 ...	70 777 ...
SSSC R/L 1212 F09 DC	12	12	86,5	22	16,0	M6	M6	3,2	SC.. 09T3..	**01201**	**01200**
SSSC R/L 1616 H09 DC	16	16	106,5	30	20,0	M6	G1/8"	3,2	SC.. 09T3..	**01601**	**01600**
SSSC R/L 2020 K09 DC	20	20	131,5	30	25,0	M6	G1/8"	3,2	SC.. 09T3..	**02001**	**02000**
SSSC R/L 1616 H12 DC	16	16	108,5	30	20,0	M6	G1/8"	5	SC.. 1204..	**11601**	**11600**
SSSC R/L 2020 K12 DC	20	20	133,5	30	25,0	M6	G1/8"	5	SC.. 1204..	**12001**	**12000**
SSSC R/L 2525 M12 DC	25	25	158,5	32	32,0	M6	G1/8"	5	SC.. 1204..	**02501**	**02500**
SSSC L 3225 P 12 DC	32	25	178,5	32	32,1	G1/8"	G1/8"	5	SC.. 1204..	**03201**	

Spare parts for Article no.	Clamping screw 70 950 ...	Solid Carbide support S 70 950 ...	Grubscrew 70 950 ...	Grubscrew 70 950 ...	Threaded sleeve 70 950 ...
70 777 01200 / 70 777 01201	**859**			**86700**	
70 777 01600 / 70 777 01601	**87900**	**167**	**88000**	**86700**	**171**
70 777 02000 / 70 777 02001	**87900**	**167**	**88000**	**86700**	**171**
70 777 11600 / 70 777 11601	**820**	**168**	**88000**	**86700**	**170**
70 777 12000 / 70 777 12001	**820**	**168**	**88000**	**86700**	**170**
70 777 02500 / 70 777 02501	**820**	**168**	**88000**	**86700**	**170**
70 777 03201	**820**	**168**	**88000**		**170**

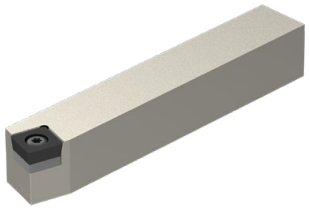
Spare parts for Article no.	Sealing plugs DC 70 950 ...	Key D 80 950 ...	O-Ring 70 950 ...	Coolant nozzle DC 70 950 ...	Coolant screw plug 70 950 ...
70 777 01200 / 70 777 01201		**120**			
70 777 01600 / 70 777 01601	**87600**	**120**	**88100**	**87700**	**294**
70 777 02000 / 70 777 02001	**87600**	**120**	**88100**	**87700**	**294**
70 777 11600 / 70 777 11601	**87600**	**120**	**88100**	**87700**	**294**
70 777 12000 / 70 777 12001	**87600**	**120**	**88100**	**87700**	**294**
70 777 02500 / 70 777 02501	**87600**	**120**	**88100**	**87700**	**294**
70 777 03201	**87600**	**120**	**88100**	**87700**	**294**

MaxiLock-S – SSBC 75° – Toolholder with screw clamping

Scope of supply:
Tool holder with blind plug and Torx key



Illustrations show right-hand versions



								NEW Left-hand	NEW Right-hand
								70 650 ...	70 650 ...
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert		
SSBC R/L 2020 K12	20	20	125	20	17	5	SC.. 1204..	**12000**	**12001**
SSBC R/L 2525 M12	25	25	150	20	22	5	SC.. 1204..	**12500**	**12501**

Key D

Clamping screw

Solid Carbide support S

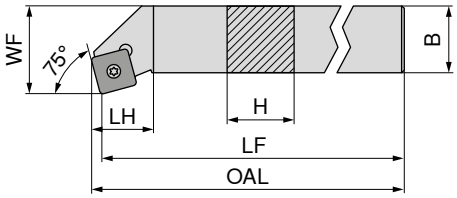
Threaded sleeve

Spare parts for Article no.	Key D 80 950 ...	Clamping screw 70 950 ...	Solid Carbide support S 70 950 ...	Threaded sleeve 70 950 ...
70 650 12001 / 70 650 12000	**120**	**820**	**168**	**170**
70 650 12501 / 70 650 12500	**120**	**820**	**168**	**170**

MaxiLock-S – SSKC 75° – Toolholder with screw clamping

9

Scope of supply:
Tool holder with blind plug and Torx key



Illustrations show right-hand versions

									Left-hand	Right-hand
									70 669 ...	70 668 ...
ISO designation	H mm	B mm	LF mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert		
SSKC R/L 1616 H09	16	16	100	102,3	22	20	3,2	SC.. 09T3..	**016**	**016**
SSKC R/L 2020 K09	20	20	125	127,3	22	25	3,2	SC.. 09T3..	**020**	**020**
SSKC R 2020 K12	20	20	125	127,3	23	25	5	SC.. 1204..		**120**
SSKC R 2525 M12	25	25	150	153,3	23	32	5	SC.. 1204..		**125**

Key D

Combination Key

Clamping screw

Solid Carbide support S

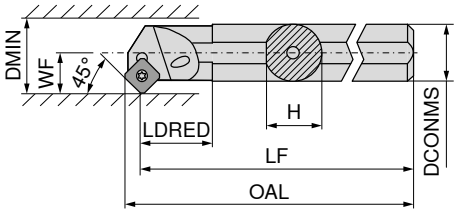
Threaded sleeve

Spare parts for Article no.	Key D 80 950 ...	Combination Key 70 950 ...	Clamping screw 70 950 ...	Solid Carbide support S 70 950 ...	Threaded sleeve 70 950 ...
70 668 016 / 70 669 016	**113**	**398**	**113**	**167**	**171**
70 668 020 / 70 669 020	**113**	**398**	**113**	**167**	**171**
70 668 120	**113**	**398**	**114**	**168**	**170**
70 668 125	**113**	**398**	**114**	**168**	**170**

MaxiLock-S – SSSC 45° – Boring bar with screw clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 721 ...	Right-hand 70 720 ...
S16R SSSC R 09	16	15,00	200	206,0	13,97	11	20	3,2	SC.. 09T3..		**016**
A16M SSSC R/L 09	16	15,25	150	156,0	29,00	11	20	3,2	SC.. 09T3..	**216**	**216**
A20Q SSSC R/L 09	20	19,00	180	186,0	32,00	13	25	3,2	SC.. 09T3..	**220**	**220**
A25R SSSC R/L 09	25	24,50	200	206,0	36,00	17	32	3,2	SC.. 09T3..	**225**	**225**
A32S SSSC R/L 12	32	31,00	250	258,3	50,00	22	40	5	SC.. 1204..	**232**	**232**
A40T SSSC R/L 12	40	39,00	300	308,1	60,00	27	50	5	SC.. 1204..	**240**	**240**

Key D
80 950 ...

Combination Key
70 950 ...

Clamping screw
70 950 ...

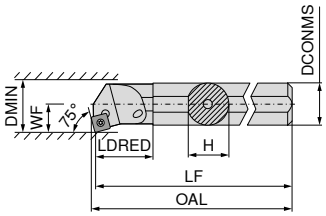
Solid Carbide support S
70 950 ...

Threaded sleeve
70 950 ...

Spare parts for Article no.						
70 720 016	**113**		**110**			
70 720 216 / 70 721 216	**113**		**110**			
70 720 220 / 70 721 220	**113**		**304**			
70 720 225 / 70 721 225	**113**		**304**			
70 720 232 / 70 721 232		**398**	**114**	**168**		**170**
70 720 240 / 70 721 240		**398**	**114**	**168**		**170**

MaxiLock-S – SSKC 75° – Boring bar with screw clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 725 ...	Right-hand 70 724 ...
A16M SSKC R/L 09	16	15,0	150	152,4	29	11	20	3,2	SC.. 09T3..	**216**	**216**
A20Q SSKC R/L 09	20	18,5	180	182,4	32	13	25	3,2	SC.. 09T3..	**220**	**220**
A25R SSKC R/L 09	25	23,0	200	202,4	36	17	32	3,2	SC.. 09T3..	**225**	**225**

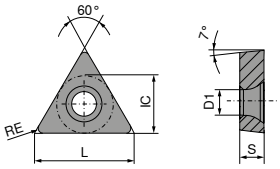
Key D
80 950 ...

Clamping screw
70 950 ...

Spare parts for Article no.						
70 724 216 / 70 725 216	T15	**113**	M3,5x7,2	**110**		
70 724 220	T15	**113**	M3,5x8,6	**304**		
70 725 220	T15	**113**	M3,5x8,6	**304**		
70 724 225 / 70 725 225	T15	**113**	M3,5x8,6	**304**		

TCGT / TCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
TCMT 0902..	9,6	2,38	2,50	5,56
TC.T 1102..	11,0	2,38	2,80	6,35
TC.T 16T3..	16,5	3,97	4,40	9,52
TCMT 2204..	22,0	4,76	5,16	12,70



TCGT / TCMT

		NEW	NEW	NEW
		-CF05 CTEP110	-CF55 CTEP110	-SF TCM10	-SMF TCM10	-SF CTCP125-P	-SMF CTCP115-P	-SMF CTCP135-P
		DRAGONSKIN	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	F	F	F	F	F	F
		CERMET TCGT	CERMET TCMT	CERMET TCGT	CERMET TCMT	TCMT	TCMT	TCMT
		76 272 ...	76 266 ...	70 273 ...	70 284 ...	76 275 ...	76 284 ...	76 284 ...
ISO	RE mm							
110202EN	0,2	014		900				
110204EN	0,4	016	016	902	902	51601		
110208EN	0,8	018				51801	31801	71801
16T304EN	0,4	028		906		52801	32801	
16T308EN	0,8		030			53001	33001	
P		●	●	●	●	●	●	●
M		○	○	○	○			○
K		○	○	○	○	○	○	
N								
S								
H								
O								

9

TCGT / TCMT

		NEW			NEW	NEW	NEW	NEW
		-SM CTCP135-P	-SM CTCK110	-SM CTCK120	-SM CTCP115-P	-SM CTCP115-P	-SM CTCP125-P	-SM CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		M	M	M	M	M	M	M
		TCGT	TCMT	TCMT	TCMT	TCMT	TCMT	TCMT
		76 270 ...	70 274 ...	70 274 ...	76 189 ...	76 274 ...	76 274 ...	76 274 ...
ISO	RE mm							
090204EN	0,4						50401	70401
110202EN	0,2	71401						
110204EN	0,4		016	516		31601	51601	71601
110208EN	0,8		018	518		31801		71801
16T304EN	0,4		028	528		32801	52801	72801
16T308EN	0,8		030	530		33001	53001	73001
16T312EN	1,2		032	532				
220408EN	0,8				34201		54201	74201
P		●	○	○	●	●	●	●
M		○						○
K			●	●	○	○	○	
N								
S								
H								
O								

TCMT

		NEW				NEW	
		-F43 CTCM130	-M25 CTCM120	-M25 CTPM125	-M25 CTCM130	-SM CTPM125	-M55 CTCM120
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	F	F	F	M	M
		TCMT	TCMT	TCMT	TCMT	TCMT	TCMT
		75 033 ...	75 217 ...	75 217 ...	75 217 ...	75 050 ...	75 218 ...
ISO	RE mm						
090204EN	0,4			20400		20400	10400
110204EN	0,4	31600	11600	216	31600	21600	11600
16T304EN	0,4	32800	12800	228	32800	22800	
16T308EN	0,8	33000	13000	230	33000	23000	13000
220408EN	0,8					24200	
220412EN	1,2					24400	
P		○	○	○	○	○	○
M		●	●	●	●	●	●
K							
N							
S		○			○		
H							
O							

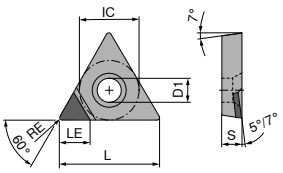
TCMT / TCGT

	-M55 CTPM125	-M55 CTCM130	-27 H10T	-27 CTPX715
	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN
	M	M	M	M
	TCMT	TCMT	TCGT	TCGT
	75 218 ...	75 218 ...	70 276 ...	70 276 ...
ISO / RE mm				
090204EN 0,4	204	30400		
110202FN 0,2			600	71400
110204EN 0,4	216	31600		
110204FN 0,4			602	81600
16T302FN 0,2			604	
16T304FN 0,4			606	72800
16T308EN 0,8	230	33000		
16T308FN 0,8			608	83000
P	○	○		●
M	●	●		●
K			○	○
N			●	●
S		○		●
H				
O			○	○

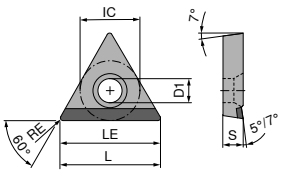
9

TCGW / TCGT

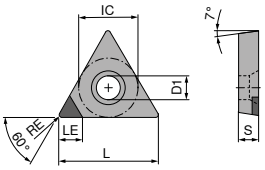
Designation	L	S	D1	IC
	mm	mm	mm	mm
TCG. 0902..	9,6	2,38	2,5	5,56
TCG. 1102..	11,0	2,38	2,8	6,35
TCG. 16T3..	16,5	3,97	4,4	9,52



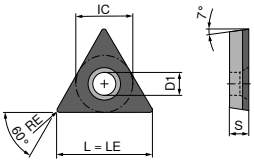
TCGT A



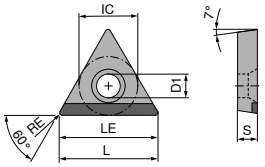
TCGT A



TCGW A



TCGW F



TCGW A

TCGW / TCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDPD20	CTDPD20	CTDPD20	CTDPD20	-CB1 CTDPD20	CTDPS30
				F	F	F	F	F	F
				DIAMOND TCGW	DIAMOND TCGW	DIAMOND TCGW	DIAMOND TCGT	DIAMOND TCGT	DIAMOND TCGT
				71 188 ...	71 187 ...	71 140 ...	71 184 ...	71 325 ...	71 184 ...
ISO	RE mm	TCE (NOI)	LE mm						
090202FN	0,2	A (1)	3,7			100		112	20001
090204FN	0,4	A (1)	3,4			102		114	20101
090208FN	0,8	A (1)	3,0			104	10001		
090208FN	0,8	A (1)	9,6	10001					
110202FN	0,2	A (1)	3,7			106	10101	122	
110202FN	0,2	F	11,0		10001				
110204FN	0,4	A (1)	3,4			108	10201	124	20201
110204FN	0,4	F	11,0		10101				
110204FN	0,4	A (1)	11,0	10101					
110208FN	0,8	A (1)	3,0			110	10301		
110208FN	0,8	A (1)	11,0	10201					
16T304FN	0,4	A (1)	4,6			112	10401	134	20301
16T304FN	0,4	A (1)	16,5	10301					
16T308FN	0,8	A (1)	4,2			114	10501	13600	
16T308FN	0,8	A (1)	16,5	10401					
16T312FN	1,2	A (1)	3,8			11600			
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

TCGW / TCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

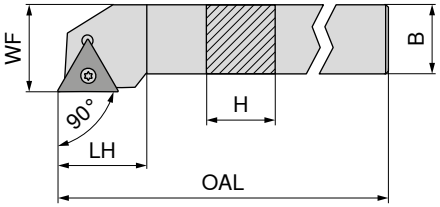
				CTDPS30	CTDPS30	-CB2 CTDPS30	CTDPU20	-CB3 CTDPU20	CTDCD10
				F	F	M	F	R	F
				DIAMOND TCGW	DIAMOND TCGT	DIAMOND TCGT	DIAMOND TCGW	DIAMOND TCGT	DIAMOND TCGW
				71 186 ...	71 185 ...	71 326 ...	71 188 ...	71 327 ...	71 186 ...
ISO	RE mm	TCE (NOI)	LE mm						
090202FN	0,2	A (1)	3,7	20001		212			
090204FN	0,4	A (1)	3,4			214			
090204FN	0,4	A (1)	9,6		20001				
110202FN	0,2	A (1)	2,6						40001
110202FN	0,2	A (1)	3,7	20101		222			
110204FN	0,4	A (1)	2,3						40101
110204FN	0,4	A (1)	3,4	20201		224		224	
110204FN	0,4	A (1)	11,0		20101		30001		
110208FN	0,8	A (1)	2,0						40201
110208FN	0,8	A (1)	11,0		20201				
16T304FN	0,4	A (1)	2,3						40301
16T304FN	0,4	A (1)	4,6			234			
16T304FN	0,4	A (1)	16,5		20301				
16T308FN	0,8	A (1)	2,0						40401
16T308FN	0,8	A (1)	4,2					238	
16T308FN	0,8	A (1)	16,5		20401				
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

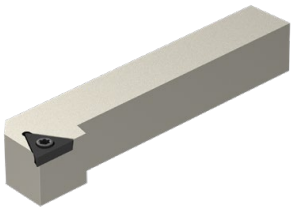
9

MaxiLock-S – STGC 90° – Toolholder with screw clamping

Scope of supply:

Tool holder with Torx key





Illustrations show right-hand versions

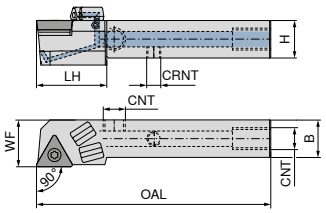
								NEW Left-hand	NEW Right-hand
								70 659 ...	70 659 ...
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert		
STGC R/L 1212 F11	12	12	80	15	16	1,2	TC.. 1102	**01200**	**01201**
STGC R/L 1616 H16	16	16	100	22	20	3,2	TC.. 16T3	**01600**	**01601**
STGC R/L 2020 K16	20	20	125	22	25	3,2	TC.. 16T3	**02000**	**02001**
STGC R/L 2525 M16	25	25	150	22	32	3,2	TC.. 16T3	**02500**	**02501**

	Key D	Clamping screw	Solid Carbide Seat T	Threaded sleeve
	80 950 ...	70 950 ...	70 950 ...	70 950 ...
Spare parts for Article no.				
70 659 01201 / 70 659 01200	**039**	**857**		
70 659 01601 / 70 659 01600	**120**	**87900**	**169**	**171**
70 659 02001 / 70 659 02000	**120**	**87900**	**169**	**171**
70 659 02501 / 70 659 02500	**120**	**87900**	**169**	**171**

MaxiLock-S – STGC 90° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key



Illustrations show right-hand versions

										NEW		NEW	
										Left-hand		Right-hand	
										70 778 ...		70 778 ...	
ISO designation	H	B	OAL	LH	WF	CRNT	CNT	torque moment	Insert				
	mm	mm	mm	mm	mm			Nm					
STGC R/L 1212 F11 DC	12	12	80	17,1	16	M6	M6	1,2	TC.. 1102		**01201**		**01200**
STGC R/L 1616 H16 DC	16	16	100	30,0	20	M6	G1/8"	3,2	TC.. 16T3		**01601**		**01600**
STGC R/L 2020 K16 DC	20	20	125	28,0	25	M6	G1/8"	3,2	TC.. 16T3		**02001**		**02000**
STGC R/L 2525 M16 DC	25	25	150	30,0	32	M6	G1/8"	3,2	TC.. 16T3		**02501**		**02500**

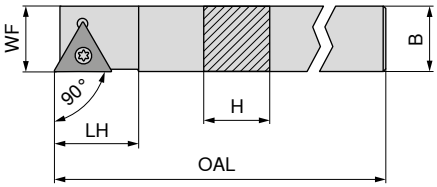
	Clamping screw	Solid Carbide Seat T	Grubscrew	Grubscrew	Threaded sleeve
	70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
70 778 01200 / 70 778 01201	**857**			**86700**	
70 778 01600 / 70 778 01601	**87900**	**169**	**88000**	**86700**	**171**
70 778 02000 / 70 778 02001	**87900**	**169**	**88000**	**86700**	**171**
70 778 02500 / 70 778 02501	**87900**	**169**	**88000**	**86700**	**171**

	Sealing plugs DC	Key D	O-Ring	Coolant nozzle DC	Coolant screw plug
	70 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
70 778 01200 / 70 778 01201		**039**			
70 778 01600 / 70 778 01601	**87600**	**120**	**88100**	**87700**	**294**
70 778 02000 / 70 778 02001	**87600**	**120**	**88100**	**87700**	**294**
70 778 02500 / 70 778 02501	**87600**	**120**	**88100**	**87700**	**294**

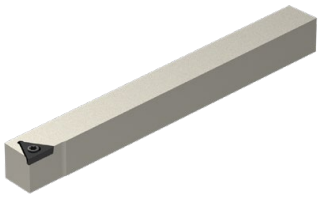
MaxiLock-S – STAC 90° – Toolholder with screw clamping

▲ for sliding head lathes

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	NEW Left-hand 70 655 ...	NEW Right-hand 70 655 ...
STAC R/L 1212 K11	12	12	125	15	12	1,2	TC.. 1102	**01200**	**01201**

Key D

80 950 ...

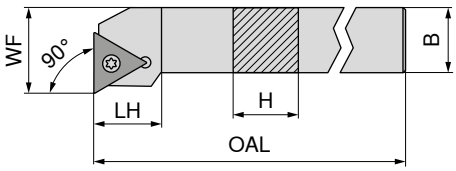
Clamping screw

70 950 ...

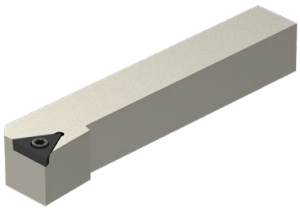
Spare parts for Article no.				
70 655 01201 / 70 655 01200	T08 - IP	**039**	M2,5x6 - IP	**857**

MaxiLock-S – STFC 90° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	NEW Left-hand 70 658 ...	NEW Right-hand 70 658 ...
STFC R/L 1212 F11	12	12	80	15	16	1,2	TC.. 1102	**01200**	**01201**
STFC R/L 1616 H16	16	16	100	20	20	3,2	TC.. 16T3	**01600**	**01601**
STFC R/L 2020 K16	20	20	125	20	25	3,2	TC.. 16T3	**02000**	**02001**
STFC R/L 2525 M16	25	25	150	20	32	3,2	TC.. 16T3	**02500**	**02501**

Key D

80 950 ...

Clamping screw

70 950 ...

Solid Carbide Seat T

70 950 ...

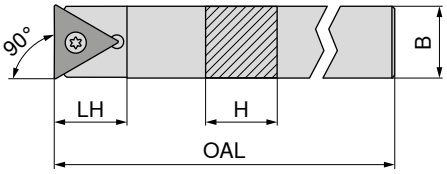
Threaded sleeve

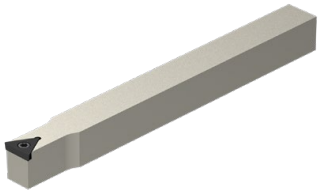
70 950 ...

Spare parts for Article no.						
70 658 01200 / 70 658 01201	**039**	**857**				
70 658 01600 / 70 658 01601	**120**	**87900**	**169**	**171**		
70 658 02000 / 70 658 02001	**120**	**87900**	**169**	**171**		
70 658 02500 / 70 658 02501	**120**	**87900**	**169**	**171**		

MaxiLock-S – STCC 90° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key





NEW
Neutral

ISO designation	H mm	B mm	OAL mm	LH mm	torque moment Nm	Insert	70 657 ...
STCC N 0808 K09	8	8	125	11	1	TC.. 0902	**00800**
STCC N 1010 K11	10	10	125	15	1,2	TC.. 1102	**01000**
STCC N 1212 K11	12	12	125	15	1,2	TC.. 1102	**01200**
STCC N 1414 K11	14	14	125	21	1,2	TC.. 1102	**01400**
STCC N 1616 K11	16	16	125	24	1,2	TC.. 1102	**01600**

Key D

Clamping screw

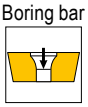
Spare parts for Article no.	80 950 ...		70 950 ...	
70 657 00800	T07 - IP	**117**	M2,2x5 - IP	**856**
70 657 01000	T08 - IP	**039**	M2,5x6 - IP	**857**
70 657 01200	T08 - IP	**039**	M2,5x6 - IP	**857**
70 657 01400	T08 - IP	**039**	M2,5x6 - IP	**857**
70 657 01600	T08 - IP	**039**	M2,5x6 - IP	**857**

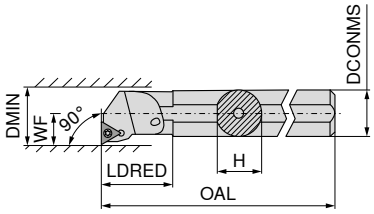
9

MaxiLock-S – STFC 90° – Boring bar with screw clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 729 ...	Right-hand 70 728 ...
A10H STFC R/L 09	10	9,5	100	19	7	13	1	TC.. 0902	**210**	**210**
A12K STFC R/L 11	12	11,5	125	22	9	16	1,2	TC.. 1102	**212**	**212**
A16M STFC R/L 11	16	15,0	150	29	11	20	1,2	TC.. 1102	**216**	**216**
S16R STFC R 11	16	15,0	200	21	11	21	1,2	TC.. 1102		**016**
S20S STFC R 11	20	18,0	250	15	13	25	1,2	TC.. 1102		**020**
A20Q STFC R/L 11	20	18,5	180	32	13	25	1,2	TC.. 1102	**220**	**220**
A25R STFC R/L 16	25	24,0	200	36	17	32	3,2	TC.. 16T3	**225**	**225**
A32S STFC R/L 16	32	31,0	250	50	22	40	3,2	TC.. 16T3	**232**	**232**
A40T STFC R/L 16	40	39,0	300	60	27	50	3,2	TC.. 16T3	**240**	**240**

Clamping screw

Solid Carbide Seat T

Threaded sleeve

Spare parts for Article no.		70 950 ...		70 950 ...		70 950 ...
70 728 020	M2,5x6 - T08	**13800**				
70 729 210 / 70 728 210	M2,2x5	**111**				
70 728 016	M2,5x6 - T08	**13800**				
70 729 212 / 70 728 212	M2,5x6 - T08	**13800**				
70 729 216 / 70 728 216	M2,5x6 - T08	**13800**				
70 729 220 / 70 728 220	M2,5x6 - T08	**13800**				
70 729 225 / 70 728 225	M3,5x11	**113**	**169**	M3,5	**171**	
70 729 232 / 70 728 232	M3,5x11	**113**	**169**	M3,5	**171**	
70 729 240 / 70 728 240	M3,5x11	**113**	**169**	M3,5	**171**	

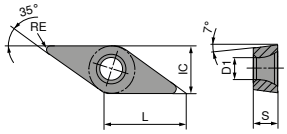
Key D

Combination Key

Spare parts for Article no.		80 950 ...		70 950 ...
70 728 020	T08	**110**		
70 729 210 / 70 728 210	T07	**109**		
70 728 016	T08	**110**		
70 729 212 / 70 728 212	T08	**110**		
70 729 216 / 70 728 216	T08	**110**		
70 729 220 / 70 728 220	T08	**110**		
70 729 225 / 70 728 225			T15/SW	**398**
70 729 232 / 70 728 232			T15/SW	**398**
70 729 240 / 70 728 240			T15/SW	**398**

VCGT / VCMT / VCET

Designation	L	S	D1	IC
	mm	mm	mm	mm
VC.T 1103..	11,1	3,18	2,9	6,35
VC.T 1604..	16,6	4,76	4,4	9,52
VCGT 2205..	22,1	5,56	5,5	12,70



VCGT / VCMT

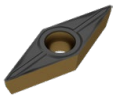
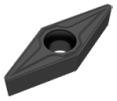
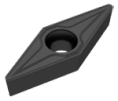
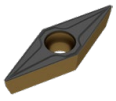
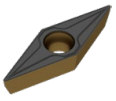
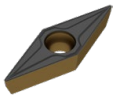
		NEW	NEW				NEW	NEW
		-CF05 CTEP110	-CF55 CTEP110	-SF TCM407	-SF TCM10	-SMF TCM10	-SF CTCP115-P	-SF CTCP115-P
		DRAGONSKIN	DRAGONSKIN				DRAGONSKIN	DRAGONSKIN
		F	F	F	F	F	F	F
		CERMET VCGT	CERMET VCMT	CERMET VCGT	CERMET VCGT	CERMET VCMT	VCMT	VCGT
		76 276 ...	76 292 ...	70 277 ...	70 277 ...	70 288 ...	76 279 ...	76 277 ...
ISO	RE mm							
110301EN	0,1				892			
110302EN	0,2	014		844	894			31401
110304EN	0,4	016	016	846	896	896		31601
110308EN	0,8							31801
160404EN	0,4	028	028	850	900	900	32801	
160408EN	0,8	030	030		902	902	33001	
P		●	●	●	●	●	●	●
M		○	○	○	○	○		
K		○	○	○	○	○	○	○
N								
S								
H								
O								

VCGT / VCMT

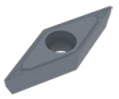
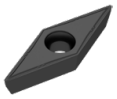
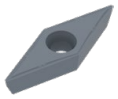
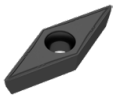
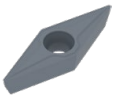
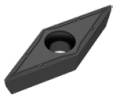
		NEW	NEW	NEW	NEW	NEW	NEW	NEW
		-SF CTCP125-P	-SF CTCP125-P	-SF CTCP135-P	-SF CTCP135-P	-SMF CTCP115-P	-SMF CTCP125-P	-SMF CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	F	F	F	F	F	F
		VCGT	VCMT	VCGT	VCMT	VCMT	VCMT	VCGT
		76 277 ...	76 279 ...	76 277 ...	76 279 ...	76 288 ...	76 288 ...	76 285 ...
ISO	RE mm							
110302EN	0,2	51401		71401				71401
110304EN	0,4	51601		71601		31601	51601	
110308EN	0,8	51801		71801				
160404EN	0,4		52801		72801	32801	52801	
160408EN	0,8		53001			33001	53001	
P		●	●	●	●	●	●	●
M				○	○			○
K		○	○			○	○	
N								
S								
H								
O								

9

VCMT

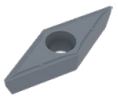
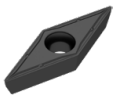
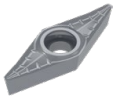
		NEW				NEW	NEW	NEW
		-SMF CTCP135-P	-SM CTCK110	-SM CTCK120	-SM CTCP115-P	-SM CTCP125-P	-SM CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		F	M	M	M	M	M
		VCMT	VCMT	VCMT	VCMT	VCMT	VCMT
		76 288 ...	70 278 ...	70 278 ...	76 278 ...	76 278 ...	76 278 ...
ISO	RE mm						
110304EN	0,4	71601					
160404EN	0,4	72801	028	528	32801	52801	72801
160406EN	0,6				32901		
160408EN	0,8	73001	030	530	33001	53001	73001
160412EN	1,2		032	532	33201	53201	73201
P		●	○	○	●	●	●
M		○					○
K			●	●	○	○	
N							
S							
H							
O							

VCGT / VCMT

		NEW	NEW				NEW	
		-SF CTPM125	-SF CTPM125	-M25 CTCM120	-M25 CTPM125	-M25 CTCM130	-SM CTPM125	-M55 CTCM120
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	F	F	F	F	M	M
		VCGT	VCMT	VCMT	VCMT	VCMT	VCMT	VCMT
		75 045 ...	75 046 ...	75 219 ...	75 219 ...	75 219 ...	75 051 ...	75 220 ...
ISO	RE mm							
110302EN	0,2	21400						
110304EN	0,4	21600						
160404EN	0,4		22800	12800	228	32800	22800	12800
160408EN	0,8		23000	13000	23000	33000	23000	13000
P		○	○	○	○	○	○	○
M		●	●	●	●	●	●	●
K								
N								
S						○		
H								
O								

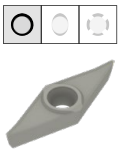
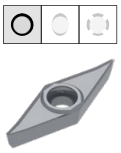
→ v_c Page 196–209

VCMT / VCGT

		-M55 CTPM125	-M55 CTCM130	-25P H210T	-25P CTPX710	-25Q H210T	NEW -25Q CTPX710
		DRAGONSKIN	DRAGONSKIN		DRAGONSKIN		
							
		M	M	F	M	M	M
		VCMT	VCMT	VCGT	VCGT	VCGT	VCGT
		75 220 ...	75 220 ...	70 282 ...	70 282 ...	70 282 ...	70 282 ...
ISO	RE mm						
110302FN	0,2			638	71400		
110304FL	0,4					670	81600
110304FN	0,4			640	71600		
110304FR	0,4					680	81700
160404EN	0,4	228	32800				
160404FN	0,4			642	72800		
160408EN	0,8	230	33000				
160408FN	0,8			644	73000		
160412FN	1,2			646	73200		
220530FN	3,0			648	75000		
P		○	○		●		●
M		●	●		●		●
K				○		○	
N				●	●	●	●
S			○	○	●	○	●
H							
O				○		○	

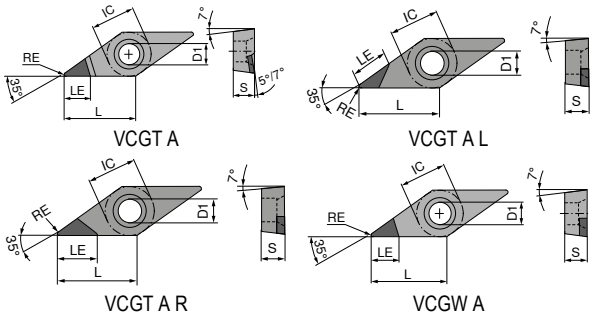
9

VCGT / VCMT / VCET

					NEW						
		-27 H10T		-27 CTPX715 DRAGONSKIN		-29 H216T		-29 CTPX715 DRAGONSKIN		-F05 CTPX710 DRAGONSKIN	
											
		M VCGT		M VCGT		M VCMT		M VCMT		F VCET	
		70 280 ...		70 280 ...		70 247 ...		70 247 ...		76 255 ...	
ISO	RE mm										
1103005FN	0,05										11400
110301FN	0,10										11600
1103015FN	0,15										11800
110302FN	0,20		606		81400						12000
160404EN	0,40						62800		72800		
110304FN	0,40		608		81600						12200
160404FN	0,40		612		82800						
160408EN	0,80						63000		73000		
160408FN	0,80		614		83000						
110308FN	0,80		610		71800						
160412FN	1,20		616								
160412EN	1,20						63200		73200		
220530FN	3,00		618								
P					●				●		●
M					●				●		●
K			○		○		○		○		
N			●		●		●		●		●
S					●				●		●
H											
O			○		○		○		○		

VCGT / VCGW

Designation	L	S	D1	IC
	mm	mm	mm	mm
VCG. 0702..	6,9	2,38	2,2	3,97
VCG. 1103..	11,1	3,18	2,9	6,35
VCG. 1303..	13,3	3,18	3,4	7,94
VCG. 1604..	16,6	4,76	4,4	9,52



VCGT / VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDMD05	CTDMD05	CTDPD20	CTDPD20	CTDPD20	CTDPD20
				F	F	F	F	F	F
				DIAMOND VCGT	DIAMOND VCGW	DIAMOND VCGW	DIAMOND VCGT	DIAMOND VCGT	DIAMOND VCGT
				71 189 ...	71 160 ...	71 160 ...	71 062 ...	71 063 ...	71 064 ...
ISO	RE mm	TCE (NOI)	LE mm						
070202FN	0,2	A (1)		50001					
070204FN	0,4	A (1)		50101					
110301FN	0,1	A (1)	5,4				10100		
110302FN	0,2	A (1)	3,0		050				
110302FN	0,2	A (1)	4,6	50201		100	100		
110304FN	0,4	A (1)	3,0		052				
110304FN	0,4	A (1)	3,9	50301		102	102		
110304FR	0,4	A (1)	6,5					102	
110304FL	0,4	A (1)	6,5						102
110308FN	0,8	A (1)	3,3			104	104		
110308FR	0,8	A (1)	6,0					104	
110308FL	0,8	A (1)	6,0						104
160401FN	0,1	A (1)	6,0				10700		
160402FN	0,2	A (1)	5,9			105	105		
160402FN	0,2	A (1)		50401					
160404FN	0,4	A (1)	5,5			106	106		
160404FN	0,4	A (1)		50501					
160404FR	0,4	A (1)	7,5					106	
160404FL	0,4	A (1)	7,5						106
160408FN	0,8	A (1)	5,0		07800	108	108		
160408FR	0,8	A (1)	7,0					108	
160408FL	0,8	A (1)	7,0						108
160408FN	0,8	A (1)		50601					
160412FN	1,2	A (1)	4,5			110	110		
160412FR	1,2	A (1)	7,0					110	
160412FL	1,2	A (1)	7,0						110
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

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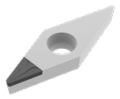
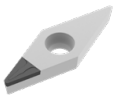
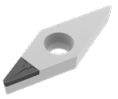
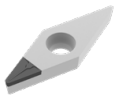
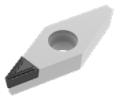
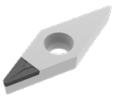
VCGT / VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				-CB1 CTDPD20	CTDPS30	CTDPS30	-CB1 CTDPS30	-CB2 CTDPS30	CTDPU20
									
				F	F	F	F	M	F
				DIAMOND VCGT	DIAMOND VCGW	DIAMOND VCGT	DIAMOND VCGT	DIAMOND VCGT	DIAMOND VCGW
				71 330 ...	71 191 ...	71 189 ...	71 330 ...	71 331 ...	71 191 ...
ISO	RE mm	TCE (NOI)	LE mm						
070201FN	0,1	A (1)	3,8			20001			
070202FN	0,2	A (1)	3,6		20001				
070204FN	0,4	A (1)	3,2		20101				
110301FN	0,1	A (1)	5,4	11000	20201	20101			
110302FN	0,2	A (1)	4,6	112	20301	20201	21200	212	
110304FN	0,4	A (1)	3,9	114	20401	20301	214	214	
110308FN	0,8	A (1)	3,3					21800	
130302FN	0,2	A (1)	5,9		20501	20401			
160401FN	0,1	A (1)	6,0		20601	20501			
160402FN	0,2	A (1)	5,9	13200		20601		23200	
160404FN	0,4	A (1)	5,5	134	20701	20701	234	234	30001
160408FN	0,8	A (1)	5,0	138	20801		238	238	
160412FN	1,2	A (1)	4,5	14000	20901		24000	242	
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

VCGT / VCGW

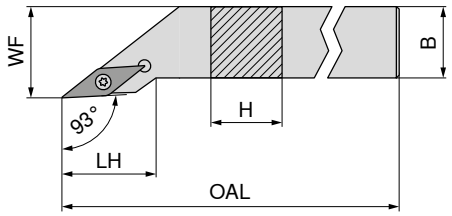
▲ TCE(NOI) = Design and number of equipped cutting edge corners

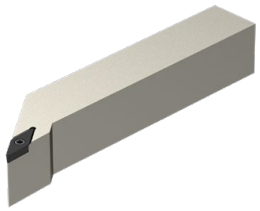
				-CB2 CTDPU20	-CB3 CTDPU20	CTDCD10	-CB1 CTDCD10	-CB2 CTDCD10
								
				M	R	F	F	M
				DIAMOND VCGT	DIAMOND VCGT	DIAMOND VCGW	DIAMOND VCGT	DIAMOND VCGT
				71 190 ...	71 332 ...	71 191 ...	71 330 ...	71 331 ...
ISO	RE mm	TCE (NOI)	LE mm					
110301FN	0,1	A (1)	3,0				31000	
110302FN	0,2	A (1)	3,0			40001	312	312
110304FN	0,4	A (1)	3,0			40101	314	314
110304FN	0,4	A (1)	3,9		214			
110308FN	0,8	A (1)	3,0			40201		
160402FN	0,2	A (1)	3,0			40301	32200	33200
160404FN	0,4	A (1)	3,0			40401	32400	334
160404FN	0,4	A (1)	5,5	30001	234			
160408FN	0,8	A (1)	3,0			40501	32600	338
160412FN	1,2	A (1)	3,0				32800	34000
P								
M								
K								
N				●	●	●	●	●
S								
H								
O				●	●	●	●	●

9

MaxiLock-S – SVJC 93° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key





Illustrations show right-hand versions

								NEW		NEW	
								Left-hand		Right-hand	
								70 663 ...		**70 663 ...**	
ISO designation	H	B	OAL	LH	WF	torque moment	Insert				
	mm	mm	mm	mm	mm	Nm					
SVJC R/L 1212 F11	12	12	80	21,6	16	1,2	VC.. 1103	**01200**		**01201**	
SVJC R/L 1616 H11	16	16	100	21,6	20	1,2	VC.. 1103	**01600**		**01601**	
SVJC R/L 2020 K11	20	20	125	23,0	25	1,2	VC.. 1103	**02000**		**02001**	
SVJC R/L 2525 M11	25	25	150	25,5	32	1,2	VC.. 1103	**02500**		**02501**	
SVJC R/L 2020 K16	20	20	125	29,4	25	3,2	VC.. 1604	**12000**		**12001**	
SVJC R/L 2525 M16	25	25	150	32,5	32	3,2	VC.. 1604	**12500**		**12501**	
SVJC R/L 3225 P16	32	25	170	32,5	32	3,2	VC.. 1604	**13200**		**13201**	

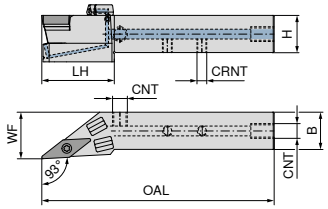
								Key D		Clamping screw	
								80 950 ...		**70 950 ...**	
Spare parts for Article no.											
70 663 01201 / 70 663 01200								**039**		**857**	
70 663 01601 / 70 663 01600								**039**		**857**	
70 663 02001 / 70 663 02000								**039**		**857**	
70 663 02501 / 70 663 02500								**039**		**857**	
70 663 12001 / 70 663 12000								**120**		**87900**	
70 663 12501 / 70 663 12500								**120**		**87900**	
70 663 13201 / 70 663 13200								**120**		**87900**	

								Solid Carbide Seat V		Threaded sleeve	
								70 950 ...		**70 950 ...**	
								107		**171**	
								107		**171**	
								107		**171**	

MaxiLock-S – SVJC 93° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key



Illustrations show right-hand versions

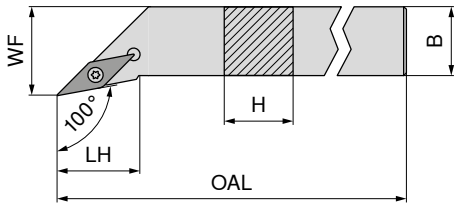
										NEW	NEW
										Left-hand	Right-hand
										70 780 ...	**70 780 ...**
ISO designation	H	B	OAL	LH	WF	CRNT	CNT	torque moment	Insert		
	mm	mm	mm	mm	mm			Nm			
SVJC R/L 1212 F11 DC	12	12	80	30	16	M6	M6	1,2	VC.. 1103	**01201**	**01200**
SVJC R/L 1616 H11 DC	16	16	100	27	20	M6	G1/8"	1,2	VC.. 1103	**01601**	**01600**
SVJC R/L 2020 K11 DC	20	20	125	39	25	M6	G1/8"	1,2	VC.. 1103	**02001**	**02000**
SVJC R/L 2525 M11 DC	25	25	150	41	32	M6	G1/8"	1,2	VC.. 1103	**02501**	**02500**
SVJC R/L 2020 K16 DC	20	20	125	39	25	M6	G1/8"	3,2	VC.. 1604	**12001**	**12000**
SVJC R/L 2525 M16 DC	25	25	150	41	32	M6	G1/8"	3,2	VC.. 1604	**12501**	**12500**
SVJC R/L 3225 P16 DC	32	25	170	41	32	G1/8"	G1/8"	3,2	VC.. 1604	**03201**	**03200**

	Clamping screw	Solid Carbide Seat V	Grubscrew	Grubscrew	Threaded sleeve
	70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
70 780 01200 / 70 780 01201	**857**			**86700**	
70 780 01600 / 70 780 01601	**857**		**88000**	**86700**	
70 780 02000 / 70 780 02001	**857**		**88000**	**86700**	
70 780 02500 / 70 780 02501	**857**		**88000**	**86700**	
70 780 12000 / 70 780 12001	**87900**	**107**	**88000**	**86700**	**171**
70 780 12500 / 70 780 12501	**87900**	**107**	**88000**	**86700**	**171**
70 780 03200 / 70 780 03201	**87900**	**107**	**88000**		**171**

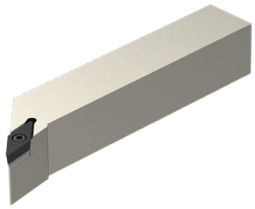
	Sealing plugs DC	Key D	O-Ring	Coolant nozzle DC	Coolant screw plug
	70 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
70 780 01200 / 70 780 01201		**039**			
70 780 01600 / 70 780 01601	**87600**	**039**	**88100**	**87700**	**294**
70 780 02000 / 70 780 02001	**87600**	**039**	**88100**	**87700**	**294**
70 780 02500 / 70 780 02501	**87600**	**039**	**88100**	**87700**	**294**
70 780 12000 / 70 780 12001	**87600**	**120**	**88100**	**87700**	**294**
70 780 12500 / 70 780 12501	**87600**	**120**	**88100**	**87700**	**294**
70 780 03200 / 70 780 03201	**87600**	**120**	**88100**	**87700**	**294**

MaxiLock-S – SVZC 100° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions



NEW Left-hand **70 667 ...**

NEW Right-hand **70 667 ...**

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert		
SVZC R/L 2525 M16	25	25	150	27,3	32	3,2	VC.. 1604	**02500**	**02501**

Key D **80 950 ...**

Clamping screw **70 950 ...**

Solid Carbide Seat V **70 950 ...**

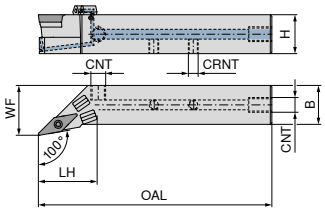
Threaded sleeve **70 950 ...**

Spare parts for Article no.							
70 667 02500 / 70 667 02501	T15 - IP	**120**	M3,5x11	**87900**	**107**	M3,5	**171**

MaxiLock-S – SVZC 100° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key



Illustrations show right-hand versions

	NEW Left-hand	NEW Right-hand
	70 783 ...	70 783 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert		
SVZC R/L 2525 M16 DC	25	25	150	38	32	M6	G1/8"	3,2	VC.. 1604	**02501**	**02500**

	Clamping screw	Solid Carbide Seat V	Grubscrew	Grubscrew	Threaded sleeve
	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
Spare parts for Article no.					
70 783 02500 / 70 783 02501	**87900**	**107**	**88000**	**86700**	**171**

	Sealing plugs DC	Key D	O-Ring	Coolant nozzle DC	Coolant screw plug
	70 950 ...	80 950 ...	70 950 ...	70 950 ...	70 950 ...
Spare parts for Article no.					
70 783 02500 / 70 783 02501	**87600**	**120**	**88100**	**87700**	**294**

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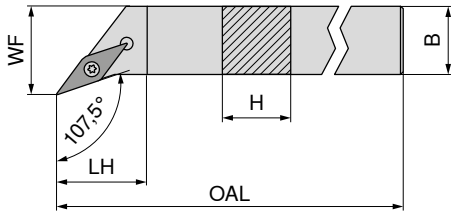
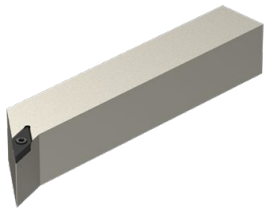
MaxiLock-S – SVHC 107.5° – Toolholder with screw clamping

Scope of supply:

Tool holder with Torx key





Illustrations show right-hand versions

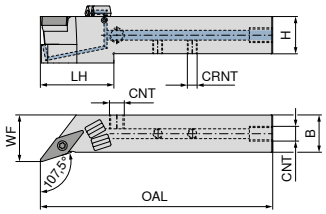
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	NEW Left-hand 70 662 ...	NEW Right-hand 70 662 ...
SVHC R/L 1212 F11	12	12	80	11,9	16	1,2	VC.. 1103	**01200**	**01201**
SVHC R/L 1616 H11	16	16	100	11,9	20	1,2	VC.. 1103	**01600**	**01601**
SVHC R/L 2020 K11	20	20	125	14,7	25	1,2	VC.. 1103	**02000**	**02001**
SVHC R/L 2525 M11	25	25	150	20,1	32	1,2	VC.. 1103	**02500**	**02501**
SVHC R/L 2020 K16	20	20	125	13,7	25	3,2	VC.. 1604	**12000**	**12001**
SVHC R/L 2525 M16	25	25	150	20,0	32	3,2	VC.. 1604	**12500**	**12501**
SVHC R/L 3225 P16	32	25	170	20,0	32	3,2	VC.. 1604	**13200**	**13201**
SVHC R/L 2525 M22	25	25	150	21,9	32	5	VC.. 2205	**22500**	**22501**

Spare parts for Article no.	Key D 80 950 ...	Clamping screw 70 950 ...	Solid Carbide Seat V 70 950 ...	Threaded sleeve 70 950 ...
70 662 01201 / 70 662 01200	**039**	**857**		
70 662 01601 / 70 662 01600	**039**	**857**		
70 662 02001 / 70 662 02000	**039**	**857**		
70 662 02501 / 70 662 02500	**039**	**857**		
70 662 12001 / 70 662 12000	**120**	**87900**	**107**	**171**
70 662 12501 / 70 662 12500	**120**	**87900**	**107**	**171**
70 662 13201 / 70 662 13200	**120**	**87900**	**107**	**171**
70 662 22501 / 70 662 22500	**120**	**820**	**109**	**170**

MaxiLock-S – SVHC 107.5° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key



Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	NEW Left-hand 70 779 ...	NEW Right-hand 70 779 ...
SVHC R/L 1212 F11 DC	12	12	80	28	16	M6	M6	1,2	VC.. 1103	**01201**	**01200**
SVHC R/L 1616 H11 DC	16	16	100	27	20	M6	G1/8"	1,2	VC.. 1103	**01601**	**01600**
SVHC R/L 2020 K11 DC	20	20	125	37	27	M6	G1/8"	1,2	VC.. 1103	**02001**	**02000**
SVHC R/L 2525 M11 DC	25	25	150	38	32	M6	G1/8"	1,2	VC.. 1103	**02501**	**02500**
SVHC R/L 2020 K16 DC	20	20	125	38	25	M6	G1/8"	3,2	VC.. 1604	**12001**	**12000**
SVHC R/L 2525 M16 DC	25	25	150	38	32	M6	G1/8"	3,2	VC.. 1604	**12501**	**12500**
SVHC R/L 3225 P16 DC	32	25	170	38	32	M6	G1/8"	3,2	VC.. 1604	**03201**	**03200**
SVHC R/L 2525 M22 DC	25	25	150	41	32	M6	G1/8"	5	VC.. 2205	**22501**	**22500**

Spare parts for Article no.	Clamping screw 70 950 ...	Solid Carbide Seat V 70 950 ...	Grubscrew 70 950 ...	Grubscrew 70 950 ...	Threaded sleeve 70 950 ...
70 779 01200 / 70 779 01201	**857**			**86700**	
70 779 01600 / 70 779 01601	**857**		**88000**	**86700**	
70 779 02000 / 70 779 02001	**857**		**88000**	**86700**	
70 779 02500 / 70 779 02501	**857**		**88000**	**86700**	
70 779 12000 / 70 779 12001	**87900**	**107**	**88000**	**86700**	**171**
70 779 12500 / 70 779 12501	**87900**	**107**	**88000**	**86700**	**171**
70 779 03200 / 70 779 03201	**87900**	**107**	**88000**	**86700**	**171**
70 779 22500 / 70 779 22501	**820**	**109**	**88000**	**86700**	**170**

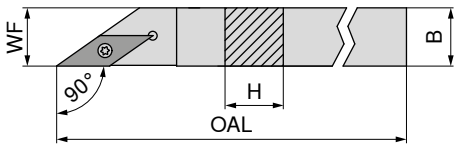
Spare parts for Article no.	Sealing plugs DC 70 950 ...	Key D 80 950 ...	O-Ring 70 950 ...	Coolant nozzle DC 70 950 ...	Coolant screw plug 70 950 ...
70 779 01200 / 70 779 01201		**039**			
70 779 01600 / 70 779 01601	**87600**	**039**	**88100**	**87700**	**294**
70 779 02000 / 70 779 02001	**87600**	**039**	**88100**	**87700**	**294**
70 779 02500 / 70 779 02501	**87600**	**039**	**88100**	**87700**	**294**
70 779 12000 / 70 779 12001	**87600**	**120**	**88100**	**87700**	**294**
70 779 12500 / 70 779 12501	**87600**	**120**	**88100**	**87700**	**294**
70 779 03200 / 70 779 03201	**87600**	**120**	**88100**	**87700**	**294**
70 779 22500 / 70 779 22501	**87600**	**120**	**88100**	**87700**	**294**

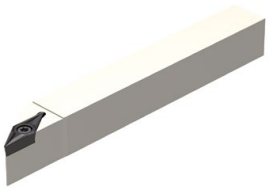
MaxiLock-S – SVAC 90° – Toolholder with screw clamping

▲ for sliding head lathes

Scope of supply:

Tool holder with Torx key





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Left-hand 70 695 ...	Right-hand 70 694 ...
SVAC R/L 0808 H11	8	8	100	8	1,2	VC.. 1103	**008**	**008**
SVAC R/L 1010 H11	10	10	100	10	1,2	VC.. 1103	**010**	**010**
SVAC R/L 1212 H11	12	12	100	12	1,2	VC.. 1103	**012**	**012**

Key D

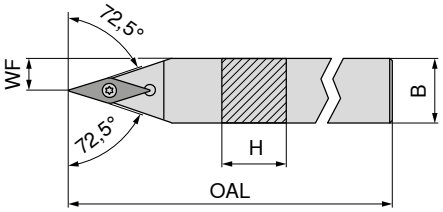
Clamping screw

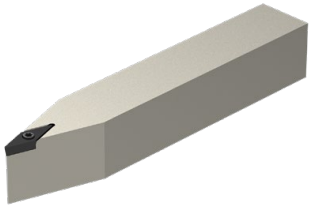
Spare parts for Article no.		Key D 80 950 ...		Clamping screw 70 950 ...	
70 694 008 / 70 695 008	T08	**110**	M2,5x6 - T08	**13800**
70 694 010 / 70 695 010	T08	**110**	M2,5x6 - T08	**13800**
70 694 012 / 70 695 012	T08	**110**	M2,5x6 - T08	**13800**

MaxiLock-S – SVVC 72.5° – Toolholder with screw clamping

Scope of supply:

Tool holder with Torx key





NEW

Neutral

ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	70 666 ...
SVVC N 1212 F11	12	12	80	6,0	1,2	VC.. 1103	**01200**
SVVC N 1616 H11	16	16	100	8,0	1,2	VC.. 1103	**01600**
SVVC N 2020 K11	20	20	125	10,0	1,2	VC.. 1103	**02000**
SVVC N 2525 M11	25	25	150	12,5	1,2	VC.. 1103	**02500**
SVVC N 2020 K16	20	20	125	10,0	3,2	VC.. 1604	**12000**
SVVC N 2525 M16	25	25	150	12,5	3,2	VC.. 1604	**12500**
SVVC N 3225 P16	32	25	170	12,5	3,2	VC.. 1604	**13200**

Key D

Clamping screw

Solid Carbide Seat V

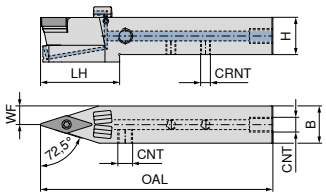
Threaded sleeve

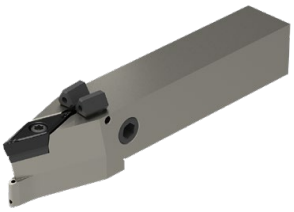
Spare parts for Article no.	Key D 80 950 ...		Clamping screw 70 950 ...		Solid Carbide Seat V 70 950 ...		Threaded sleeve 70 950 ...	
70 666 01200	**039**		**857**					
70 666 01600	**039**		**857**					
70 666 02000	**039**		**857**					
70 666 02500	**039**		**857**					
70 666 12000	**120**		**87900**		**107**		**171**	
70 666 12500	**120**		**87900**		**107**		**171**	
70 666 13200	**120**		**87900**		**107**		**171**	

MaxiLock-S – SVVC 72.5° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key





NEW

Neutral

70 781 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	
SVVC N 1212 F11 DC	12	12	80	29,0	6,0	M6	M6	1,2	VC.. 1103	**01200**
SVVC N 1616 H11 DC	16	16	100	29,5	8,0	M6	G1/8"	1,2	VC.. 1103	**01600**
SVVC N 2020 K11 DC	20	20	125	43,0	10,0	M6	G1/8"	1,2	VC.. 1103	**02000**
SVVC N 2525 M11 DC	25	25	150	43,0	12,5	M6	G1/8"	1,2	VC.. 1103	**02500**
SVVC N 2020 K16 DC	20	20	125	43,0	10,0	M6	G1/8"	3,2	VC.. 1604	**12000**
SVVC N 2525 M16 DC	25	25	150	43,0	12,5	M6	G1/8"	3,2	VC.. 1604	**12500**
SVVC N 3225 P16 DC	32	25	170	44,0	12,5	G1/8"	G1/8"	3,2	VC.. 1604	**03200**

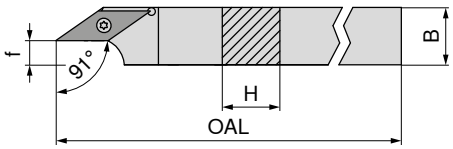
	Clamping screw	Solid Carbide Seat V	Grubscrew	Grubscrew	Threaded sleeve
	70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
70 781 01200	**857**			**86700**	
70 781 01600	**857**		**88000**	**86700**	
70 781 02000	**857**		**88000**	**86700**	
70 781 02500	**857**		**88000**	**86700**	
70 781 12000	**87900**	**107**	**88000**	**86700**	**171**
70 781 12500	**87900**	**107**	**88000**	**86700**	**171**
70 781 03200	**87900**	**107**	**88000**		**171**

	Sealing plugs DC	Key D	O-Ring	Coolant nozzle DC	Coolant screw plug
	70 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
70 781 01200		**039**			
70 781 01600	**87600**	**039**	**88100**	**87700**	**294**
70 781 02000	**87600**	**039**	**88100**	**87800**	**294**
70 781 02500	**87600**	**039**	**88100**	**87700**	**294**
70 781 12000	**87600**	**120**	**88100**	**87800**	**294**
70 781 12500	**87600**	**120**	**88100**	**87800**	**294**
70 781 03200	**87600**	**120**	**88100**	**87700**	**294**

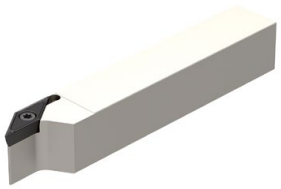
MaxiLock-S – SVXC 91° – Toolholder with screw clamping

▲ for sliding head lathes

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	f mm	torque moment Nm	Insert	Left-hand 70 691 ...	Right-hand 70 690 ...
SVXC R/L 1010 H11	10	10	100	2,5	1,2	VC.. 1103	**010**	**010**
SVXC R/L 1212 H11	12	12	100	4,5	1,2	VC.. 1103	**012**	**012**
SVXC R/L 1616 K11	16	16	125	8,5	1,2	VC.. 1103	**016**	**016**
SVXC R/L 2020 K16	20	20	125	8,5	3,2	VC.. 1604	**020**	**020**

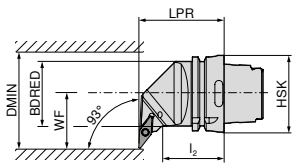
Key D

Clamping screw

Spare parts for Article no.		Key D 80 950 ...		Clamping screw 70 950 ...	
70 690 010 / 70 691 010	T08	**110**	M2,5x6 - T08	**13800**
70 690 012 / 70 691 012	T08	**110**	M2,5x6 - T08	**13800**
70 690 016 / 70 691 016	T08	**110**	M2,5x6 - T08	**13800**
70 690 020 / 70 691 020	T15	**113**	M3,5x11	**113**

MaxiLock-S – SVUC 93° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 557 ...	Right-hand 74 558 ...
HSK T63 SVUC R/L 16	HSK-T 63	70	42	53	45	100	3.2	VC.. 1604	**516**	**516**

Combination Key

Clamping screw

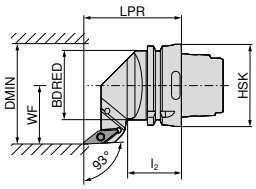
Solid Carbide Seat V

Threaded sleeve

Spare parts for Article no.		Combination Key 70 950 ...		Clamping screw 70 950 ...		Solid Carbide Seat V 70 950 ...		Threaded sleeve 70 950 ...
74 558 516 / 74 557 516	T15/SW	**398**	M3,5x11	**113**	**107**	M3,5	**171**

MaxiLock-S – SVJC 93° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

	Left-hand	Right-hand
	74 556 ...	**74 555 ...**

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert		
HSK T63 SVJC R/L 16	HSK-T 63	75	42	53	45	100	3.2	VC.. 1604	**516**	**516**

Combination Key

70 950 ...

Clamping screw

70 950 ...

Solid Carbide Seat V

70 950 ...

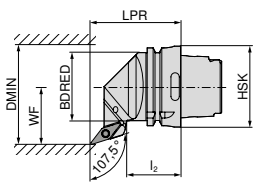
Threaded sleeve

70 950 ...

Spare parts for Article no.							
74 555 516 / 74 556 516	T15/SW	**398**	M3,5x11	**113**	**107**	M3,5	**171**

MaxiLock-S – SVHC 107.5° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

	Left-hand	Right-hand
	74 554 ...	**74 553 ...**

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert		
HSK T63 SVHC R/L 16	HSK-T 63	70	42	53	45	100	3.2	VC.. 1604	**516**	**516**

Combination Key

70 950 ...

Clamping screw

70 950 ...

Solid Carbide Seat V

70 950 ...

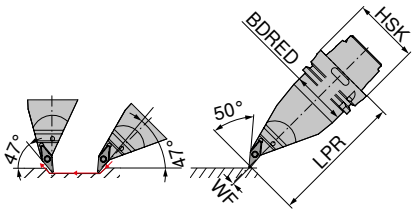
Threaded sleeve

70 950 ...

Spare parts for Article no.							
74 553 516 / 74 554 516	T15/SW	**398**	M3,5x11	**113**	**107**	M3,5	**171**

MaxiLock-S – SVMC 50° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key



ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Left-hand 74 560 ...
HSK T63 SVMC L 16	HSK-T 63	130	53	0	3.2	VC.. 1604	**516**

Combination Key
70 950 ...

Clamping screw
70 950 ...

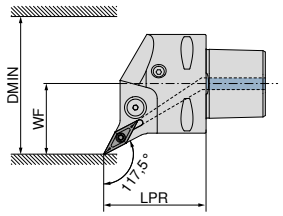
Solid Carbide Seat V
70 950 ...

Threaded sleeve
70 950 ...

Spare parts for Article no.						
74 560 516	T15/SW	**398**	M3,5x11	**113**	**107**	M3,5	**171**

MaxiLock-S – SVPC 117,5° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	Left-hand 84 671 ...	Right-hand 84 670 ...
PSC40 SVPC R/L 50050-16	PSC 40	50	27	50	3	VC.. 1604	DC	**01695**	**01695**
PSC50 SVPC R/L 65060-16	PSC 50	60	35	65	3	VC.. 1604	DC	**01694**	**01694**
PSC63 SVPC R/L 80065-16	PSC 63	65	45	80	3	VC.. 1604	DC	**01693**	**01693**

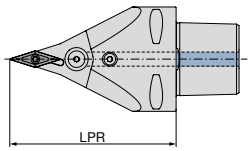
The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**

Clamping screw
84 950 ...

Spare parts for Article no.	
84 670 01695 / 84 671 01695	**27600**
84 670 01694 / 84 671 01694	**27600**
84 670 01693 / 84 671 01693	**27600**

MaxiLock-S – SVVC 72.5° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set



Neutral
84 678 ...

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	
PSC63 SVVC N 0100-16	PSC 63	100	3	VC.. 1604	DC	**01693**
PSC63 SVVC N 0130-16	PSC 63	130	3	VC.. 1604	DC	**11693**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**

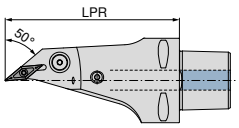
Clamping screw
84 950 ...

Spare parts for Article no.	
84 678 01693	**27600**
84 678 11693	**27600**

9

MaxiLock-S – SVMC 50° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set



Neutral
84 681 ...

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	
PSC63 SVMC L 0130-16	PSC 63	130	3	VC.. 1604	DC	**11693**

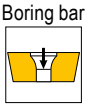
The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**

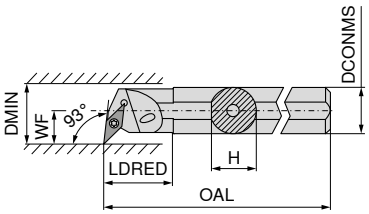
Clamping screw
84 950 ...

Spare parts for Article no.	
84 681 11693	**27600**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions

	Left-hand	Right-hand
	70 745 ...	**70 744 ...**

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert		
A16M SVUC R/L 11	16	15	150	29	11	20	1,2	VC.. 1103	**216**	**216**
A20Q SVUC R/L 11	20	19	180	43	13	25	1,2	VC.. 1103	**220**	**220**
A25R SVUC R/L 11	25	24	200	38	17	32	1,2	VC.. 1103	**225**	**225**
A32S SVUC R/L 16	32	31	250	50	22	40	3,2	VC.. 1604	**232**	**232**
A40T SVUC R/L 16	40	39	300	60	27	50	3,2	VC.. 1604	**240**	**240**

Key D

Combination Key

Clamping screw

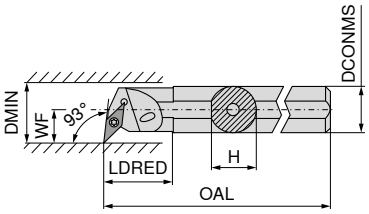
Solid Carbide Seat V

Threaded sleeve

	80 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
70 744 216 / 70 745 216	**110**		**13800**		
70 744 220 / 70 745 220	**110**		**13800**		
70 744 225 / 70 745 225	**110**		**13800**		
70 744 232 / 70 745 232		**398**	**113**	**107**	**171**
70 744 240 / 70 745 240		**398**	**113**	**107**	**171**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions

	Right-hand
	70 746 ...

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	
E-A16M SVUC R 11	16	15	150	16,5	11	21	1,2	VC.. 1103	**216**
E-A20Q SVUC R 11	20	18	180	20,5	13	25	1,2	VC.. 1103	**220**
E-A25R SVUC R 11	25	23	200	25,5	17	31	1,2	VC.. 1103	**225**
E-A25R SVUC R 16	25	23	200	25,5	17	31	3,2	VC.. 1604	**325**
E-A32S SVUC R 16	32	30	250	32,5	22	39	3,2	VC.. 1604	**232**

Key D

Clamping screw

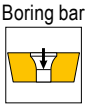
	80 950 ...	**70 950 ...**
Spare parts for Article no.		
70 746 216	**110**	**13800**
70 746 220	**110**	**13800**
70 746 225	**110**	**13800**
70 746 325	**113**	**449**
70 746 232	**113**	**449**

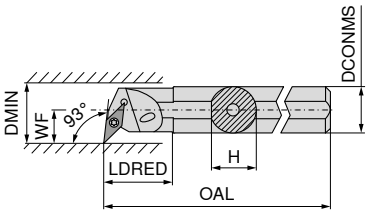
MaxiLock-S – SVUC 93° – Boring bar with screw clamping

▲ Type: Solid carbide

Scope of supply:

Boring bar with Torx key





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 747 ...	Right-hand 70 746 ...
E16R SVUC L 11	16	15,0	200	34	11	20	1,2	VC.. 1103	**016**	
E16R SVUC R 11	16	15,5	200	34	11	20	1,2	VC.. 1103		**016**
E20S SVUC L 11	20	18,5	250	38	13	25	1,2	VC.. 1103	**020**	
E20S SVUC R 11	20	19,0	250	38	13	25	1,2	VC.. 1103		**020**

Key D

Clamping screw

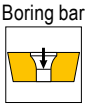
Spare parts for Article no.		Key D 80 950 ...		Clamping screw 70 950 ...	
70 747 016	T08	**110**	M2,5x6 - T08	**13800**	
70 746 016	T08	**110**	M2,5x6 - T08	**13800**	
70 747 020	T08	**110**	M2,5x6 - T08	**13800**	
70 746 020	T08	**110**	M2,5x6 - T08	**13800**	

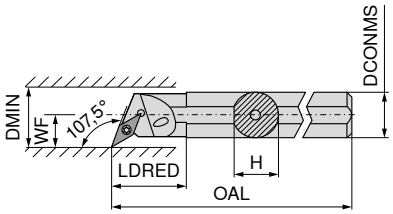
9

MaxiLock-S – SVQC 107.5° – Boring bar with screw clamping

Scope of supply:

Boring bar with Torx key





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 749 ...	Right-hand 70 748 ...
A16M SVQC R/L 11	16	15,0	150	29	11	20	1,2	VC.. 1103	**216**	**216**
A20Q SVQC R/L 11	20	18,5	180	32	13	25	1,2	VC.. 1103	**220**	**220**
A25R SVQC R/L 11	25	23,0	200	36	17	32	1,2	VC.. 1103	**225**	**225**
A32S SVQC R/L 16	32	30,0	250	50	22	40	3,2	VC.. 1604	**232**	**232**
A40T SVQC R/L 16	40	38,0	300	60	27	50	3,2	VC.. 1604	**240**	**240**

Key D

Combination Key

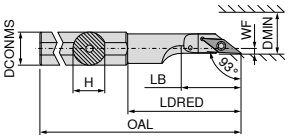
Clamping screw

Solid Carbide Seat V

Threaded sleeve

Spare parts for Article no.	Key D 80 950 ...	Combination Key 70 950 ...	Clamping screw 70 950 ...	Solid Carbide Seat V 70 950 ...	Threaded sleeve 70 950 ...
70 748 216 / 70 749 216	**110**		**13800**		
70 748 220 / 70 749 220	**110**		**13800**		
70 748 225 / 70 749 225	**110**		**13800**		
70 748 232 / 70 749 232		**398**	**113**	**107**	**171**
70 748 240 / 70 749 240		**398**	**113**	**107**	**171**

MaxiLock-S – SVJC 93° – Boring bar with screw clamping



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 727 ...
A16M SVJC L 11	16	15	150	50,0	2	22	1,2	VC.. 1103	**216**
A20M SVJC L 11	20	19	150	55,5	2	25	1,2	VC.. 1103	**220**
A25M SVJC L 16	25	24	150	58,0	5	28	3,2	VC.. 1604	**225**

Key D

80 950 ...

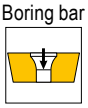
Clamping screw

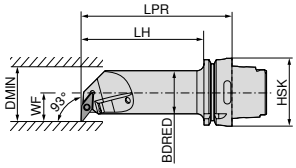
70 950 ...

Spare parts for Article no.		
70 727 216 / 70 726 216	**110**	**13800**
70 727 220 / 70 726 220	**110**	**13800**
70 727 225 / 70 726 225	**113**	**174**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 568 ...	Right-hand 74 567 ...
HSK T63 40L SVUC R/L 16	HSK-T 63	140	114	40	27	50	3.2	VC.. 1604	**516**	**516**

Combination Key

70 950 ...

Clamping screw

70 950 ...

Solid Carbide Seat V

70 950 ...

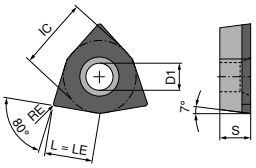
Threaded sleeve

70 950 ...

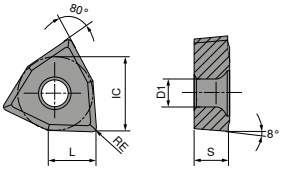
Spare parts for Article no.					
74 567 516 / 74 568 516	T15/SW	**398**	M3,5x11	**113**	**107**	M3,5	**171**

WCGT / WCGW

Designation	L	S	D1	IC
	mm	mm	mm	mm
WCGW 0201..	2,70	1,58	2,3	3,97
WCGT 0201..	2,71	1,59	2,1	3,97



CBN/PKD WCGW F



WCGT

WCGT

	-SF TCM10	-SF CTPP430	-SF H216T
		DRAGONSKIN	
	F	**F**	**F**
	CERMET		
	WCGT	WCGT	WCGT
	70 287 ...	**70 287 ...**	**70 287 ...**
ISO RE mm			
020102EN 0,2	**900**	**450**	**600**
020104EN 0,4	**902**	**452**	**602**
P	●	●	
M	○	●	
K	○	○	○
N		○	●
S		○	
H			
O			○

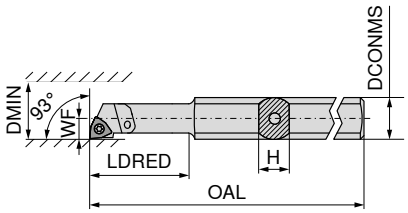
9

WCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

	CTDPD20
	F
	DIAMOND
	WCGW
	71 154 ...
ISO RE mm / TCE (NOI) / LE mm	
020102FN 0,2 **F** 2,7	**100**
020104FN 0,4 **F** 2,7	**102**
P	
M	
K	
N	●
S	
H	
O	●

MaxiLock-S – SWUC 93° – Boring bar with screw clamping



Illustrations show right-hand versions

ISO designation	H mm	OAL mm	LDRED mm	WF mm	DCONMS mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 731 ...	Right-hand 70 730 ...
A0508H SWUC R/L 02	7	100	24	2,9	8	5,8	0,4	WC.. 0201..	**005**	**005**
A0608H SWUC R/L 02	7	100	24	3,9	8	7,8	0,4	WC.. 0201..	**006**	**006**

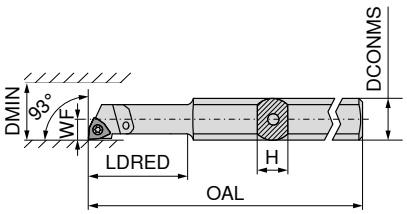
Key D

Clamping screw

Spare parts for Article no.		80 950 ...		70 950 ...
70 731 005 / 70 730 005	T06	**108**	M1,8x3,4	**334**
70 731 006 / 70 730 006	T06	**108**	M1,8x3,4	**334**

MaxiLock-S – SWUC 93° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions

ISO designation	H mm	OAL mm	LDRED mm	WF mm	DCONMS mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 743 ...	Right-hand 70 742 ...
E-A0508H SWUC R/L 02	7	100	24	2,9	8	5,8	0,4	WC.. 0201..	**005**	**005**
E-A0608H SWUC R/L 02	7	100	24	3,9	8	7,8	0,4	WC.. 0201..	**006**	**006**
SET							0,4	WC.. 0201..	**999**	**999**

Set includes boring bars **70 743 005** and **70 743 006** or **70 742 005** and **70 742 006**

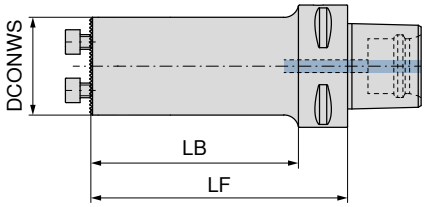
Key D

Clamping screw

Spare parts for Article no.		80 950 ...		70 950 ...
70 743 005 / 70 742 005	T06	**108**	M1,8x3,4	**334**
70 743 006 / 70 742 006	T06	**108**	M1,8x3,4	**334**

MaxiChange – Base holders for the exchangeable head system

Scope of supply:
Includes clamping screws



NEW

Adapter	LF mm	LB mm	DCONWS mm	84 192 ...
PSC 40	40	20	16	**01695**
PSC 40	50	30	20	**02095**
PSC 40	55	35	25	**02595**
PSC 40	75	55	32	**03295**
PSC 40	80		40	**04095**
PSC 50	40	20	16	**01694**
PSC 50	50	30	20	**02094**
PSC 50	55	35	25	**02594**
PSC 50	75	55	32	**03294**
PSC 50	100	80	40	**04094**
PSC 63	40	18	16	**01693**
PSC 63	50	28	20	**02093**
PSC 63	65	43	25	**02593**
PSC 63	90	68	32	**03293**
PSC 63	125	103	32	**13293**
PSC 63	100	78	40	**04093**
PSC 63	140	118	40	**14093**

Clamping Screw

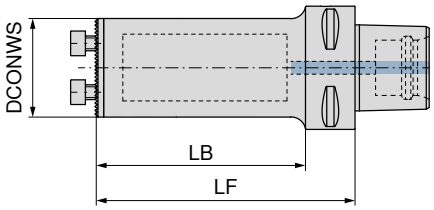
Spare parts for Article no.		84 950 ...
84 192 02595	M4X12 (SW3)	**30000**
84 192 03295	M5X14 (SW4)	**29900**
84 192 04095	M6X16 (SW5)	**29800**
84 192 02594	M4X12 (SW3)	**30000**
84 192 03294	M5X14 (SW4)	**29900**
84 192 04094	M6X16 (SW5)	**29800**
84 192 02593	M4X12 (SW3)	**30000**
84 192 03293	M5X14 (SW4)	**29900**
84 192 04093	M6X16 (SW5)	**29800**
84 192 13293	M5X14 (SW4)	**29900**
84 192 14093	M6X16 (SW5)	**29800**

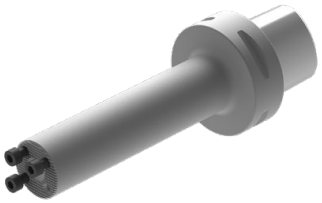
MaxiChange – Base holders for the exchangeable head system – vibration-damped

▲ Heavy metal core reduces vibrations

Scope of supply:

Includes clamping screws





84 195 ...

Adapter	LF mm	LB mm	DCONWS mm	
PSC 63	115	93	25	**02593**
PSC 63	150	128	32	**03293**
PSC 63	185	163	40	**04093**

Clamping Screw

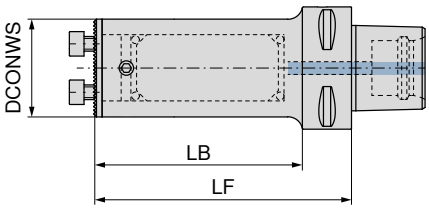
84 950 ...

Spare parts for Article no.	
84 195 02593	**30000**
84 195 03293	**29900**
84 195 04093	**29800**

MaxiChange – Base holders for the exchangeable head system – actively vibration-damped

▲ Reduction of vibrations through actively mounted dampers
▲ Improvement in surface finish and chip evacuation

Scope of supply:
Includes clamping screws



NEW

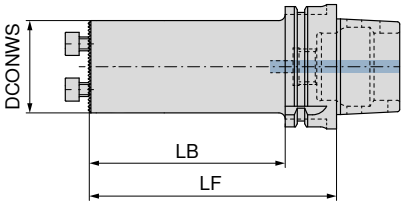
Adapter	LF mm	LB mm	DCONWS mm	84 198 ...
PSC 40	88	68	16	**31695**
PSC 40	107	87	20	**32095**
PSC 40	132	112	25	**42595**
PSC 40	154	134	32	**43295**
PSC 40	173		40	**44095**
PSC 50	85	65	16	**31694**
PSC 50	109	89	20	**32094**
PSC 50	133	113	25	**32594**
PSC 50	180	160	25	**42594**
PSC 50	154	134	32	**33294**
PSC 50	224	204	32	**43294**
PSC 50	194	174	40	**34094**
PSC 50	288	268	40	**44094**
PSC 63	90	68	16	**31693**
PSC 63	110	88	20	**32093**
PSC 63	132	110	25	**32593**
PSC 63	180	158	25	**42593**
PSC 63	230	208	25	**52593**
PSC 63	159	137	32	**33293**
PSC 63	224	202	32	**43293**
PSC 63	288	266	32	**53293**
PSC 63	198	176	40	**34093**
PSC 63	288	266	40	**44093**
PSC 63	368	346	40	**54093**

Clamping Screw

Spare parts for Article no.	84 950 ...
84 198 42595	**30000**
84 198 43295	**29900**
84 198 44095	**29800**
84 198 32594	**30000**
84 198 33294	**29900**
84 198 42594	**30000**
84 198 34094	**29800**
84 198 43294	**29900**
84 198 44094	**29800**
84 198 32593	**30000**
84 198 33293	**29900**
84 198 42593	**30000**
84 198 34093	**29800**
84 198 43293	**29900**
84 198 52593	**30000**
84 198 53293	**29900**
84 198 44093	**29800**
84 198 54093	**29800**

MaxiChange – Base holders for the exchangeable head system

Scope of supply:
Includes clamping screws



NEW

Adapter	LF mm	LB mm	DCONWS mm	84 193 ...
HSK-T 40	55	35	25	**02539**
HSK-T 40	75	55	25	**12539**
HSK-T 40	80	60	32	**03239**
HSK-T 40	80		40	**04039**
HSK-T 63	56	30	16	**01637**
HSK-T 63	80	54	20	**02037**
HSK-T 63	80	44	25	**02537**
HSK-T 63	90	64	32	**03237**
HSK-T 63	100	74	40	**04037**
HSK-T 63	125	99	32	**13237**
HSK-T 63	140	114	40	**14037**
HSK-T 100	140	111	40	**04035**

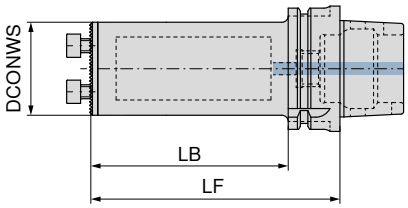
Clamping Screw

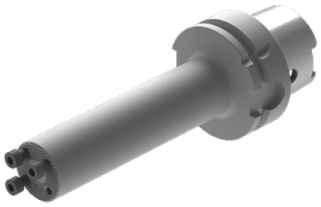
Spare parts for Article no.		84 950 ...
84 193 02539	M4X12 (SW3)	**30000**
84 193 12539	M4X12 (SW3)	**30000**
84 193 03239	M5X14 (SW4)	**29900**
84 193 04039	M6X16 (SW5)	**29800**
84 193 02537	M4X12 (SW3)	**30000**
84 193 03237	M5X14 (SW4)	**29900**
84 193 04037	M6X16 (SW5)	**29800**
84 193 13237	M5X14 (SW4)	**29900**
84 193 14037	M6X16 (SW5)	**29800**
84 193 04035	M6X16 (SW5)	**29800**

MaxiChange – Base holders for the exchangeable head system – vibration-damped

▲ Heavy metal core reduces vibrations

Scope of supply:
Includes clamping screws





NEW

Adapter	LF mm	LB mm	DCONWS mm	84 195 ...
HSK-T 63	115	89	25	**02537**
HSK-T 63	150	124	32	**03237**
HSK-T 63	185	159	40	**04037**

Clamping Screw

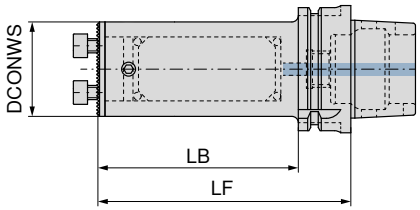
Spare parts for Article no.	84 950 ...
84 195 02537	**30000**
84 195 03237	**30000**
84 195 04037	**30000**

9

MaxiChange – Base holders for the exchangeable head system – actively vibration-damped

▲ Reduction of vibrations through actively mounted dampers
▲ Improvement in surface finish and chip evacuation

Scope of supply:
Includes clamping screws



NEW

84 198 ...

Adapter	LF mm	LB mm	DCONWS mm	
HSK-T 63	90	64	16	**31637**
HSK-T 63	106	80	20	**32037**
HSK-T 63	126	100	25	**32537**
HSK-T 63	151	125	25	**42537**
HSK-T 63	154	128	32	**33237**
HSK-T 63	186	160	32	**43237**
HSK-T 63	186	160	40	**34037**
HSK-T 63	226	200	40	**44037**

Clamping Screw

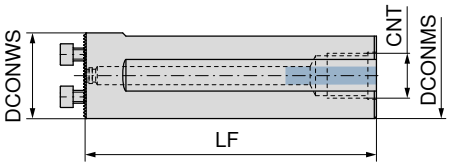
84 950 ...

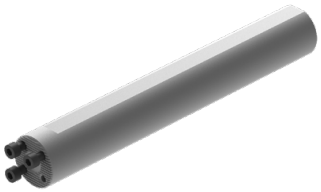
Spare parts for Article no.	
84 198 42537	**30000**
84 198 32537	**30000**
84 198 43237	**29900**
84 198 33237	**29900**
84 198 44037	**29800**
84 198 34037	**29800**

MaxiChange – Base holders for the exchangeable head system – cylindrical

▲ Connection thread for thro' coolant
▲ 3 clamping flats

Scope of supply:
Includes clamping screws





NEW

DCONWS mm	LF mm	DCONMS mm	CNT	84 194 ...
25	100	25	M8 x 1	**12599**
32	120	32	M8 x 1	**13299**
40	120	40	M8 x 1	**14099**
25	200	25	1/4	**02599**
32	218	32	3/8	**03299**
40	283	40	1/2	**04099**

Clamping Screw

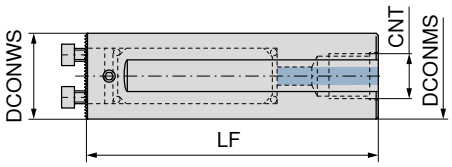
Spare parts for Article no.		84 950 ...
84 194 02599	M4X12 (SW3)	**30000**
84 194 03299	M5X14 (SW4)	**29900**
84 194 04099	M6X16 (SW5)	**29800**

9

MaxiChange –
Base holders for the exchangeable head system – actively vibration-damped

▲ Reduction of vibrations through actively mounted dampers
▲ Improvement in surface finish and chip evacuation

Scope of supply:
Includes clamping screws



NEW

DCONWS mm	LF mm	DCONMS mm	CNT	84 198 ...
16	170	16	1/4	**31699**
20	200	20	1/4	**32099**
25	255	25	1/4	**32599**
32	320	32	1/2	**33299**
40	408	40	1/2	**34099**

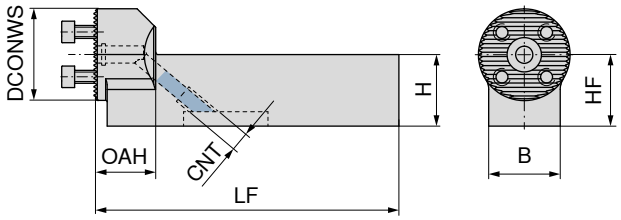
Clamping Screw

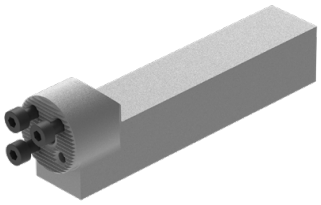
Spare parts for Article no.	84 950 ...
84 198 31699	**44800**
84 198 32099	**44900**
84 198 32599	**30000**
84 198 33299	**29900**
84 198 34099	**29800**

MaxiChange – 0° base holders for the exchangeable head system

Scope of supply:
Includes clamping screws

Direct Cooling





NEW

DCONWS mm	H mm	B mm	HF mm	OAH mm	LF mm	CNT	84 185 ...
25	20	20	20	21	106	M8x1	**02500**
32	20	20	20	21	106	M8x1	**03200**
32	25	25	25	21	106	M8x1	**13200**
40	25	25	25	21	106	M8x1	**14000**

Clamping Screw

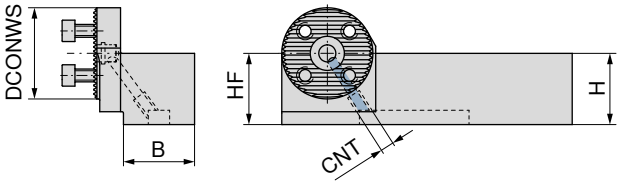
Spare parts for Article no.	84 950 ...
84 185 02500	**30000**
84 185 03200	**29900**
84 185 13200	**29900**
84 185 14000	**29800**

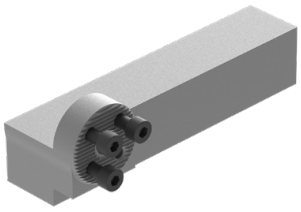
→ **Chapter 16 Adapters and accessories**
Here you will find the suitable base adaptors.

MaxiChange – 90° base holders for the exchangeable head system

Scope of supply:
Includes clamping screws

Direct Cooling





NEW

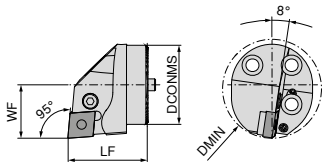
DCONWS mm	H mm	B mm	HF mm	CNT	84 184 ...
25	20	20	20	M8x1	**02500**
32	20	20	20	M8x1	**03200**
32	25	25	25	M8x1	**13200**
40	25	25	25	M8x1	**14000**

Clamping Screw

Spare parts for Article no.	84 950 ...
84 184 02500	**30000**
84 184 03200	**30000**
84 184 13200	**30000**
84 184 14000	**29800**

→ **Chapter 16 Adapters and accessories**
Here you will find the suitable base adaptors.

MaxiChange-N – Exchangeable cutting head PCLN 95°



Illustrations show right-hand versions

DCONMS	LF	DMIN	WF	torque moment	Insert	Left-hand	Right-hand
mm	mm	mm	mm	Nm		84 159 ...	84 160 ...
25	35	32	17	5	CN.. 1204	**02500**	**02500**
32	35	40	22	5	CN.. 1204	**03200**	**03200**
40	40	50	27	5	CN.. 1204	**04000**	**04000**

Shim

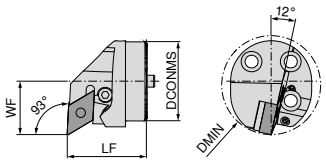
Elbow lever screw

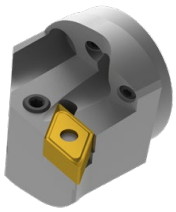
Lever

Carbide type C

Spare parts for Article no.	84 950 ...		84 950 ...	84 950 ...	84 950 ...
84 160 02500 / 84 159 02500	**29200**	M8X1/L17 SW3	**28700**	**29000**	**27800**
84 160 03200 / 84 159 03200	**29200**	M8X1/L17 SW3	**28700**	**29000**	**27800**
84 160 04000 / 84 159 04000	**29200**	M8X1/L17 SW3	**28700**	**29000**	**27800**

MaxiChange-N – Exchangeable cutting head PDUN 93°





Illustrations show right-hand versions

DCONMS	LF	DMIN	WF	torque moment	Insert	Left-hand	Right-hand
mm	mm	mm	mm	Nm		84 161 ...	84 162 ...
25	35	32	17	5	DN.. 1104	**02500**	**02500**
32	35	40	22	5	DN.. 1104	**03200**	**03200**
32	35	40	22	5	DN.. 1504 / 1506	**13200**	**13200**
40	40	50	27	5	DN.. 1104	**04000**	**04000**
40	40	50	27	5	DN.. 1504 / 1506	**14000**	**14000**

When using DN.. 1504 indexable inserts, use insert seat article no. **84 950 28200**.

Shim

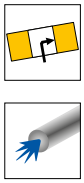
Elbow lever screw

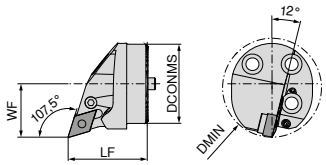
Lever

Solid Carbide Seat D

Spare parts for Article no.	84 950 ...		84 950 ...	84 950 ...	84 950 ...
84 162 02500 / 84 161 02500	**29300**	M6/ L14 SW2,5	**28800**	**29100**	**28100**
84 162 03200 / 84 161 03200	**29300**	M6/ L14 SW2,5	**28800**	**29100**	**28100**
84 162 13200 / 84 161 13200	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27900**
84 162 04000 / 84 161 04000	**29300**	M6/ L14 SW2,5	**28800**	**29100**	**28100**
84 162 14000 / 84 161 14000	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27900**

MaxiChange-N – Exchangeable cutting head PDQN 107.5°





Illustrations show right-hand versions

DCONMS	LF	DMIN	WF	torque moment	Insert	Left-hand	Right-hand
mm	mm	mm	mm	Nm		84 163 ...	84 164 ...
25	35	32	17	5	DN.. 1104	**02500**	**02500**
32	35	40	22	5	DN.. 1104	**03200**	**03200**
40	40	50	27	5	DN.. 1104	**04000**	**04000**

Shim

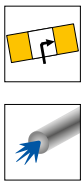
Elbow lever screw

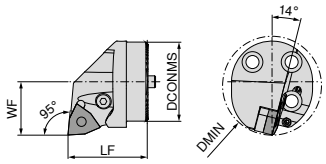
Lever

Solid Carbide Seat D

Spare parts for Article no.	84 950 ...		84 950 ...	84 950 ...	84 950 ...
84 163 02500 / 84 164 02500	**29300**	M6/ L14 SW2,5	**28800**	**29100**	**28100**
84 163 03200 / 84 164 03200	**29300**	M6/ L14 SW2,5	**28800**	**29100**	**28100**
84 163 04000 / 84 164 04000	**29300**	M6/ L14 SW2,5	**28800**	**29100**	**28100**

MaxiChange-N – Exchangeable cutting head PWLN 95°





Illustrations show right-hand versions

DCONMS	LF	DMIN	WF	torque moment	Insert	Left-hand	Right-hand
mm	mm	mm	mm	Nm		84 165 ...	84 166 ...
32	35	40	22	5	WN.. 0804	**03200**	**03200**
40	40	50	27	5	WN.. 0804	**04000**	**04000**

Shim

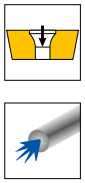
Elbow lever screw

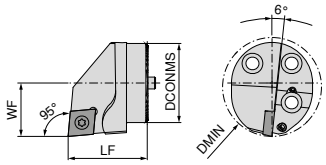
Lever

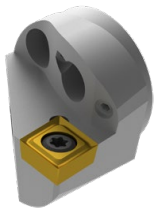
Solid Carbide Seat W

Spare parts for Article no.	84 950 ...		84 950 ...	84 950 ...	84 950 ...
84 166 03200 / 84 165 03200	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27700**
84 166 04000 / 84 165 04000	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27700**

MaxiChange-S – SCLC 95° – Exchangeable cutting head with screw clamping







Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 147 ...	NEW Right-hand 84 148 ...
16	20	20	11	0.9	CC.. 0602	**01600**	**01600**
20	20	25	13	3	CC.. 09T3	**02000**	**02000**
25	35	32	17	5	CC.. 1204	**02500**	**02500**
32	35	40	22	5	CC.. 1204	**03200**	**03200**
40	40	50	27	5	CC.. 1204	**04000**	**04000**

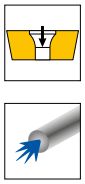
Clamping screw

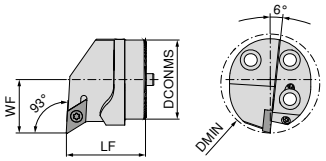
84 950 ...

Spare parts for Article no.	
84 148 02500 / 84 147 02500	**27500**
84 148 03200 / 84 147 03200	**27500**
84 148 04000 / 84 147 04000	**27500**

9

MaxiChange-S – SDUC 93° – Exchangeable cutting head with screw clamping





Illustrations show right-hand versions

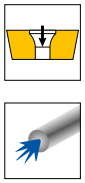
DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 143 ...	NEW Right-hand 84 144 ...
16	20	20	11	0,9	DC.. 0702	**01600**	**01600**
20	20	25	13	3	DC.. 11T3	**02000**	**02000**
25	35	32	17	3	DC.. 11T3	**02500**	**02500**
32	35	40	22	3	DC.. 11T3	**03200**	**03200**
40	40	50	27	3	DC.. 11T3	**04000**	**04000**

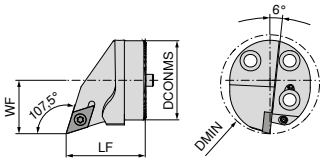
Clamping screw

84 950 ...

Spare parts for Article no.	
84 144 01600 / 84 143 01600	**44700**
84 144 02000 / 84 143 02000	**27600**
84 144 02500 / 84 143 02500	**27600**
84 144 03200 / 84 143 03200	**27600**
84 144 04000 / 84 143 04000	**27600**

MaxiChange-S – SDQC 107.5° – Exchangeable cutting head with screw clamping





Illustrations show right-hand versions

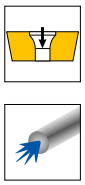
DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 145 ...	NEW Right-hand 84 146 ...
20	20	25	13	3	DC.. 11T3	**02000**	**02000**
25	35	32	17	3	DC.. 11T3	**02500**	**02500**
32	35	40	22	3	DC.. 11T3	**03200**	**03200**
40	40	50	27	3	DC.. 11T3	**04000**	**04000**

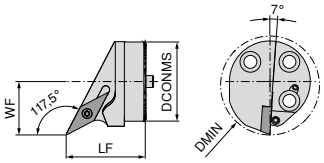
Clamping screw

84 950 ...

Spare parts for Article no.	
84 146 02500 / 84 145 02500	**27600**
84 146 03200 / 84 145 03200	**27600**
84 146 04000 / 84 145 04000	**27600**

MaxiChange-S – SVPC 117.5° – Exchangeable cutting head with screw clamping





Illustrations show right-hand versions

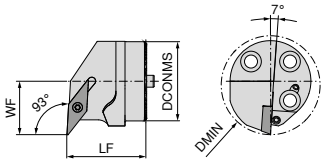
DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 176 ...	NEW Right-hand 84 176 ...
25	35	32	17	3	VC.. 1103	**12500**	**02500**
32	35	40	22	3	VC.. 1604	**13200**	**03200**
40	40	50	27	3	VC.. 1604	**14000**	**04000**

Clamping screw

84 950 ...

for Article no.	
84 176 02500 / 84 176 12500	**27600**
84 176 03200 / 84 176 13200	**27600**
84 176 04000 / 84 176 14000	**27600**

MaxiChange-S – SVUC 93° – Exchangeable cutting head with screw clamping



Illustrations show right-hand versions

DCONMS	LF	DMIN	WF	torque moment	Insert	NEW Left-hand 84 177 ...	NEW Right-hand 84 177 ...
mm	mm	mm	mm	Nm			
20	20	25	13	3	VC.. 1103	**12000**	**02000**
25	35	32	17	3	VC.. 1103	**12500**	**02500**
32	35	40	22	3	VC.. 1604	**13200**	**03200**
40	40	50	27	3	VC.. 1604	**14000**	**04000**

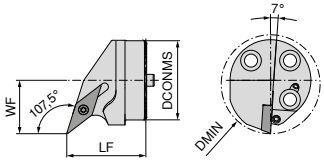
Clamping screw

84 950 ...

Spare parts for Article no.	
84 177 02000 / 84 177 12000	**27600**
84 177 02500 / 84 177 12500	**27600**
84 177 03200 / 84 177 13200	**27600**
84 177 04000 / 84 177 14000	**27600**

9

MaxiChange-S – SVQC 107.5° – Exchangeable cutting head with screw clamping



Illustrations show right-hand versions

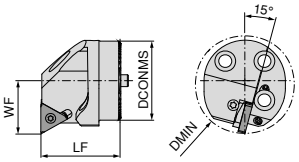
DCONMS	LF	DMIN	WF	torque moment	Insert	NEW Left-hand 84 178 ...	NEW Right-hand 84 178 ...
mm	mm	mm	mm	Nm			
20	20	25	13	3	VC.. 1103	**12000**	**02000**
25	35	32	17	3	VC.. 1103	**12500**	**02500**
32	35	40	22	3	VC.. 1604	**13200**	**03200**
40	40	50	27	3	VC.. 1604	**14000**	**04000**

Clamping screw

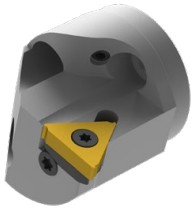
84 950 ...

for Article no.	
84 178 02000 / 84 178 12000	**27600**
84 178 02500 / 84 178 12500	**27600**
84 178 03200 / 84 178 13200	**27600**
84 178 04000 / 84 178 14000	**27600**

MaxiChange – Exchangeable cutting head for internal thread



Illustrations show right-hand versions



DCONMS	LF	DMIN	WF	torque moment	Insert	Left-hand	Right-hand
mm	mm	mm	mm	Nm		84 167 ...	84 168 ...
25	35	32	17	2	16 ..	**02500**	**02500**
32	35	40	22	2	16 ..	**03200**	**03200**
40	40	50	27	2	16 ..	**04000**	**04000**

Suitable internal thread inserts can be found in → **Chapter 8 Thread Turning Tools, pages 6-30**

Spare parts for Article no.	Shim		Screw-U		Clamping screw
	84 950 ...		84 950 ...		84 950 ...
84 168 02500	**29500**	UNC5x7,3	**29700**		**29400**
84 167 02500	**29600**	UNC5x7,3	**29700**		**29400**
84 168 03200	**29500**	UNC5x7,3	**29700**		**29400**
84 167 03200	**29600**	UNC5x7,3	**29700**		**29400**
84 168 04000	**29500**	UNC5x7,3	**29700**		**29400**
84 167 04000	**29600**	UNC5x7,3	**29700**		**29400**

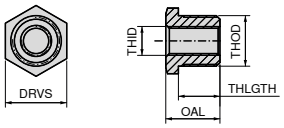
Flexible coolant hoses

▲ incl. prefitted quick-coupler and coupler connector
▲ extremely flexible
▲ pressure-resistant up to 300 bar

72 990 ...

Designation	BD mm	CND mm	OAL mm	
MU.KSS-DN3-150	6,0	3	150	11005
MU.KSS-DN3-250	6,0	3	250	11006
MU.KSS-DN5-200	9,5	5	200	11001
MU.KSS-DN5-300	9,5	5	300	11002
MU.KSS-DN5-400	9,5	5	400	11003
MU.KSS-DN5-500	9,5	5	500	11004

Threaded adapter

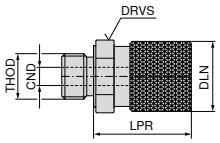


72 988 ...

THID	THOD	THLGTH mm	DRVS mm	OAL mm	
G1/8"	G1/4"	11,5	17	15,0	01005
G1/8"	M8x1	11,5	14	15,0	01006
G1/8"	M12x1	11,5	14	15,0	01007
G1/8"	M14x1	11,5	17	15,0	01008
M8x1	G1/4"	11,5	17	15,0	01003
M8x1	M12x1	11,5	14	15,0	01001
M8x1	M14x1	11,5	17	15,0	01002
M8x1	G1/8"	11,5	14	23,5	01004

Quick-coupler

▲ pressure-resistant up to at least 400 bar
▲ rapid change of coolant distribution without screws thanks to click system

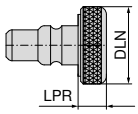


72 993 ...

THOD	BD mm	DLN mm	LPR mm	CND mm	DRVS mm	
G1/8"	16	15,5	21,5	4	14	15001

Sealing plugs

▲ for closing off the quick-coupler to protect against contamination

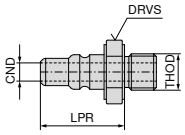


72 994 ...

Designation	LPR mm	DLN mm	
MU.KSVS	5,5	15,5	17001

Coupler connector

▲ pressure-resistant up to at least 400 bar



72 992 ...

Designation	LPR mm	CND mm	DRVS mm	OAL mm	
MU.KSKS-M8x1	18,5	4	12	19	13001

G1/8” screw plug

▲ Max. 200 bar/2900 psi
▲ No sealing ring required

72 950 ...

Designation	THSZMS	
VS.G1/8	G1/8"	010

Angled coolant connection for distributor

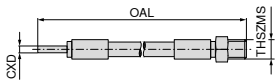
72 987 ...

Designation	THOD	THID	
MU.KS-KA-KSV	G1/8"	G1/8"	18003

9

Hose (connecting piece/thread)

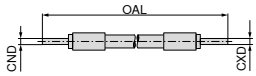
▲ Max. 200 bar/2900 psi
▲ No sealing ring required



Designation	THSZMS	CXD mm	OAL mm	72 305 ...
HDKS.150.M5-4	M5	4	150	**010**
HDKS.200.M5-4	M5	4	200	**021**
HDKS.300.M5-4	M5	4	300	**033**
HDKS.500.M5-4	M5	4	500	**045**

Hose (connecting piece/connecting piece)

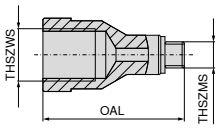
▲ Max. 200 bar/2900 psi



Designation	CND mm	CXD mm	OAL mm	72 305 ...
HDKS.150.4-4	4	4	150	**003**
HDKS.200.4-4	4	4	200	**014**
HDKS.300.4-4	4	4	300	**025**
HDKS.500.4-4	4	4	500	**037**

Reducer fitting

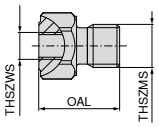
▲ Max. 200 bar/2900 psi
▲ Includes sealing ring



Designation	THSZWS	THSZMS	OAL mm	72 301 ...
RV.100.M5-M6	M6	M5	15	**001**
RV.100.M5-M8x1	M8x1	M5	23	**003**
RV.100.M5-M10x1	M10x1	M5	27	**005**
RV.100.M5-G1/8	G1/8"	M5	27	**004**

Reducer fitting

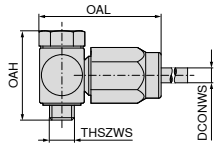
▲ Max. 200 bar/2900 psi
▲ No sealing ring required



Designation	THSZWS	THSZMS	OAL mm	72 301 ...
RV.100.M6-M5	M5	M6	18	**002**
RV.100.M8x1-M5	M5	M8x1	15	**008**
RV.100.M10x1-M5	M5	M10x1	15	**007**
RV.100.G1/8-M5	M5	G1/8"	15	**006**

Swivel fitting

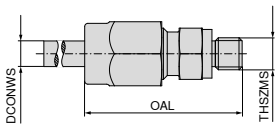
▲ Max. 200 bar/2900 psi

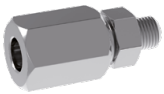


Designation	DCONWS mm	OAH mm	THSZMS	OAL mm	72 307 ...
KA.SV.M5-4	4	21	M5	28	017
KA.SV.G1/8-4	4	30	G1/8"	37	012

Straight fitting

▲ Max. 200 bar/2900 psi

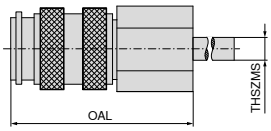




Designation	DCONWS mm	THSZMS	OAL mm	72 307 ...
KA. M5-4	4	M5	27	009
KA. G1/8-4	4	G1/8"	32	003

Quick connection (coupling)

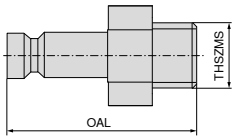
▲ Max. 200 bar/2900 psi



Designation	THSZMS	OAL mm	72 319 ...
KIG.M5	M5	26	001

Quick connection (connector)

▲ Max. 200 bar/2900 psi
▲ No sealing ring required



Designation	THSZMS	OAL mm	72 320 ...
SAG.M5	M5	20	001

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Material examples for cutting data tables

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

* Tensile strength

Cutting data standard values

Index			DRAGONSKIN														
	TCM407	TCM10	CTEP110	CTCP115-P	CTCP125-P	CTCP135-P	CTCK110	CTCK120	CTPM125	CTCM120	CTCM130	CTPX710 -F05 -F34 -M34 -M42	CTPX710 -25P -25Q	CTPX715 -27 -29	H210T	H10T H216T
	v_c in m/min															
P.1.1	**380**	**310**	**460**	**370**	**295**	**210**	395	330	200	230	185	**325**	**340**	**275**		
P.1.2	**330**	**265**	**400**	**315**	**250**	**175**	345	280	170	200	150	**290**	**300**	**235**		
P.1.3	**280**	**230**	**350**	**270**	**210**	**145**	300	240	140	175	125	**250**	**260**	**200**		
P.1.4	**265**	**210**	**330**	**250**	**200**	**135**	280	220	130	165	115	**240**	**250**	**190**		
P.1.5	**240**	**190**	**300**	**230**	**180**	**120**	260	200	120	150	100	**220**	**235**	**170**		
P.2.1	**335**	**270**	**410**	**325**	**260**	**180**	350	290	175	200	160	**290**	**300**	**240**		
P.2.2	**260**	**210**	**325**	**250**	**195**	**130**	280	220	130	160	110	**235**	**250**	**185**		
P.2.3	**240**	**190**	**300**	**230**	**180**	**120**	260	200	120	150	100	**220**	**235**	**170**		
P.2.4	**180**	**145**	**230**	**170**	**130**	**85**	200	150	80	115	60	**175**	**190**	**125**		
P.3.1	**280**	**220**	**345**	**200**	**170**	**150**	270	220	140	160	125	**140**	**150**	**140**		
P.3.2	**225**	**170**	**280**	**140**	**105**	**95**	225	175	100	115	80	**85**	**95**	**80**		
P.3.3	**170**	**115**	**210**	**85**	**40**	**35**	180	130	50	75	40	**30**	**35**	**25**		
P.4.1	**280**	**220**	**345**	**200**	**170**	**155**			140	160	125	**140**	**155**	**140**		
P.4.2	**250**	**195**	**310**	**170**	**135**	**125**			120	140	100	**115**	**130**	**110**		
M.1.1	280	220	345			155			**140**	**160**	**125**	**140**	**150**	**140**		
M.2.1						95			**100**	**115**	**80**	**85**	**90**	**80**		
M.3.1						135			**130**	**150**	**110**	**125**	**130**	**120**		
K.1.1			410	255	170		**400**	**275**						200	170	140
K.1.2			310	235	160		**310**	**265**						160	130	115
K.2.1	355	260	440	270	180		**320**	**290**						190	180	150
K.2.2	315	215	350	205	160		**275**	**230**						150	130	110
K.3.1	325	300	415	250	200		**310**	**275**						210	190	170
K.3.2	250	205	250	210	160		**265**	**230**						180	160	140
N.1.1												1840	**1840**	**1750**	**1650**	**1400**
N.1.2												1600	**1600**	**1500**	**1350**	**1100**
N.2.1												1250	**1250**	**1200**	**1200**	**950**
N.2.2												1250	**1250**	**1200**	**1100**	**950**
N.2.3												750	**750**	**700**	**600**	**500**
N.3.1												650	**650**	**625**	**525**	**425**
N.3.2												630	**630**	**600**	**500**	**400**
N.3.3												500	**500**	**475**	**375**	**275**
N.4.1												340	**340**	**325**	**275**	**225**
S.1.1											35	**100**	**110**	**40**	45	
S.1.2											25	**80**	**85**	**30**	35	
S.2.1											20	**65**	**75**	**30**	35	
S.2.2											20	**40**	**45**	**25**	25	
S.2.3											20	**40**	**45**	**20**	20	
S.3.1											110	**95**	**100**	**110**	110	
S.3.2											65	**55**	**60**	**70**	70	
S.3.3											45	**40**	**45**	**50**	50	
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1														140	160	130
O.1.2																
O.2.1														150	140	105
O.2.2																
O.3.1																

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

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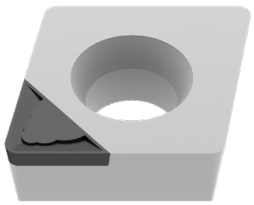
Cutting data standard values for diamond cutting materials CTD PD20 / PS30 / PU20 / CD10 / MD05

Index	Material group			a_p = 0,04–0,4 mm Surface roughness R_z in µm 2,5–5,0	a_p = 0,04–0,4 mm Surface roughness R_z in µm 5,0–10	a_p = 0,4–1,0 mm Surface roughness R_z in µm 2,5–5,0	a_p = 0,4–1,0 mm Surface roughness R_z in µm 5,0–10	a_p = 0,4–2,5 mm Surface roughness R_z in µm 2,5–5,0	a_p = 0,4–2,5 mm Surface roughness R_z in µm 5,0–10
				CTD ...	CTD ...	CTD ...	CTD ...	CTD ...	CTD ...
N.1.1 N.1.2	Aluminium wrought alloys without Si f=0.05–0.5 mm/rev.	○	Tool Material v_c in m/min	PD20 / PU20 / CD10 / MD05 **min. 400**	PD20 / PU20 / CD10 / MD05 **min. 400**	PD20 / PU20 / CD10 / MD05 **min. 400**	PD20 / PU20 / CD10 / MD05 **min. 400**	PD20 / PU20 / CD10 / MD05 **min. 400**	PD20 / PU20 / CD10 / MD05 **min. 400**
		◐	Tool Material v_c in m/min		PD20 / CD10 **min. 400**		PD20 / CD10 **min. 400**		PD20 / CD10 **min. 400**
		◌	Tool Material v_c in m/min	PD20 / PU20 **min. 400**	PD20 / PU20 **min. 400**	PD20 / PU20 **min. 400**	PD20 / PU20 **min. 400**	PD20 / PU20 **min. 400**	PD20 / PU20 **min. 400**
N.2.1	Cast Aluminium Alloys Si≤12 % – hardened or Si=12–20% – non hardened f=0,05–0,5 mm/rev.	○	Tool Material v_c in m/min	PS30 / PU20 / CD10 / MD05 **min. 600**	PS30 / PU20 / CD10 / MD05 **min. 600**	PS30 / PU20 / CD10 / MD05 **min. 600**	PS30 / PU20 / CD10 / MD05 **min. 600**	PS30 / PU20 / CD10 / MD05 **min. 600**	PS30 / PU20 / CD10 / MD05 **min. 600**
		◐	Tool Material v_c in m/min	PD20 / PU20 / CD10 **min. 400**	PD20 / PU20 / CD10 **min. 400**	PD20 / PU20 / CD10 **min. 400**	PS30 / PU20 / CD10 **min. 600**	PS30 / PU20 / CD10 **min. 400**	PS30 / PU20 / CD10 **min. 400**
		◌	Tool Material v_c in m/min	PS30 **min. 600**	PS30 **min. 600**	PS30 **min. 600**	PS30 **min. 600**	PS30 **min. 600**	
N.2.2 N.2.3	Aluminium cast alloys Si=12–20 % f=0.05–0.5 mm/rev.	○	Tool Material v_c in m/min	PU20 / CD10 / MD05 **min. 800**	PU20 / CD10 / MD05 **min. 400**	PU20 / CD10 / MD05 **min. 700**	PU20 / CD10 / MD05 **min. 400**	PU20 / CD10 / MD05 **min. 600**	PU20 / CD10 / MD05 **min. 400**
		◐	Tool Material v_c in m/min		PU20 / CD10 **min. 600**		PU20 / CD10 **min. 600**		PU20 / CD10 **min. 600**
		◌	Tool Material v_c in m/min		PU20 **min. 600**		PU20 **min. 600**		
N.3.1 N.3.2 N.3.3	Copper and copper wrought alloys f=0.05–0.5 mm/rev.	○	Tool Material v_c in m/min	PD20 / PU20 / CD10 / MD05 **min. 400**	PD20 / PU20 / CD10 / MD05 **min. 400**	PD20 / PU20 / CD10 / MD05 **min. 400**	PS30 / PU20 / CD10 / MD05 **300–1600**	PD20 / PU20 / CD10 / MD05 **min. 400**	PD20 / PU20 / CD10 / MD05 **min. 400**
		◐	Tool Material v_c in m/min	PU20 / CD10 **min. 300**	PD20 / PU20 / CD10 **min. 300**	PD20 / PU20 / CD10 **min. 400**	PS30 / PU20 / CD10 **min. 300**	PD20 / PU20 / CD10 **min. 400**	PD20 / PU20 / CD10 **min. 300**
		◌	Tool Material v_c in m/min		PD20 / PU20 **min. 300**		PS30 / PU20 **min. 300**	PD20 / PU20 **min. 300**	PS30 / PU20 **min. 200**
O.1.1 O.1.2	Plastic materials without reinforcement (acrylic glass) f=0.05–0.7 mm/rev.	○	Tool Material v_c in m/min		PD20 / CD10 / MD05 **min. 400**		PD20 / CD10 / MD05 **min. 300**		PS30 / CD10 / MD05 **min. 200**
		◐	Tool Material v_c in m/min		PD20 / CD10 **min. 300**		PD20 / CD10 **min. 200**		PS30 / CD10 **min. 200**
		◌	Tool Material v_c in m/min		PD20 / CD10 **min. 400**		PD20 / CD10 **min. 300**		PD20 / CD10 **min. 200**
O.2.1 O.2.2	Plastic materials with reinforcement (glass-fibre, carbon-fibre reinforced) f=0.05–0.7 mm/rev.	○	Tool Material v_c in m/min	PS30 / PU20 / CD10 / MD05 **min. 500**		PS30 / PU20 / CD10 / MD05 **min. 400**	PS30 / PU20 / CD10 / MD05 **min. 300**	PS30 / PU20 / CD10 / MD05 **min. 300**	PS30 / PU20 / CD10 / MD05 **min. 200**
		◐	Tool Material v_c in m/min	PS30 / PU20 / CD10 **min. 400**		PS30 / PU20 / CD10 **min. 300**	PS30 / PU20 / CD10 **min. 200**	PS30 / PU20 / CD10 **min. 200**	PS30 / PU20 / CD10 **min. 200**
		◌	Tool Material v_c in m/min	PU20 **min. 500**		PU20 **min. 400**	PU20 **min. 300**	PU20 **min. 300**	
O.3.1	Graphite		Tool Material v_c in m/min	PD20 / PS30 / PU20 / CD10 **min. 100**		PD20 / PS30 / PU20 / CD10 **min. 100**		PD20 / PS30 / PU20 / CD10 **min. 100**	

○ Smooth cut | ◐ Irregular cutting depth | ◌ Interrupted cut

Cutting data standard values for the CB chip breaker geometries

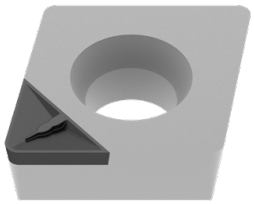
-CB1



3D-Chip Breaker -CB1				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,1 mm	0,05	0,30	0,02	0,05
0,2 mm	0,06	0,40	0,03	0,08
0,4 mm	0,10	0,80	0,04	0,15
0,8 mm	0,15	1,00	0,08	0,20
1,2 mm	0,30	1,50	0,12	0,25

- ▲ Finish and Superfinish
- ▲ Extremely sharp cutting edge geometry
- ▲ Depth of Cut a_p: 0.05–1.5 mm
- ▲ Smallest cutting pressure for highest accuracies
- ▲ For machining of thin-walled and unstable workpieces

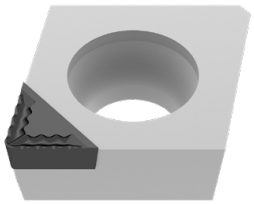
-CB2



3D-Chip Breaker -CB2				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,2 mm	0,50	0,80	0,08	0,12
0,4 mm	0,60	1,50	0,08	0,20
0,8 mm	0,70	1,50	0,15	0,30
1,2 mm	0,80	2,00	0,20	0,40

- ▲ Semi-finish and Finish machining
- ▲ Negative edge preperation
- ▲ Cutting Depth a_p: 0,5–2,0 mm
- ▲ High surface quality and tight tolerances
- ▲ Machining of solid workpieces under stable conditions

-CB3



3D-Chip Breaker -CB3				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,4 mm	1,00	3,00	0,10	0,20
0,8 mm	1,00	3,00	0,15	0,35

- ▲ Medium and rough machining
- ▲ Highly aggressive chip breaker
- ▲ Cutting depth a_p: 1,0–3,0 mm
- ▲ Stable component conditions necessary
- ▲ Cooling must be ensured

Cutting data standard values for negative inserts

	Designation	-CF20 (Cermet)						-F50					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CN.. 090304							0,06	**0,15**	0,25	0,2	**0,5**	1,5
	CN.. 090308							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	CN.. 120404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	CN.. 120408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	CN.. 120412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	CN.. 120416												
	CN.. 160608												
	CN.. 160612												
	CN.. 160616												
	CN.. 160624												
	CN.. 190608												
	CN.. 190612												
	CN.. 190616												
	CN.. 190624												
	CN.. 250924												
	DN.. 110402							0,04	**0,10**	0,20	0,1	**0,4**	2,3
	DN.. 110404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	DN.. 110408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	DN.. 110412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	DN.. 150404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	DN.. 150408							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	DN.. 150412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	DN.. 150416												
	DN.. 150604	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	DN.. 150608	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	DN.. 150612	0,10	**0,20**	0,30	0,5	**0,7**	1,5	0,14	**0,25**	0,35	0,6	**1,4**	2,6
	DN.. 150616												
	SN.. 090308							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	SN.. 120404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	SN.. 120408							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	SN.. 120412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	SN.. 120416												
	SN.. 150608												
	SN.. 150612												
	SN.. 150616												
	SN.. 190612												
	SN.. 190616												
	SN.. 190624												
	SN.. 250724												
	SN.. 250924												
	TN.. 110304							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	TN.. 110308							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	TN.. 160404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	TN.. 160408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	TN.. 160412	0,10	**0,20**	0,30	0,5	**0,7**	1,5	0,14	**0,25**	0,35	0,6	**1,4**	2,6
	TN.. 220404												
	TN.. 220408												
	TN.. 220412												
	TN.. 220416												
	VN.. 160404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	VN.. 160408							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	VN.. 160412												
	WN.. 060404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	WN.. 060408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	WN.. 060412												
	WN.. 080404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	WN.. 080408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	WN.. 080412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	WN.. 080416												

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The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-TFQ						-XU						-M50					
	f			a_p			f			a_p			f			a_p		
	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CN.. 090304																		
CN.. 090308																		
CN.. 120404	0,10	**0,15**	0,35	0,4	**1,0**	3,0	0,08	**0,15**	0,25	0,3	**1,5**	2,5	0,10	**0,20**	0,30	0,4	**2,0**	5,0
CN.. 120408	0,10	**0,25**	0,50	0,5	**1,5**	4,0	0,13	**0,25**	0,35	0,6	**2,0**	3,0	0,15	**0,25**	0,40	0,6	**2,0**	5,0
CN.. 120412	0,15	**0,30**	0,70	0,8	**2,0**	5,0	0,15	**0,30**	0,45	0,9	**2,0**	3,5	0,20	**0,30**	0,50	1,0	**2,0**	5,0
CN.. 120416													0,25	**0,40**	0,60	1,4	**2,0**	5,0
CN.. 160608													0,15	**0,25**	0,40	0,6	**3,0**	8,0
CN.. 160612													0,20	**0,30**	0,50	1,0	**3,0**	8,0
CN.. 160616													0,25	**0,40**	0,60	1,4	**3,0**	8,0
CN.. 160624																		
CN.. 190608																		
CN.. 190612																		
CN.. 190616																		
CN.. 190624																		
CN.. 250924																		
DN.. 110402																		
DN.. 110404													0,10	**0,20**	0,30	0,4	**1,5**	4,0
DN.. 110408													0,15	**0,25**	0,40	0,6	**1,5**	4,0
DN.. 110412													0,20	**0,30**	0,50	1,0	**1,5**	4,0
DN.. 150404													0,10	**0,20**	0,30	0,4	**2,0**	5,0
DN.. 150408													0,15	**0,25**	0,40	0,6	**2,0**	5,0
DN.. 150412													0,20	**0,30**	0,50	1,0	**2,0**	5,0
DN.. 150416													0,25	**0,40**	0,60	1,4	**2,0**	5,0
DN.. 150604	0,10	**0,15**	0,30	0,4	**1,0**	3,0	0,08	**0,15**	0,25	0,3	**1,5**	2,5	0,10	**0,20**	0,30	0,4	**2,0**	5,0
DN.. 150608	0,10	**0,25**	0,40	0,5	**1,5**	4,0	0,13	**0,25**	0,35	0,6	**2,0**	3,0	0,15	**0,25**	0,40	0,6	**2,0**	5,0
DN.. 150612	0,1	**0,35**	0,5	1,0	**2,5**	4,0	0,15	**0,25**	0,40	0,9	**2,0**	3,5	0,20	**0,30**	0,50	1,0	**2,0**	5,0
DN.. 150616													0,25	**0,40**	0,60	1,4	**2,0**	5,0
SN.. 090308																		
SN.. 120404																		
SN.. 120408													0,15	**0,25**	0,40	0,6	**2,0**	5,0
SN.. 120412													0,20	**0,30**	0,50	1,0	**2,0**	5,0
SN.. 120416													0,25	**0,40**	0,60	1,4	**2,0**	5,0
SN.. 150608													0,15	**0,25**	0,40	0,6	**3,0**	8,0
SN.. 150612													0,20	**0,30**	0,50	1,0	**3,0**	8,0
SN.. 150616													0,25	**0,40**	0,60	1,4	**3,0**	8,0
SN.. 190612																		
SN.. 190616																		
SN.. 190624																		
SN.. 250724																		
SN.. 250924																		
TN.. 110304																		
TN.. 110308																		
TN.. 160404													0,10	**0,20**	0,30	0,4	**2,0**	5,0
TN.. 160408													0,15	**0,25**	0,40	0,6	**2,0**	5,0
TN.. 160412													0,20	**0,30**	0,50	1,0	**2,0**	5,0
TN.. 220404																		
TN.. 220408													0,15	**0,25**	0,40	0,6	**3,0**	8,0
TN.. 220412													0,20	**0,30**	0,50	1,0	**3,0**	8,0
TN.. 220416																		
VN.. 160404							0,08	**0,15**	0,20	0,3	**1,0**	1,8	0,10	**0,20**	0,30	0,4	**1,0**	4,0
VN.. 160408							0,13	**0,20**	0,30	0,6	**1,5**	2,5	0,15	**0,25**	0,40	0,6	**1,0**	4,0
VN.. 160412													0,20	**0,30**	0,50	1,0	**1,0**	4,0
WN.. 060404	0,10	**0,18**	0,35	0,4	**0,8**	3,0							0,10	**0,20**	0,30	0,4	**1,0**	3,0
WN.. 060408	0,10	**0,20**	0,50	0,5	**1,5**	3,0							0,15	**0,25**	0,40	0,6	**1,0**	3,0
WN.. 060412													0,20	**0,30**	0,50	1,0	**1,0**	3,0
WN.. 080404	0,1	**0,15**	0,35	0,4	**1,0**	3,0	0,08	**0,15**	0,25	0,3	**1,5**	2,5	0,10	**0,20**	0,30	0,4	**1,5**	4,0
WN.. 080408	0,10	**0,25**	0,50	0,5	**1,5**	4,0	0,13	**0,22**	0,35	0,6	**2,0**	3,0	0,15	**0,25**	0,40	0,6	**1,5**	4,0
WN.. 080412	0,15	**0,30**	0,70	0,8	**2,0**	5,0	0,15	**0,25**	0,45	0,9	**2,0**	3,5	0,20	**0,30**	0,50	1,0	**1,5**	4,0
WN.. 080416													0,25	**0,40**	0,60	1,4	**1,5**	4,0

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Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 211–217**

Cutting data standard values for negative inserts

	Designation	-TMQ						-M70					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CN.. 090304												
	CN.. 090308												
	CN.. 120404												
	CN.. 120408	0,20	**0,40**	0,65	0,8	**3,0**	5,0	0,20	**0,30**	0,45	0,8	**3,0**	6,0
	CN.. 120412	0,25	**0,50**	0,85	1,0	**3,0**	6,0	0,25	**0,40**	0,60	1,2	**3,0**	6,0
	CN.. 120416							0,30	**0,45**	0,70	1,6	**3,0**	6,0
	CN.. 160608							0,20	**0,30**	0,45	0,8	**4,0**	8,0
	CN.. 160612							0,25	**0,40**	0,60	1,2	**4,0**	8,0
	CN.. 160616							0,30	**0,45**	0,70	1,6	**4,0**	8,0
	CN.. 160624							0,40	**0,70**	1,20	2,4	**4,0**	8,0
	CN.. 190608							0,20	**0,30**	0,45	0,8	**4,5**	9,0
	CN.. 190612							0,25	**0,40**	0,60	1,2	**4,5**	9,0
	CN.. 190616							0,30	**0,45**	0,70	1,6	**4,5**	9,0
	CN.. 190624							0,40	**0,70**	1,20	2,4	**4,5**	9,0
	CN.. 250924							0,40	**0,70**	1,20	2,4	**6,0**	13,0
	DN.. 110402												
	DN.. 110404												
	DN.. 110408							0,20	**0,25**	0,45	0,8	**2,0**	5,0
	DN.. 110412							0,25	**0,35**	0,60	1,2	**2,0**	5,0
	DN.. 150404												
	DN.. 150408							0,20	**0,25**	0,45	0,8	**2,5**	6,0
	DN.. 150412							0,25	**0,35**	0,60	1,2	**2,5**	6,0
	DN.. 150416							0,30	**0,40**	0,70	1,6	**2,5**	6,0
	DN.. 150604												
	DN.. 150608	0,15	**0,30**	0,50	0,8	**2,5**	5,0	0,20	**0,25**	0,45	0,8	**2,5**	6,0
	DN.. 150612	0,20	**0,40**	0,60	1,0	**3,0**	5,0	0,25	**0,35**	0,60	1,2	**2,5**	6,0
	DN.. 150616							0,30	**0,40**	0,70	1,6	**2,5**	6,0
	SN.. 090308												
	SN.. 120404												
	SN.. 120408							0,20	**0,30**	0,50	0,8	**3,0**	6,0
	SN.. 120412							0,25	**0,40**	0,65	1,2	**3,0**	6,0
	SN.. 120416							0,30	**0,45**	0,70	1,6	**3,0**	6,0
	SN.. 150608												
	SN.. 150612							0,25	**0,40**	0,65	1,2	**4,0**	8,0
	SN.. 150616							0,30	**0,45**	0,75	1,6	**4,0**	8,0
	SN.. 190612							0,25	**0,40**	0,65	1,2	**4,5**	9,0
	SN.. 190616							0,30	**0,45**	0,75	1,6	**4,5**	9,0
	SN.. 190624							0,40	**0,70**	1,20	2,4	**4,5**	9,0
	SN.. 250724												
	SN.. 250924							0,40	**0,70**	1,20	2,4	**6,0**	13,0
	TN.. 110304												
	TN.. 110308												
	TN.. 160404												
	TN.. 160408							0,20	**0,25**	0,45	0,8	**2,5**	6,0
	TN.. 160412							0,25	**0,35**	0,60	1,2	**2,5**	6,0
	TN.. 220404							0,15	**0,20**	0,30	0,4	**3,0**	7,0
	TN.. 220408							0,20	**0,25**	0,45	0,8	**3,0**	7,0
	TN.. 220412							0,25	**0,35**	0,60	1,2	**3,0**	7,0
	TN.. 220416							0,30	**0,40**	0,70	1,6	**3,0**	7,0
	VN.. 160404												
	VN.. 160408												
	VN.. 160412												
	WN.. 060404												
	WN.. 060408							0,20	**0,30**	0,45	0,8	**2,0**	4,0
	WN.. 060412							0,25	**0,40**	0,60	1,2	**2,0**	4,0
	WN.. 080404												
	WN.. 080408	0,20	**0,30**	0,65	0,8	**3,0**	5,0	0,20	**0,30**	0,45	0,8	**2,5**	5,0
	WN.. 080412	0,25	**0,40**	0,85	1,0	**3,0**	6,0	0,25	**0,40**	0,60	1,2	**2,5**	5,0
	WN.. 080416							0,30	**0,45**	0,70	1,6	**2,5**	5,0

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The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-R28						-R58						-R88					
	f			a_p			f			a_p			f			a_p		
	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CN.. 090304																		
CN.. 090308																		
CN.. 120404																		
CN.. 120408	0,25	**0,35**	0,55	0,8	**3,0**	7,0	0,25	**0,45**	0,70	1,0	**3,0**	7,0						
CN.. 120412	0,30	**0,45**	0,70	1,0	**3,0**	7,0	0,30	**0,55**	0,85	1,5	**3,0**	7,0						
CN.. 120416	0,30	**0,60**	0,90	1,5	**3,0**	7,0	0,35	**0,65**	1,00	2,0	**3,0**	7,0						
CN.. 160608																		
CN.. 160612	0,30	**0,45**	0,70	1,0	**4,0**	9,0	0,30	**0,55**	0,85	1,5	**4,0**	9,0						
CN.. 160616	0,35	**0,60**	0,90	1,5	**4,0**	9,0	0,35	**0,65**	1,00	2,0	**4,0**	9,0						
CN.. 160624							0,40	**0,75**	1,20	2,5	**4,0**	9,0	0,40	**0,70**	1,20	2,0	**5,0**	9,0
CN.. 190608																		
CN.. 190612	0,30	**0,45**	0,70	1,0	**5,5**	12,0	0,35	**0,55**	0,85	1,5	**5,5**	12,0						
CN.. 190616	0,35	**0,60**	0,90	1,5	**5,5**	12,0	0,40	**0,65**	1,00	2,0	**5,5**	12,0	0,40	**0,70**	1,00	2,0	**5,0**	12,0
CN.. 190624	0,35	**0,65**	1,00	2,0	**5,5**	12,0	0,40	**0,75**	1,20	2,5	**5,5**	12,0	0,40	**0,70**	1,20	2,0	**5,0**	12,0
CN.. 250924	0,35	**0,7**	1,0	2,0	**7,0**	16,0	0,45	**0,80**	1,30	2,5	**8,0**	16,0	0,60	**1,00**	1,50	3,5	**10,0**	18,0
DN.. 110402																		
DN.. 110404																		
DN.. 110408																		
DN.. 110412																		
DN.. 150404																		
DN.. 150408																		
DN.. 150412																		
DN.. 150416																		
DN.. 150604																		
DN.. 150608																		
DN.. 150612	0,25	**0,45**	0,70	1,0	**2,5**	6,0	0,30	**0,50**	0,80	1,5	**2,5**	6,0						
DN.. 150616	0,30	**0,60**	0,85	1,5	**2,5**	6,0	0,35	**0,60**	0,90	2,0	**2,5**	6,0						
SN.. 090308																		
SN.. 120404																		
SN.. 120408							0,25	**0,45**	0,70	1,0	**3,0**	7,0						
SN.. 120412							0,30	**0,55**	0,85	1,5	**3,0**	7,0						
SN.. 120416																		
SN.. 150608																		
SN.. 150612	0,30	**0,35**	0,70	1,0	**4,0**	9,0	0,30	**0,55**	0,85	1,5	**4,0**	9,0						
SN.. 150616	0,35	**0,60**	0,90	1,5	**4,0**	9,0	0,35	**0,65**	1,00	2,0	**4,0**	9,0						
SN.. 190612							0,35	**0,55**	0,85	1,5	**5,5**	12,0						
SN.. 190616	0,35	**0,60**	0,90	1,5	**5,5**	12,0	0,40	**0,65**	1,00	2,0	**5,5**	12,0	0,40	**0,70**	1,00	2,0	**5,0**	12,0
SN.. 190624							0,40	**0,75**	1,20	2,0	**5,5**	12,0	0,40	**0,70**	1,20	2,0	**5,0**	12,0
SN.. 250724	0,35	**0,65**	1,00	2,0	**7,0**	16,0	0,45	**0,80**	1,30	2,5	**8,0**	16,0	0,60	**1,00**	1,50	3,5	**10,0**	18,0
SN.. 250924	0,35	**0,65**	1,00	2,0	**7,0**	16,0	0,45	**0,80**	1,30	2,5	**8,0**	16,0	0,60	**1,00**	1,50	3,5	**10,0**	18,0
TN.. 110304																		
TN.. 110308																		
TN.. 160404																		
TN.. 160408																		
TN.. 160412																		
TN.. 220404																		
TN.. 220408																		
TN.. 220412							0,30	**0,50**	0,80	1,5	**3,0**	7,0						
TN.. 220416	0,30	**0,55**	0,85	1,5	**3,0**	7,0												
VN.. 160404																		
VN.. 160408																		
VN.. 160412																		
WN.. 060404																		
WN.. 060408																		
WN.. 060412																		
WN.. 080404																		
WN.. 080408																		
WN.. 080412																		
WN.. 080416																		

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Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 211–217**

Cutting data standard values for negative inserts

	Designation	-F30						-M30					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CN.. 090304												
	CN.. 090308												
	CN.. 120404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	CN.. 120408	0,10	**0,22**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	CN.. 120412							0,20	**0,30**	0,50	1,2	**2,5**	5,0
	CN.. 120416							0,25	**0,35**	0,55	1,6	**2,5**	5,0
	CN.. 160608												
	CN.. 160612												
	CN.. 160616												
	CN.. 160624												
	CN.. 190608												
	CN.. 190612												
	CN.. 190616												
	CN.. 190624												
	CN.. 250924												
	DN.. 110402												
	DN.. 110404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	DN.. 110408	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	DN.. 110412							0,20	**0,30**	0,50	1,2	**2,0**	4,5
	DN.. 150404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	DN.. 150408	0,1	**0,2**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,35	1,0	**2,5**	4,0
	DN.. 150412							0,2	**0,3**	0,5	1,0	**2,5**	4,0
	DN.. 150416												
	DN.. 150604	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	DN.. 150608	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	5,5
	DN.. 150612							0,20	**0,30**	0,50	1,2	**2,0**	5,5
	DN.. 150616												
	SN.. 090308												
	SN.. 120404	0,10	**0,15**	0,30	0,4	**1,0**	2,0						
	SN.. 120408	0,15	**0,20**	0,40	0,8	**1,5**	2,5	0,20	**0,25**	0,45	1,0	**2,0**	4,5
	SN.. 120412	0,15	**0,20**	0,40	1,2	**1,8**	2,5	0,25	**0,30**	0,50	1,2	**2,0**	5,0
	SN.. 120416												
	SN.. 150608												
	SN.. 150612												
	SN.. 150616												
	SN.. 190612												
	SN.. 190616												
	SN.. 190624												
	SN.. 250724												
	SN.. 250924												
	TN.. 110304												
	TN.. 110308												
	TN.. 160404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	TN.. 160408	0,10	**0,15**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	TN.. 160412							0,20	**0,30**	0,50	1,2	**2,0**	4,5
	TN.. 220404												
	TN.. 220408												
	TN.. 220412												
	TN.. 220416												
	VN.. 160404	0,08	**0,10**	0,20	0,4	**1,0**	2,0						
	VN.. 160408	0,10	**0,15**	0,30	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**1,5**	4,0
	VN.. 160412												
	WN.. 060404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	WN.. 060408	0,10	**0,20**	0,30	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**1,5**	3,5
	WN.. 060412							0,20	**0,30**	0,45	1,2	**1,5**	4,0
	WN.. 080404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	WN.. 080408	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	WN.. 080412							0,20	**0,30**	0,50	1,2	**2,0**	5,0
	WN.. 080416												

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The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-M60						-M34						-M42					
	f			a_p			f			a_p			f			a_p		
	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CN.. 090304																		
CN.. 090308																		
CN.. 120404							0,08	**0,12**	0,18	1,0	**1,5**	3,0	0,1	**0,2**	0,25	0,8	**1,5**	4,0
CN.. 120408	0,25	**0,30**	0,50	1,5	**2,5**	6,0	0,10	**0,15**	0,35	1,0	**1,8**	3,5	0,2	**0,3**	0,44	1,0	**2,5**	4,0
CN.. 120412	0,30	**0,35**	0,55	2,0	**3,0**	6,0	0,13	**0,20**	0,40	1,5	**2,0**	4,0	0,28	**0,35**	0,55	1,2	**3,0**	4,2
CN.. 120416	0,30	**0,40**	0,60	2,0	**3,0**	6,0	0,15	**0,25**	0,45	2,0	**3,0**	4,5						
CN.. 160608																		
CN.. 160612	0,30	**0,35**	0,55	2,0	**3,0**	8,0												
CN.. 160616																		
CN.. 160624																		
CN.. 190608																		
CN.. 190612																		
CN.. 190616																		
CN.. 190624																		
CN.. 250924																		
DN.. 110402																		
DN.. 110404													0,15	**0,25**	0,3	1,0	**2,0**	3,5
DN.. 110408													0,2	**0,3**	0,4	1,2	**2,5**	4,0
DN.. 110412																		
DN.. 150404							0,08	**0,12**	0,18	0,8	**1,2**	2,5	0,15	**0,25**	0,35	1,0	**2,0**	4,0
DN.. 150408	0,25	**0,3**	0,45	1,5	**2,5**	6,0	0,10	**0,15**	0,30	1,0	**1,8**	3,5	0,2	**0,3**	0,4	1,2	**2,5**	5,0
DN.. 150412	0,3	**0,4**	0,55	1,5	**2,5**	6,0	0,13	**0,20**	0,38	1,5	**2,0**	4,0						
DN.. 150416																		
DN.. 150604													0,15	**0,25**	0,35	1,0	**2,0**	4,0
DN.. 150608	0,25	**0,30**	0,45	1,5	**2,5**	6,0	0,10	**0,15**	0,30	1,0	**1,8**	3,5	0,2	**0,3**	0,44	1,2	**2,5**	5,0
DN.. 150612	0,30	**0,40**	0,55	1,5	**2,5**	6,0	0,13	**0,20**	0,38	1,5	**2,0**	4,0						
DN.. 150616																		
SN.. 090308																		
SN.. 120404																		
SN.. 120408	0,30	**0,35**	0,50	1,5	**2,0**	6,0	0,15	**0,25**	0,40	1,0	**2,0**	4,0	0,15	**0,25**	0,4	1,0	**2,0**	4,5
SN.. 120412	0,30	**0,40**	0,55	2,0	**2,5**	6,0	0,15	**0,25**	0,45	1,5	**2,5**	4,5	0,2	**0,25**	0,45	1,0	**2,0**	5,0
SN.. 120416	0,30	**0,40**	0,60	2,0	**2,5**	6,0												
SN.. 150608																		
SN.. 150612																		
SN.. 150616																		
SN.. 190612																		
SN.. 190616																		
SN.. 190624																		
SN.. 250724																		
SN.. 250924																		
TN.. 110304																		
TN.. 110308																		
TN.. 160404													0,1	**0,2**	0,3	0,8	**2,0**	5,0
TN.. 160408	0,25	**0,25**	0,45	1,5	**2,5**	5,0	0,10	**0,15**	0,35	1,0	**2,0**	4,0	0,12	**0,2**	0,35	0,8	**2,0**	5,0
TN.. 160412	0,30	**0,30**	0,55	2,0	**2,5**	5,5												
TN.. 220404							0,10	**0,15**	0,35	1,0	**2,0**	4,0						
TN.. 220408							0,13	**0,20**	0,40	1,5	**2,5**	4,0						
TN.. 220412																		
TN.. 220416							0,15	**0,25**	0,45	2,0	**2,5**	4,5						
VN.. 160404							0,07	**0,10**	0,18	0,8	**1,2**	2,0						
VN.. 160408							0,10	**0,15**	0,20	1,0	**1,5**	2,5						
VN.. 160412							0,13	**0,18**	0,25	1,5	**1,8**	3,0						
WN.. 060404													0,1	**0,22**	0,35	0,5	**1,0**	3,0
WN.. 060408	0,25	**0,30**	0,45	1,5	**2,0**	4,0							0,1	**0,22**	0,35	0,5	**1,0**	3,0
WN.. 060412	0,30	**0,35**	0,50	2,0	**2,5**	4,5												
WN.. 080404													0,1	**0,2**	0,35	0,4	**1,5**	4,0
WN.. 080408	0,25	**0,30**	0,50	1,5	**2,0**	5,0	0,10	**0,15**	0,35	1,0	**2,0**	4,0	0,15	**0,25**	0,4	0,8	**1,5**	4,0
WN.. 080412	0,30	**0,35**	0,55	2,0	**2,5**	5,5	0,13	**0,20**	0,40	1,5	**2,0**	4,0	0,2	**0,3**	0,45	1,0	**2,0**	4,0
WN.. 080416																		

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Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 211–217**

Cutting data values for positive inserts

	Designation	-CF05						-SF					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CC.. 060200							0,02	**0,035**	0,05	0,1	**0,4**	1,5
	CC.. 060201							0,02	**0,035**	0,05	0,2	**0,4**	1,5
	CC.. 060202	0,03	**0,08**	0,12	0,1	**0,3**	1,3	0,03	**0,1**	0,15	0,2	**0,4**	1,5
	CC.. 060204	0,05	**0,10**	0,12	0,1	**0,3**	1,3	0,05	**0,1**	0,2	0,2	**0,6**	1,5
	CC.. 060208							0,05	**0,125**	0,2	0,2	**1**	1,5
	CC.. 09T300							0,02	**0,035**	0,05	0,2	**0,75**	2
	CC.. 09T301							0,02	**0,035**	0,05	0,2	**0,75**	2
	CC.. 09T302	0,03	**0,08**	0,12	0,1	**0,3**	1,3	0,05	**0,075**	0,1	0,2	**0,75**	2
	CC.. 09T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,75**	2
	CC.. 09T308	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,05	**0,125**	0,25	0,4	**1**	2
	CC.. 09T312												
	CC.. 120402							0,05	**0,075**	0,1	0,2	**0,8**	2,5
	CC.. 120404							0,05	**0,12**	0,2	0,2	**1**	2,5
	CC.. 120408							0,08	**0,15**	0,25	0,4	**1**	2,5
	CC.. 120412							0,08	**0,15**	0,25	0,4	**1,5**	2,5
	DC.. 0702005												
	DC.. 070201												
	DC.. 0702015												
	DC.. 070202	0,03	**0,08**	0,12	0,1	**0,3**	1,3	0,03	**0,1**	0,15	0,1	**0,4**	1,5
	DC.. 070204	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,6**	1,5
	DC.. 070208												
	DC.. 11T3005												
	DC.. 11T301												
	DC.. 11T3015												
	DC.. 11T302	0,03	**0,08**	0,12	0,1	**0,3**	1,3						
	DC.. 11T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,7**	2
	DC.. 11T308	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,08	**0,15**	0,25	0,4	**1**	2
	DC.. 11T312												
	RC.. 0602MO												
	RC.. 0803MO												
	RC.. 1003MO												
	RC.. 1204MO												
	RC.. 1606MO												
	RC.. 2006MO												
	RC.. 2507MO												
	SC.. 09T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,7**	2
	SC.. 09T308	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,08	**0,15**	0,25	0,4	**1**	2
	SC.. 120408							0,08	**0,15**	0,25	0,4	**1**	2,5
	SC.. 120412												
	TC.. 090204												
	TC.. 110202	0,03	**0,08**	0,12	0,1	**0,3**	1,3						
	TC.. 110204	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,7**	2
	TC.. 110208	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,08	**0,15**	0,25	0,4	**1**	2
	TC.. 16T302												
	TC.. 16T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,8**	2,5
	TC.. 16T308							0,08	**0,15**	0,25	0,4	**1**	2,5
	TC.. 16T312												
	TC.. 220408												
	VC.. 1103005												
	VC.. 110301												
	VC.. 1103015												
	VC.. 110302	0,03	**0,06**	0,12	0,1	**0,3**	1,3	0,02	**0,08**	0,15	0,1	**0,4**	1,5
	VC.. 110304	0,05	**0,08**	0,22	0,2	**0,4**	1,3	0,05	**0,1**	0,2	0,2	**0,6**	1,5
	VC.. 110308							0,08	**0,12**	0,22	0,4	**1**	1,5
	VC.. 160402												
	VC.. 160404	0,05	**0,08**	0,22	0,2	**0,4**	1,3	0,05	**0,1**	0,2	0,2	**0,7**	2
	VC.. 160408	0,06	**0,10**	0,22	0,2	**0,4**	1,3	0,08	**0,12**	0,22	0,4	**1**	2
	VC.. 160412												
	VC.. 220530												
	WC.. 020102							0,02	**0,075**	0,1	0,1	**0,4**	1
	WC.. 020104							0,02	**0,1**	0,2	0,1	**0,6**	1,5

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The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-CF55						-SMF						-SM					
	f			a_p			f			a_p			f			a_p		
	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CC.. 060200																		
CC.. 060201																		
CC.. 060202													0,04	**0,12**	0,2	0,2	**0,6**	2,5
CC.. 060204	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,7**	2	0,08	**0,17**	0,3	0,4	**0,8**	2,5
CC.. 060208							0,1	**0,17**	0,27	0,6	**1**	2	0,12	**0,2**	0,35	0,8	**1**	2,5
CC.. 09T300																		
CC.. 09T301																		
CC.. 09T302																		
CC.. 09T304	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,8**	2,5	0,08	**0,17**	0,3	0,4	**1**	3
CC.. 09T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
CC.. 09T312													0,15	**0,22**	0,4	1,2	**1,5**	3
CC.. 120402																		
CC.. 120404	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**1**	3	0,08	**0,17**	0,3	0,4	**1,2**	3,5
CC.. 120408							0,1	**0,17**	0,27	0,6	**1,2**	3	0,12	**0,2**	0,35	0,8	**1,5**	3,5
CC.. 120412													0,15	**0,22**	0,4	1,2	**2**	3,5
DC.. 0702005																		
DC.. 070201																		
DC.. 0702015																		
DC.. 070202	0,03	**0,10**	0,12	0,1	**0,4**	1,3							0,04	**0,12**	0,2	0,2	**0,6**	2,5
DC.. 070204	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,7**	2	0,08	**0,17**	0,3	0,4	**0,8**	2,5
DC.. 070208							0,1	**0,17**	0,27	0,6	**1**	2	0,12	**0,2**	0,3	0,8	**1**	2,5
DC.. 11T3005																		
DC.. 11T301																		
DC.. 11T3015																		
DC.. 11T302																		
DC.. 11T304	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,8**	2,5	0,8	**0,17**	0,3	0,4	**1**	3
DC.. 11T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1,2**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
DC.. 11T312													0,15	**0,22**	0,4	1,2	**1,7**	3
RC.. 0602MO													0,2	**0,3**	0,5	0,2	**0,5**	1,5
RC.. 0803MO													0,2	**0,3**	0,6	0,2	**0,6**	2
RC.. 1003MO													0,25	**0,4**	0,7	0,2	**0,7**	2,5
RC.. 1204MO													0,3	**0,5**	0,8	0,2	**0,8**	3
RC.. 1606MO							0,15	**0,3**	0,6	0,25	**2**	3,5	0,4	**0,6**	1	0,3	**1**	3,5
RC.. 2006MO													0,5	**0,8**	1,2	0,4	**1,2**	4
RC.. 2507MO													0,6	**0,9**	1,4	0,6	**2**	5
SC.. 09T304	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,8**	2,5	0,08	**0,17**	0,3	0,4	**1**	3
SC.. 09T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
SC.. 120408							0,1	**0,17**	0,27	0,6	**1,2**	3	0,12	**0,2**	0,35	0,8	**1,5**	3,5
SC.. 120412													0,15	**0,22**	0,4	1,2	**2**	3,5
TC.. 090204													0,08	**0,12**	0,2	0,4	**0,8**	2
TC.. 110202													0,08	**0,1**	0,2	0,4	**0,6**	3
TC.. 110204	0,05	**0,12**	0,22	0,2	**0,5**	1,3							0,12	**0,2**	0,35	0,8	**1,2**	3
TC.. 110208							0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
TC.. 16T302																		
TC.. 16T304							0,07	**0,15**	0,25	0,3	**1**	3	0,08	**0,17**	0,3	0,4	**1,2**	3,5
TC.. 16T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1,2**	3	0,12	**0,2**	0,35	0,8	**1,5**	3,5
TC.. 16T312													0,15	**0,22**	0,4	1,2	**1,7**	3,5
TC.. 220408													0,12	**0,2**	0,35	0,8	**2,5**	6
VC.. 1103005																		
VC.. 110301																		
VC.. 1103015																		
VC.. 110302							0,05	**0,1**	0,18	0,2	**0,5**	2						
VC.. 110304	0,05	**0,10**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,23	0,3	**0,7**	2						
VC.. 110308																		
VC.. 160402																		
VC.. 160404	0,05	**0,10**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,23	0,3	**0,8**	2,5	0,08	**0,17**	0,25	0,4	**1**	3
VC.. 160408	0,06	**0,12**	0,22	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,3	0,8	**1,2**	3
VC.. 160412													0,15	**0,22**	0,32	1,2	**1,5**	3
VC.. 220530																		
WC.. 020102																		
WC.. 020104																		

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Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 211–217**

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Cutting data values for positive inserts

	Designation	-SMQ						-M25					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CC.. 060200												
	CC.. 060201												
	CC.. 060202												
	CC.. 060204							0,06	**0,13**	0,20	0,2	**1,1**	2,0
	CC.. 060208												
	CC.. 09T300												
	CC.. 09T301												
	CC.. 09T302												
	CC.. 09T304	0,10	**0,25**	0,4	0,4	**2**	4	0,06	**0,14**	0,22	0,2	**1,2**	2,2
	CC.. 09T308	0,15	**0,30**	0,5	0,8	**2**	4	0,10	**0,20**	0,30	0,4	**1,8**	3,2
	CC.. 09T312												
	CC.. 120402												
	CC.. 120404	0,10	**0,25**	0,4	0,4	**2**	4						
	CC.. 120408	0,15	**0,30**	0,5	0,8	**2**	4						
	CC.. 120412												
	DC.. 0702005												
	DC.. 070201												
	DC.. 0702015												
	DC.. 070202							0,04	**0,09**	0,13	0,1	**0,9**	1,6
	DC.. 070204	0,10	**0,18**	0,25	0,4	**1,5**	3	0,06	**0,12**	0,18	0,2	**1,1**	2,0
	DC.. 070208												
	DC.. 11T3005												
	DC.. 11T301												
	DC.. 11T3015												
	DC.. 11T302							0,04	**0,10**	0,16	0,1	**1,1**	2,0
	DC.. 11T304	0,10	**0,25**	0,4	0,4	**2**	4	0,06	**0,14**	0,22	0,2	**1,2**	2,2
	DC.. 11T308	0,15	**0,30**	0,5	0,8	**2**	4	0,10	**0,20**	0,30	0,4	**1,8**	3,2
	DC.. 11T312												
	RC.. 0602MO												
	RC.. 0803MO												
	RC.. 1003MO												
	RC.. 1204MO												
	RC.. 1606MO												
	RC.. 2006MO												
	RC.. 2507MO												
	SC.. 09T304												
	SC.. 09T308												
	SC.. 120408												
	SC.. 120412												
	TC.. 090204												
	TC.. 110202												
	TC.. 110204							0,06	**0,13**	0,20	0,2	**1,2**	2,2
	TC.. 110208												
	TC.. 16T302												
	TC.. 16T304							0,06	**0,14**	0,22	0,2	**1,6**	3,0
	TC.. 16T308							0,10	**0,20**	0,30	0,4	**1,9**	3,4
	TC.. 16T312												
	TC.. 220408												
	VC.. 1103005												
	VC.. 110301												
	VC.. 1103015												
	VC.. 110302												
	VC.. 110304												
	VC.. 110308												
	VC.. 160402												
	VC.. 160404							0,06	**0,13**	0,20	0,2	**1,2**	2,2
	VC.. 160408							0,10	**0,15**	0,25	0,4	**1,4**	3,0
	VC.. 160412												
	VC.. 220530												
	WC.. 020102												
	WC.. 020104												

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The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-M55						-F05					
	f			a_p			f			a_p		
	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
	mm/rev.			mm			mm/rev.			mm		
CC.. 060200												
CC.. 060201							0,02	**0,03**	0,05	0,1	**1**	2
CC.. 060202							0,02	**0,05**	0,1	0,1	**1**	2
CC.. 060204	0,06	**0,13**	0,20	0,4	**1,5**	2,6	0,02	**0,1**	0,2	0,1	**1**	2
CC.. 060208												
CC.. 09T300												
CC.. 09T301												
CC.. 09T302												
CC.. 09T304	0,08	**0,16**	0,24	0,4	**1,7**	3,0						
CC.. 09T308	0,12	**0,24**	0,35	0,8	**2,4**	4,0						
CC.. 09T312												
CC.. 120402												
CC.. 120404	0,08	**0,18**	0,28	0,4	**2,2**	4,0						
CC.. 120408	0,12	**0,26**	0,40	0,8	**2,8**	4,8						
CC.. 120412												
DC.. 0702005							0,02	**0,025**	0,04	0,1	**1**	2
DC.. 070201							0,02	**0,03**	0,05	0,1	**1**	2
DC.. 0702015							0,02	**0,04**	0,075	0,1	**1**	2
DC.. 070202							0,02	**0,05**	0,1	0,1	**1**	2
DC.. 070204	0,06	**0,14**	0,22	0,4	**1,3**	2,2						
DC.. 070208	0,08	**0,16**	0,24	0,8	**1,6**	2,4						
DC.. 11T3005							0,02	**0,025**	0,04	0,1	**1,25**	2,5
DC.. 11T301							0,02	**0,03**	0,05	0,1	**1,25**	2,5
DC.. 11T3015							0,02	**0,04**	0,075	0,1	**1,25**	2,5
DC.. 11T302							0,02	**0,075**	0,1	0,1	**1,25**	2,5
DC.. 11T304	0,08	**0,16**	0,24	0,4	**1,7**	3,0	0,02	**0,1**	0,25	0,1	**1,25**	2,5
DC.. 11T308	0,12	**0,24**	0,35	0,8	**2,4**	4,0						
DC.. 11T312												
RC.. 0602MO												
RC.. 0803MO												
RC.. 1003MO												
RC.. 1204MO												
RC.. 1606MO												
RC.. 2006MO												
RC.. 2507MO												
SC.. 09T304	0,12	**0,24**	0,35	0,8	**2,4**	4,0						
SC.. 09T308	0,12	**0,26**	0,40	0,8	**2,8**	4,8						
SC.. 120408												
SC.. 120412												
TC.. 090204	0,06	**0,12**	0,18	0,4	**1,3**	2,2						
TC.. 110202												
TC.. 110204	0,06	**0,14**	0,22	0,4	**1,4**	2,4						
TC.. 110208												
TC.. 16T302												
TC.. 16T304												
TC.. 16T308	0,12	**0,24**	0,35	0,8	**2,6**	4,4						
TC.. 16T312												
TC.. 220408												
VC.. 1103005							0,02	**0,025**	0,04	0,1	**1,25**	2,5
VC.. 110301							0,02	**0,03**	0,05	0,1	**1,25**	2,5
VC.. 1103015							0,02	**0,04**	0,075	0,1	**1,25**	2,5
VC.. 110302							0,02	**0,075**	0,1	0,1	**1,25**	2,5
VC.. 110304							0,02	**0,15**	0,25	0,1	**1,25**	2,5
VC.. 110308												
VC.. 160402												
VC.. 160404	0,08	**0,14**	0,20	0,4	**1,7**	3,0						
VC.. 160408	0,12	**0,21**	0,30	0,8	**2,1**	3,4						
VC.. 160412												
VC.. 220530												
WC.. 020102												
WC.. 020104												

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Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 211–217**

9

Diamond as a cutting material

Ensures

- ▲ optimal surface quality
- ▲ burr-free workpieces
- ▲ high service lives
- ▲ lowest cutting forces
- ▲ high Process Security

Complete programme of roughing, finishing and Trailing edge inserts for machining aluminium, non ferrous metals, plastics, ...

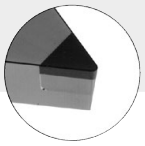
The cutting materials

	CTD CD10 (CVD)	CTD PD20 (PKD)	CTD PU20 (PKD)	CTD PS30 (PKD)
	Fine grain Size (N10)	Fine grain grade (N20)	Coarse grain grade (N20)	Coarse grain Size (N30)
Properties	▲ perfect sharp edges ▲ no cutting pressure ▲ very close tolerances ▲ highest abrasion resistance with highest toughness ▲ very high heat conductivity	▲ high sharpness ▲ lower cutting pressure than PDC-S ▲ close tolerance ▲ lower abrasion resistance with increased toughness	▲ very sharp cutting edge ▲ reduced cutting pressure ▲ tight tolerances ▲ very high level of wear resistance and toughness	▲ high sharpness ▲ lower cutting pressure ▲ close tolerance ▲ lower abrasion resistance than with the PDC, with increased toughness
Material	suitable for superfinishing and semi-finishing of all non ferrous metals and NE-composite materials with small to high levels of abrasiveness	suitable for fine machining of all NE-materials with low abrasiveness	suitable for finishing to roughing non-ferrous metals and non-ferrous materials with highly abrasive alloying element. High chip removal on fibre-reinforced plastics such as CFRP and GFRP.	suitable for fine machining of all NE-materials and non-ferrous metals with low to very high levels of abrasiveness

Cutting Geometries

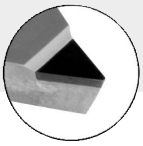
Neutral rake angle:

- ▲ higher cuting force
- ▲ higher temperature
- ▲ improved surface quality
- ▲ for stable workpieces



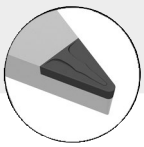
Positive rake angle: 5° / 7°

- ▲ lower cutting force
- ▲ lower temperature
- ▲ reduction in surface quality
- ▲ for unstable workpieces
- ▲ improved accuracy



CB chip breaker geometries:

- ▲ reliable chip control
- ▲ ideal for low-alloy aluminium
- ▲ For F | M | R applications



Notes on diamond usage

- ▲ Coolant is not generally needed, however it facilitates chip removal
- ▲ Note the chemical reaction to carbide-forming elements (PCD)
- ▲ Note the thermal interaction and critical temperature:
  PCD: 600 °C, CVD: 700 °C
  Depending on the material, use cooling.

Standard chip breakers / application notes

Main application steel and cast iron, secondary application stainless steels

Negative

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-CF / -CF20 ▲ Fine finishing ▲ Sharp cutting edge for low cutting forces ▲ Good chip control even at small depths of cut	**CTEP110 / TCM10** CTEP110 / TCM10 CTEP110 / TCM10			0,30–1,50	0,07–0,25	CN.. DN.. TN.. WN..
-F40 ▲ Fine turning chip breaker for machining steels ▲ Good chip control ▲ Ideal for copy turning work	**CTCP125-P** CTCP125-P	**CTCP125-P** CTCP125-P		0,50–2,00	0,10–0,30	VN..
-F50 ▲ Fine turning chip breaker for fine machining ▲ Steel and stainless steels ▲ Excellent chip control ▲ High surface quality	CTCP115-P / CTCP125-P	CTCP115-P / CTCP125-P / CTCP135-P CTCP135-P	**CTCP135-P** CTCP135-P	0,10–2,60	0,06–0,35	CN.. DN.. SN.. TN.. VN.. WN..
-TFQ ▲ Wiper geometry ▲ Finishing to medium machining ▲ Very high feeds ▲ High surface quality	**CTEP110 / CTCP115-P** CTEP110 CTEP110 / CTCP115-P	CTCP115-P / CTCP125-P CTCP115-P / CTCP125-P		0,50–5,00	0,10–0,60	CN.. DN.. WN..
-XU ▲ Finishing to light roughing ▲ Universal chip breaker ▲ Copy turning ▲ Excellent chip formation ▲ Low cutting forces	CTCP115-P / CTCP125-P CTCP115-P	CTCP115-P / CTCP125-P CTCP115-P / CTCP125-P	CTCP125-P	0,40–4,50	0,12–0,40	CN.. DN.. VN.. WN..

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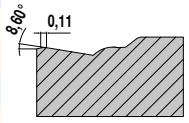
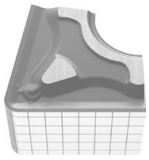
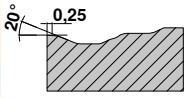
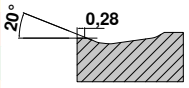
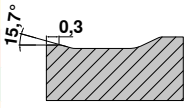
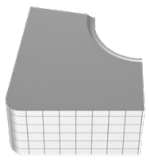
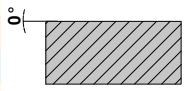
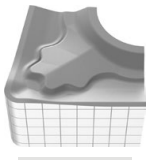
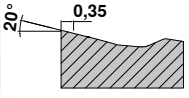
Standard chip breakers / application notes

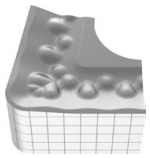
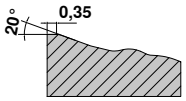
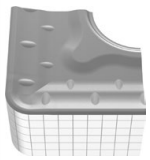
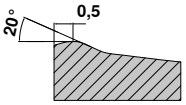
Main application steel and cast iron, secondary application stainless steels

Negative

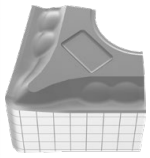
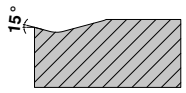
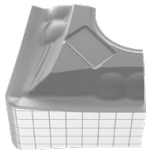
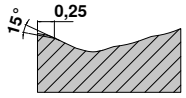
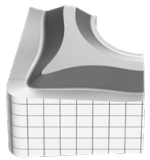
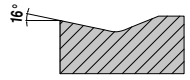
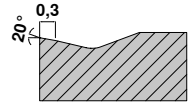
Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-M40 ▲ Stable geometry ▲ Medium feed rates ▲ Can be used for any application ▲ Good chip control	 **M**	**CTCP125-P** CTCP125-P	**CTCP125-P** CTCP125-P	 0,50–3,00	0,10–0,35	VN..
-M50 ▲ Medium machining ▲ First choice for steel machining ▲ Universal application ▲ Wide range of applications	 **M**	**CTCP115-P / CTCP125-P / CTCK110 / CTCK120** CTCP115-P CTCP115-P / CTCP125-P / **CTCK110 / CTCK120**	CTCP115-P / **CTCP125-P** CTCP125-P CTCP115-P / CTCP125-P / **CTCK110 / CTCK120**	CTCP125-P / **CTCP135-P** CTCP135-P CTCP125-P / **CTCK120**	 0,50–5,00	0,12–0,40	CN.. DN.. SN.. TN.. VN.. WN..
-TMQ ▲ Wiper geometry ▲ Light to medium rough machining ▲ Very high feeds ▲ High surface quality	 **M**	**CTCP115-P** CTCP125-P CTCP125-P	**CTCP125-P** CTCP125-P CTCP125-P	 0,80–6,00	0,20–0,85	CN.. DN.. WN..
-M70 ▲ Light to medium rough machining ▲ Cast crust and forging skin ▲ Stable cutting edge ▲ Interrupted cut ▲ Raw materials and forgings	 **M** **R**	**CTCK110 / CTCK120 / CTCP115-P** CTCP115-P **CTCK110 / CTCK120** / CTCP115-P / CTCP125-P	CTCP115-P / **CTCP125-P** CTCP125-P **CTCK120** / CTCP125-P	**CTCP125-P / CTCP135-P** CTCP135-P CTCP125-P / **CTCK120**	 1,50–4,50	0,20–0,80	CN.. DN.. SN.. TN.. WN..
-NMA ▲ Rough machining ▲ Stable cutting edge ▲ For short-chipping materials ▲ First choice for grey cast iron	 **R**	**CTCK110**	**CTCK110 / CTCK120**	**CTCK120**	 1,50–4,50	0,20–0,80	CN.. DN.. SN.. TN.. WN..
-R28 ▲ Single sided roughing geometry ▲ Longitudinal, face and copy turning ▲ Varying depths of cut ▲ Steels with low tensile strength (800 N / mm²) ▲ Good chip control	 **R**	**CTCP115-P** / CTCP125-P CTCP115-P / CTCP125-P CTCP115-P	**CTCP115-P / CTCP125-P / CTCP135-P** CTCP125-P / CTCP135-P CTCP125-P	**CTCP135-P** CTCP135-P CTCP135-P	 1,00–12,00	0,25–0,80	CN.. DN.. SN..

Standard chip breakers / application notes

Negative

Model	Smooth cut ○	Irregular cutting depth ○	Interrupted cut ○	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
Main application steel and cast iron, secondary application stainless steels						
-R58 ▲ Single sided roughing geometry ▲ Longitudinal and face turning ▲ Light interrupted cut ▲ Low cutting forces ▲ Unstable machines						
R	**CTCP115-P / CTCP125-P**	**CTCP115-P / CTCP125-P / CTCP135-P**	**CTCP135-P**			CN.. DN.. SN.. TN..
	CTCP115-P / CTCP125-P	CTCP125-P / CTCP135-P	CTCP135-P			
	CTCP115-P	CTCP115-P / CTCP125-P	CTCP125-P			
				1,50–12,00	0,30–1,20	
-R88 ▲ Single sided roughing geometry ▲ Longitudinal and face turning ▲ High feedrate ▲ Large depths of cut ▲ Heavily interrupted cut						
R	**CTCP115-P / CTCP125-P**	**CTCP115-P / CTCP125-P / CTCP135-P**	**CTCP135-P**			SN..
	CTCP115-P / CTCP125-P	CTCP115-P / CTCP125-P	CTCP135-P			
	CTCP115-P	CTCP115-P / CTCP125-P	CTCP125-P			
				3,50–16,00	0,50–1,50	

Negative

Model	Smooth cut ○	Irregular cutting depth ○	Interrupted cut ○	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
Main application stainless steels, secondary application steel and super alloys						
-F30 ▲ Finishing of stainless steels ▲ Continous cut ▲ High surface quality ▲ Good swarf control						
F	CTCM120 / CTPM125	CTCM120 / CTPM125 / CTCM130	CTCM130			CN.. DN.. SN.. TN.. VN.. WN..
	CTCM120 / CTPM125	**CTCM120 / CTPM125 / CTCM130**	**CTCM130**			
				0,08–2,5	0,10–0,35	
-M30 ▲ Option for stainless steel machining ▲ Good swarf control ▲ Little edg build up ▲ Low cutting forces ▲ Little built-up edge ▲ Applicable on unstable machines						
F M	CTCM120 / CTPM125	CTCM120 / CTPM125 / CTCM130	CTCM130			CN.. DN.. SN.. TN.. VN.. WN..
	CTCM120 / CTPM125	**CTCM120 / CTPM125 / CTCM130**	**CTCM130**			
				1,00-4,50	0,15-0,40	
-42 ▲ Extremely soft-cutting chip breaker ▲ For small and medium widths of cut ▲ Suitable for thin-walled parts						
M			CTCM130			CN..
			CTCM130			
			CTCM130			
				0,50–4,50	0,05–0,35	
-M42 ▲ For medium machining on stainless steels ▲ As a secondary application for general steels and super alloys						
M			CTCM130			DN.. SN.. TN.. WN..
			CTCM130			
			CTCM130			
				1,00–3,50	0,15–0,40	

9

Standard chip breakers / application notes

Negative

Main application super alloys, secondary application stainless steels

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-M60 ▲ Light to medium roughing ▲ Stable cutting edge ▲ Interrupted cut ▲ Forged skin and cast crust	CTCM120 / CTPM125 **CTCM120 / CTPM125**	CTCM120 / CTPM125 / CTCM130 **CTCM120 / CTPM125 / CTCM130**	CTCM130 **CTCM130**	1,50–6,00	0,25–0,50	CN.. DN.. SN.. TN.. WN..
M **R**						
-F34 ▲ Stable, positive cutting edge ▲ Also for slightly interrupted cuts	CTPX710 **CTPX710**	CTPX710 **CTPX710**		0,50–2,50	0,08–0,25	CN.. WN..
F	CTPX710 **CTPX710**	CTPX710 **CTPX710**				
-M34 ▲ First choice for superalloys ▲ Light cutting geometry ▲ Little built-up edge ▲ Low cutting forces	**CTPX710** **CTPX710**	**CTPX710** **CTPX710**		0,80–3,0	0,10–0,30	CN.. DN.. SN.. VN.. WN..
M	CTPX710 **CTPX710**	CTPX710 **CTPX710**				
-M42 ▲ For medium machining on stainless steels ▲ As a secondary application for general steels and super alloys	**CTCM130**	**CTCM130**	**CTCM130**	1,0–3,50	0,15–0,40	CN.. DN..
M	**CTPX710**	**CTPX710**				

Positive

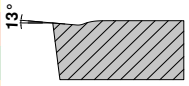
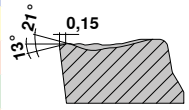
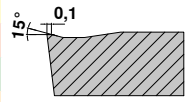
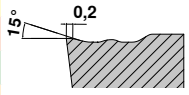
Main application steel and cast iron, secondary application stainless steels and super alloys

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-CF05 ▲ Fine finishing ▲ For all common steel materials, stainless steels and GGG ▲ Good swarf control ▲ High surface quality	**CTEP110 / TCM407** CTEP110	TCM10 / TCM407		0,20–1,30	0,06–0,25	CC.. DC.. SC.. TC.. VC..
F	CTEP110	TCM10 / TCM407				
-SF ▲ Finishing / contour turning ▲ Good swarf control ▲ High surface quality ▲ Low cutting forces	**CTCP115-P**	**CTCP125-P**	CTCP125-P / CTCP135-P CTCP125-P	0,05–2,50	0,05–0,25	CC.. DC.. SC.. TC.. VC.. WC..
F		CTCP125-P				
-CF55 ▲ Finishing to medium machining ▲ Suitable for general and stainless steels ▲ Low cutting forces ▲ Good swarf control ▲ High surface quality	**CTEP110** CTEP110	**TCM10** / CTEP110 CTEP110		0,20–1,30	0,06–0,25	CC.. DC.. SC.. TC.. VC..
F **M**	CTEP110	CTEP110				

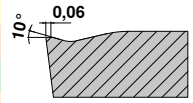
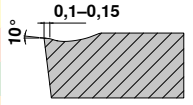
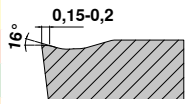
Standard chip breakers / application notes

Positive

Main application steel and cast iron, secondary application stainless steels and super alloys

Model	Smooth cut ○	Irregular cutting depth ○	Interrupted cut ○	Sectional illustration	a_p mm	f mm	Geometry
-SMF ▲ Finishing to medium machining ▲ Low cutting forces ▲ Good swarf control ▲ High surface quality	**CTEP110 / CTCP115-P** CTEP110 CTEP110	**TCM10 / CTCP125-P / CTCP115-P** CTCP135-P	**CTCP135-P** CTCP135-P		0,20–1,30	0,06–0,25	CC.. DC.. SC.. TC.. VC..
-M23 ▲ Soft cutting geometry with outstanding chip breaking behaviour at low cutting depths in finish machining	**CTCP115-P / CTCP125-P** CTCP115-P / CTCP125-P	**CTCP125-P** CTCP125-P	**CTCP125-P** CTCP125-P		0,30–4,0	1,0–0,45	RC..
-SM ▲ Medium machining ▲ Universal application ▲ Stable cutting edge ▲ Varying depths of cut ▲ Wide range of applications	**CTCP115-P / CTCP125-P** CTCP115-P / **CTCK110 / CTCK120**	**CTCP125-P / CTCP135-P / CTCP115-P** CTCP135-P CTCP125-P / **CTCK110 / CTCK120**	**CTCP125-P / CTCP135-P** CTCP135-P CTCK120		0,05–5,00	0,15–0,45	CC.. DC.. RC.. SC.. TC.. VC..
-SMQ ▲ Positive wiper geometry ▲ Finishing to medium machining ▲ Very high feeds ▲ High surface quality	**CTCP115-P** CTCP125-P / CTCP115-P	**CTCP125-P** CTCP125-P	**CTCP125-P** CTCP125-P		1,00–4,00	0,15–0,45	CC.. DC..

Positive

Model	Smooth cut ○	Irregular cutting depth ○	Interrupted cut ○	Sectional illustration	a_p mm	f mm	Geometry
-F43 ▲ For the light to medium machining of all stainless steels, general steels and superalloys			CTCM130 **CTCM130** CTCM130		0,50–2,50	0,05–0,25	CC.. DC.. TC..
-M25 ▲ First choice for medium machining of stainless steels ▲ High surface quality ▲ Little built-up edge	CTCM120 / CTPM125 **CTCM120 / CTPM125**	CTCM120 / CTPM125 / CTCM130 **CTCM120 / CTPM125 / CTCM130**	CTCM130 **CTCM130**		0,40–3,20	0,10–0,30	CC.. DC.. TC.. VC..
-M55 ▲ First choice for medium machining to roughing of stainless steels ▲ Smooth to lightly interrupted cut ▲ Good swarf control ▲ Stable cutting edge	CTCM120 / CTPM125 **CTCM120 / CTPM125**	CTCM120 / CTPM125 / CTCM130 **CTCM120 / CTPM125 / CTCM130**	CTCM130 **CTCM130**		0,40–4,80	0,06–0,35	CC.. DC.. SC.. TC.. VC..

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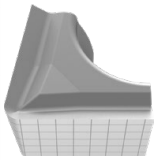
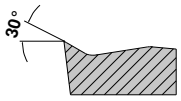
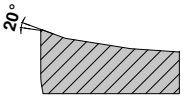
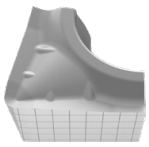
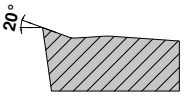
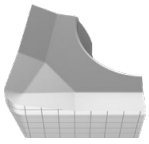
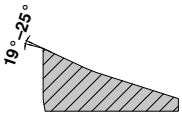
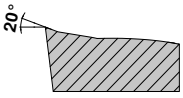
Standard chip breakers / application notes

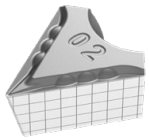
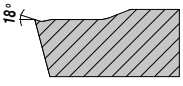
Positive

Main application non-ferrous metals, secondary application stainless steels, steels, super alloys, cast iron

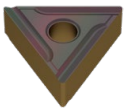
Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-23P ▲ Low adhesion ▲ Good chip control with soft aluminium alloys						
	H216T	H216T				CC.. DC..
	H216T	**H216T**	**H216T**			
F	H216T	H216T	H216T	0,2–4,0	0,05–0,3	
-25P ▲ Sharp cutting edge ▲ Good swarf control on soft aluminium alloys ▲ Low adhesion	**CTPX710**	CTPX710				
	CTPX710	CTPX710				CC.. DC.. SC.. VC..
	CTPX710 / H216T	**CTPX710 / H216T**	**CTPX710 / H216T**			
F **M**	**CTPX710**	CTPX710		0,50–4,50	0,05–0,60	
	CTPX710	CTPX710				
-25Q ▲ Wiper geometry ▲ High feeds ▲ High surface quality ▲ Good chip control with softer aluminium alloys ▲ Low adhesion	**CTPX710**	CTPX710				
	**CTPX710**	CTPX710				CC.. DC.. VC..
	H210T	H210T				
	H210T / CTPX710	**H210T / CTPX710**	**H210T / CTPX710**			
M	H210T / **CTPX710**	H210T / CTPX710		0,05–6,50	0,05–0,60	
	H210T	H210T	H210T			
-27 ▲ The universal Alu geometry ▲ Sharp cutting edge ▲ Extremely positive rake angle ▲ Low adhesion ▲ High feed rates	**CTPX715**	CTPX715				
	**CTPX715**	CTPX715				CC.. DC.. RC.. SC.. TC.. VC..
	CTPX715 / H216T	CTPX715 / H216T				
	CTPX715 / H216T	**CTPX715 / H216T**	**CTPX715 / H216T**			
M **R**	**CTPX715**	CTPX715		1,00–10,00	0,10–0,75	
	CTPX715 / H216T	CTPX715 / H216T	CTPX715 / H216T			
-29 ▲ Direct sintered aluminium geometry ▲ Positive rake angle ▲ Good chip control ▲ For medium to rough machining	CTPX710	CTPX710				
	CTPX710	CTPX710				CC.. DC.. VC..
	CTPX710	**CTPX710**				
	H216T	**H216T**	**H216T**			
M **R**	CTPX710	CTPX710		1,00–6,00	0,25–0,60	

Positive

Main application super alloys and stainless steels, secondary application steels and non-ferrous metals

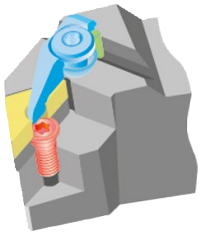
Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-F05 ▲ Maximum tolerance class ▲ Outstanding chip control, even with the smallest cutting depths ▲ Very low cutting forces	**CTPX710**	CTPX710				
	**CTPX710**	CTPX710				DC.. VC..
	CTPX710	CTPX710				
	CTPX710	**CTPX710**				
	CTPX710	**CTPX710**				
F	CTPX710	CTPX710		0,10–2,50	0,02–0,25	

Supplementary chip breakers / application notes

	Model	Smooth cut	Irregular cutting depth	Interrupted cut
-EN ▲ Universal chip breaker for general steels	 M	**CTCP115-P** CTCP125-P **CTCK110**	**CTCP125-P** CTCP135-P **CTCK120**	**CTCP135-P** CTCP135-P CTCP125-P
-ER | -EL ▲ A problem solver for unstable conditions ▲ Can be used on less powerful machines ▲ Can be used for general steels and on stainless materials as a secondary application	 M		**CTCP125-P**	**CTCP135-P**

Clamping systems

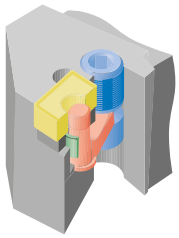
MaxiLock D



- Clamping element
- Inserts
- Insert seat
- Pin
- Screw

The first-choice tool for machining with negative centre-hole inserts. Secure and precise positioning of the indexable insert thanks to the double clamping effect of the clamping element.

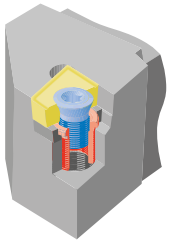
MaxiLock N



- Clamping element
- Inserts
- Insert seat
- Shim
- Lever

This clamping system is suitable for all centre-hole inserts with a negative basic shape. The clamping screw is easy to access from the top and bottom of the holder. When the clamping system is released, there are no loose spare parts.

MaxiLock S

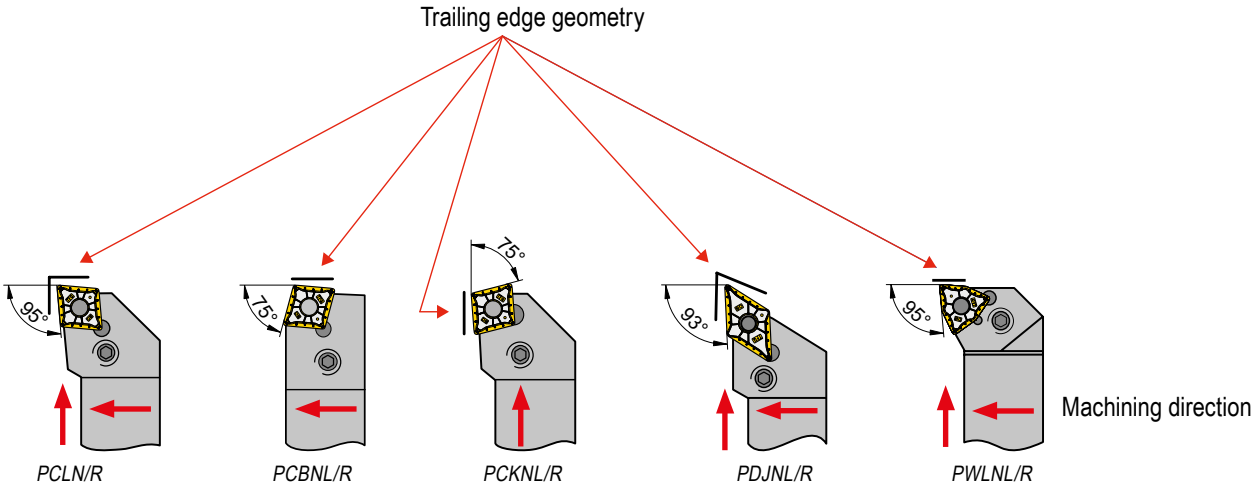


- Clamping element
- Inserts
- Insert seat
- Threaded sleeve

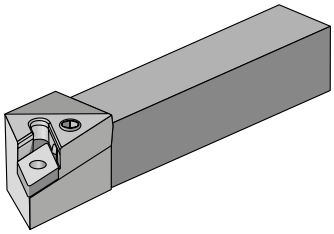
The positive screw clamping guarantees a secure connection between the indexable insert and the tool holder. The chip flow is not disrupted by protruding clamping elements. Thanks to the neutral insert position, the effective available rake angle is identical to the rake angle of the indexable insert.

Trailing edge geometry – information

High-quality surfaces can be produced inexpensively using indexable inserts with wiper geometry (-TFQ; -TMQ; -SMQ; -25Q).

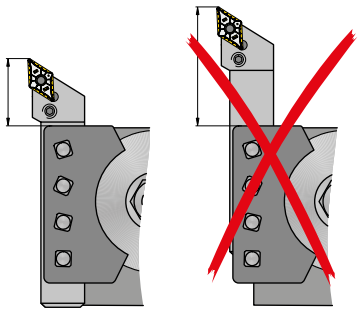


All turning inserts with trailing edge are clamped in standard ISO tool holders

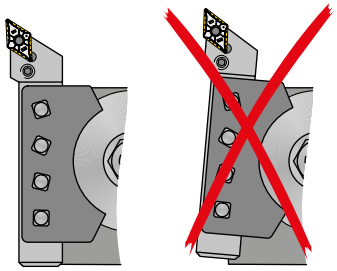


Check toolholder:

- ▲ Insert seat
- ▲ Shim
- ▲ Clamping Lever



Short tool overhang



Ensure correct tool alignment

Feed rate guide values for surface finish quality

Roughness range R_z in µm	R_{th}	Corresponds to R_a	Roughness index	ISO 1302	Corner radius r_ε in mm and feed rate f in mm/rev.						
					RE = 0,1	RE = 0,2	RE = 0,4	RE = 0,8	RE = 1,2	RE = 1,6	RE = 2,4
63–100	$R_{th}63$	12,5–25	N11	25	0,22*	0,32*	0,45*	0,63	0,78	0,9	1,1
40–63	$R_{th}40$	6,3–12,5	N10	12,5	0,18*	0,25*	0,36	0,51	0,62	0,72	0,88
31,5–40	$R_{th}31,5$	4,9–6,3	N9	6,3	0,16*	0,22*	0,32	0,45	0,55	0,63	0,78
25–31,5	$R_{th}25$	4,0–4,9			0,14*	0,2*	0,28	0,4	0,49	0,57	0,69
16–25	$R_{th}16$	2,5–4,0	N8	3,2	0,11*	0,16	0,23	0,32	0,39	0,45	0,55
10–16	$R_{th}10$	1,6–2,5			0,09	0,13	0,18	0,25	0,31	0,36	0,44
6,3–10	$R_{th}6,3$	1,0–1,6	N7	1,6	0,07	0,1	0,14	0,2	0,25	0,28	0,35
4–6,3	$R_{th}4$	0,8–1,0	N6	0,8	0,06	0,08	0,11	0,16	0,2	0,23	0,28
2,5–4	$R_{th}2,5$	0,4–0,8	N5	0,4	0,04	0,06	0,09	0,13	0,15	0,18	0,22
1,6–2,5	$R_{th}1,6$	0,2–0,4	N4	0,2	0,04	0,05	0,07	0,1	0,12	0,14	0,18
1–1,6	$R_{th}1$	0,1–0,2	N3	0,1	0,03	0,04	0,06	0,08	0,1	0,11	0,14

*Please ensure that the feed rate values used do not exceed the corner radius (RE).

Trailing edge geometry – operating principle

Relationship of feed rate to surface roughness

Improved Surface Quality

Given identical feed rates, the indexable insert with wiper geometry attains an R_t value that is many times better than a conventional indexable insert.

Shorter machining time

If the same R_t value is achieved as with a standard indexable insert, the indexable insert with the wiper geometry can be moved at twice the feed speed **(= lower cycle times!)**

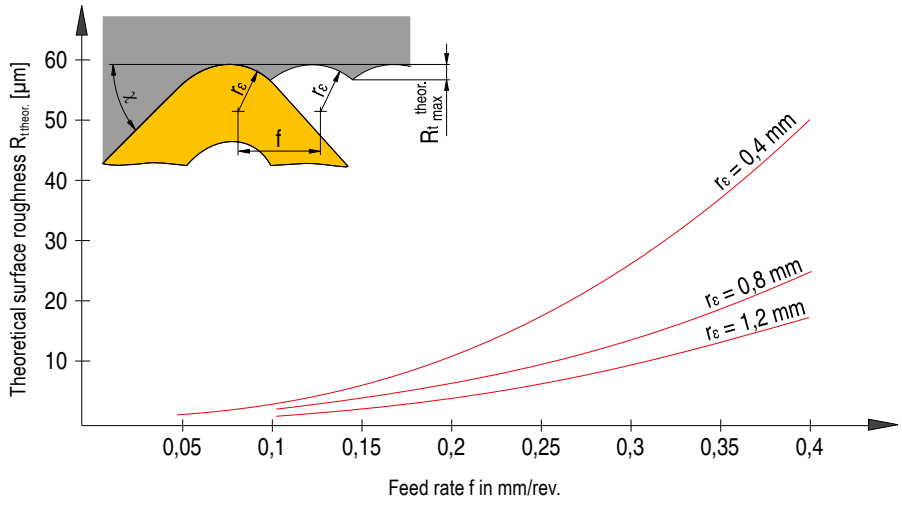
Theoretical Surface Quality

The maximum theoretical surface roughness with turning $Rt_{theor.}$ is the combination of feed rate and corner radius:

$$Rt_{theor.} = \left(r_\varepsilon - \sqrt{r_\varepsilon^2 - \frac{f^2}{4}}\right) \cdot 1000$$

or approximately:

$$Rt_{theor.} = \frac{125 \cdot f^2}{r\varepsilon} \quad [\mu m]$$



9

ISO designation system for inserts

Indexable inserts – metric

C	N	M	G	12	04	08	E	N	-	M50
1	2	3	4	5	6	7	8	9		13

Indexable inserts – inch

C	N	M	G	4	3	2	E	N	-	M50
1	2	3	4	5	6	7	8	9		13

Indexable inserts, CBN, ceramic – metric

C	N	G	A	12	04	08	S	N	-	020D	_	B	3	-	Q
1	2	3	4	5	6	7	8	9		10		11	12		13

Indexable inserts, CBN, ceramic – inch

C	N	G	A	4	3	2	S	N	-	020D	_	B	3	-	Q
1	2	3	4	5	6	7	8	9		10		11	12		13

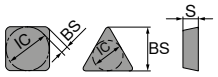
1 Insert shape

V	35°	Included angle
D	55°	
E	75°	
C	80°	
M	86°	
K	55°	Included angle
B	82°	
A	85°	
L	90°	Other shapes
P	108°	
H	120°	
O	135°	
R	-	
S	90°	
T	60°	
W	80°	

2 Clearance angle

	α		α
A	3°	F	25°
B	5°	G	30°
C	7°	N	0°
D	15°	P	11°
E	20°		
O	Clearance angles not included within the standard for which particular information is necessary.		

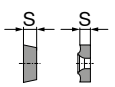
3 Tolerances



	IC±		BS		S	
	mm	inch	mm	inch	mm	inch
A	0,025	.0010	0,005	.0002	0,025	.001
F	0,013	.0005	0,005	.0002	0,025	.001
C	0,025	.0010	0,013	.0005	0,025	.001
H	0,013	.0005	0,013	.0005	0,025	.001
E	0,025	.0010	0,025	.0010	0,025	.001
G	0,025	.0010	0,025	.0010	0,13	.005
J	0,05-0,15*	.002-.006*	0,005	.0002	0,025	.001
K	0,05-0,15*	.002-.006*	0,013	.0005	0,025	.001
L	0,05-0,15*	.002-.006*	0,025	.0010	0,025	.001
M	0,05-0,15*	.002-.006*	0,05-0,20*	.003-.008*	0,13	.005
N	0,05-0,15*	.002-.006*	0,05-0,20*	.003-.008*	0,025	.001
U	0,08-0,25*	.003-.010*	0,13-0,38*	.005-.015*	0,13	.005

* Depends on insert size

6 Insert thickness



		Code	
mm	inch	mm	inch
1,59	1/16	01	1
2,38	3/32	02	1.5
3,18	1/8	03	2
3,97	5/32	T3	2.5
4,76	3/16	04	3
5,56	7/32	05	3.5
6,35	1/4	06	4
7,94	5/16	07	5
9,52	3/8	09	6

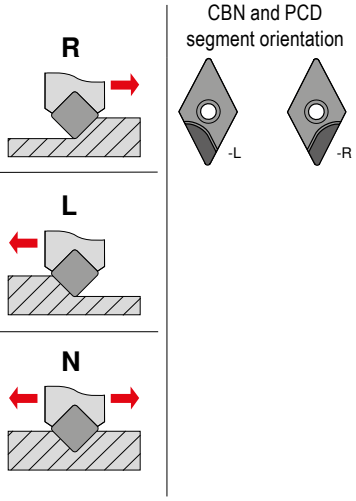
7 Corner radius

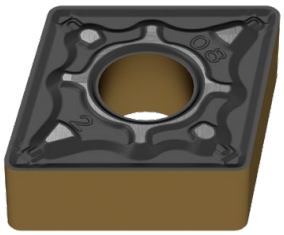
		Code		RN 00 RC MO
mm	inch	mm	inch	
≤ 0,05	.0015	00	X0	
0,1	.004	01	0	
0,2	.008	02	.5	
0,4	1/64	04	1	
0,8	1/32	08	2	
1,2	3/64	12	3	
1,6	1/16	16	4	
2,0	5/64	20	5	
2,4	3/32	24	6	
2,8	7/64	28	7	
3,2	1/8	32	8	

8 Cutting edge

F	Sharp
E	rounded
T	chamfered
S	Chamfered and honed
K	Double-chamfered
P	Double-chamfered and honed
R	Round chamfer

9 Direction of cut





4 Characteristics

N	
R	
F	
A	
M, P	
G, P	
W	
T	
Q	
U	
B	
H	
C	
J	
X	Special version

inch
Change at inscribed circle
IK < 1/4"

IK > 1/4"	IK < 1/4"
N / R / F	E
A / M / G	D
X	X

5 Cutting length

Type	ISO	ANSI	L mm	L inch	IC mm	IC inch
C	06	2	6,4	.250	6,35	.250
	09	3	9,7	.382	9,525	.375
	12	4	12,9	.508	12,70	.500
	16	5	16,1	.634	15,875	.625
	19	6	19,3	.760	19,05	.750
	25	8	25,8	1.016	25,4	1.000
	32	12	35,24	1.269	31,75	1.250
S	06	2	6,35	.250	6,35	.250
	09	3	9,525	.375	9,525	.375
	12	4	12,7	.500	12,7	.500
	15	5	15,875	.625	15,875	.625
	19	6	19,05	.750	19,05	.750
	25	8	25,4	1.000	25,4	1.000
	31	10	31,75	1.250	31,75	1.250
D	07	2	7,7	.303	6,35	.250
	11	3	11,6	.457	9,525	.375
	15	4	15,5	.610	12,70	.500
V	11	2	11,1	.437	6,35	.250
	16	3	16,6	.653	9,525	.375
	22	4	22,10	.870	12,70	.500

Type	ISO	ANSI	L mm	L inch	IC mm	IC inch
T	06	1.2	6,9	.272	3,97	.156
	09	1.8	9,6	.378	5,56	.219
	11	2	11,0	.433	6,35	.250
	16	3	16,5	.650	9,525	.375
	22	4	22,	.079	12,70	.039
	27	5	27,5	1.083	15,875	.625
	33	6	33,0	1.299	19,05	.750
W	06	3	6,5	.256	9,525	.375
	08	4	8,7	.331	12,70	.039
	10	5	10,9	.429	15,875	.625
R	06	2	6,35	.250	6,35	.250
	08	-	8,0	.315	8,0	.315
	09	3	9,52	.375	9,52	.375
	10	-	10,0	.394	10,0	.394
	12*	-	12,0	.472	12,0	.472
	12	4	12,7	.488	12,70	.488
	15	5	15,875	.625	15,875	.625
	16	-	16,0	.630	16,0	.630
	19	6	19,05	.750	19,05	.750
	25	8	25,0	.984	25,0	.984
	25*	-	25,4	1.000	25,4	1.000
	31	10	31,75	1.250	31,75	1.250
	32	-	32,0	1.260	32,0	1.260

* inch version

10 Chamfer type

T / S K / P [1)]

	mm	inch		
015	0,15	.006	A	05°
020	0,20	.008	B	10°
025	0,25	.010	C	15°
050	0,50	.020	D	20°
075	0,75	.030	E	25°
100	1,00	.040	F	30°
			G	35°

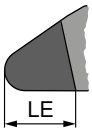
1) Two letters are assigned for double-chamfered cutting edges
e.g. BE =
chamfer angle 1 (y_1) = 10°
chamfer angle 2 (y_2) = 25°

11 Number of cutting edges

Single sided		Complete insert thickness	
A		T	
B		U	
C		V	
D		W	
G		X	
H		Y	

Double sided		Entire clamping flat	
K		S	
L		F	
M		E	
N			
P			
Q			

12 Segment length



Approx. specification in mm

13 Chip breaker designation

You can find a comprehensive chip breaker overview on
→ **page** 211–217

9

ISO designation system for tool holders

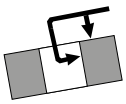
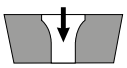
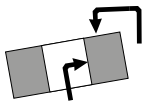
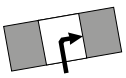
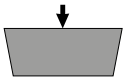
	P	C	L	N	R	20	20	K	12	-	T
	1	2	3	4	5	6	7	8	9		10
UT50	-	P	C	L	N	R			-12		
0		1	2	3	4	5	6	7	8	9	10
HSK-T63	-	D	C	L	N	R			-12		
0		1	2	3	4	5	6	7	8	9	10

0 System/size

UT = UTS
according to ISO 26622
UT40 = UTS 40 mm
UT50 = UTS 50 mm
UT63 = UTS 63 mm

HSK-T
according to ISO 12164
HSK-T63 = 63 mm
HSK-T100 = 100 mm

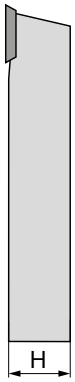
1 Tool holder

D  Retained from above and via bore	**S**  Retained via centre screw
M  Retained from above and via bore	**P**  Retained via the bore
C  Retained from above	**X** Special version

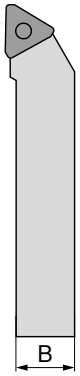
2 Insert shape

V	35°	Included angle	
D	55°		
E	75°		
C	80°		
M	86°		
K	55°	Included angle	
B	82°		
A	85°		
L	90°		Other shapes
P	108°		
H	120°		
O	135°		
R	-		
S	90°		
T	60°		
W	80°		

6 Shank height

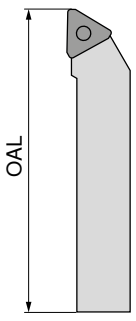


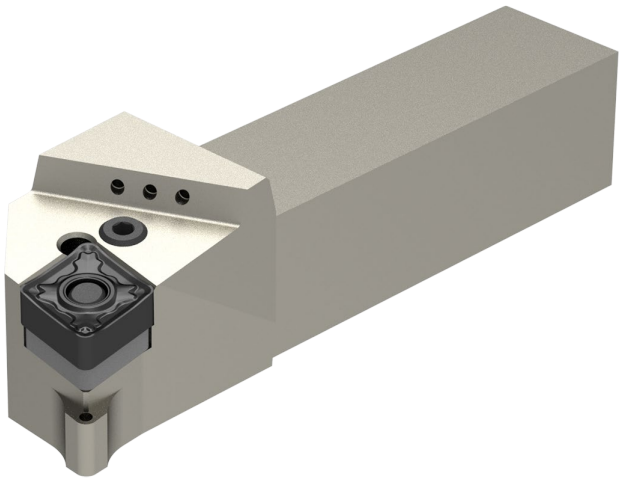
7 Shank width



8 Tool length

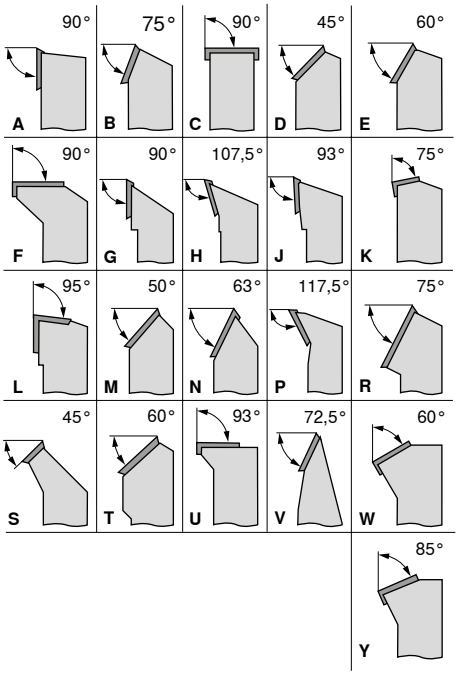
OAL mm	OAL inch		OAL mm	OAL inch	
32	4.000	**A**	160	4.500	**N**
40	4.500	**B**	170	5.500	**P**
50	5.000	**C**	180	–	**Q**
60	6.000	**D**	200	6.000	**R**
70	7.000	**E**	250	7.000	**S**
80	8.000	**F**	300	8.000	**T**
90	5.500	**G**	350	5.500	**U**
100	5.625	**H**	400	3.500	**V**
110	5.300	**J**	450	3.500	**W**
125	14.000	**K**	500	3.750	**Y**
140	6.800	**L**	Special version		**X**
150	4.400	**M**			





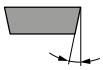
3

Style



4

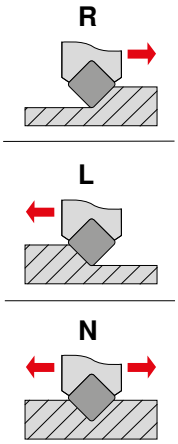
Clearance angle



	α		α
A	3°	F	25°
B	5°	G	30°
C	7°	N	0°
D	15°	P	11°
E	20°		
O	Clearance angles not included within the standard for which particular information is necessary.		

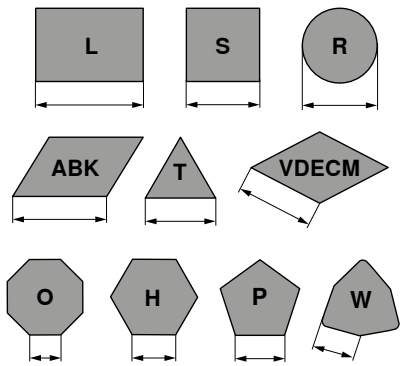
5

Direction of cut



9

Cutting length



10

Manufacturer specification

T = Toggle
Special length (mm)
Insert thickness (deviating from standard)
Special version (X..)
Machine manufacturer (specific)
DC = DirectCooling

ISO designation system for boring bars

		A	25	R		P	C	L	N	R	12	
		1	2	3		4	5	6	7	8	9	10
UT40	-		25	G	-	P	C	L	N	R	- 12	
0		1	2	3		4	5	6	7	8	9	10
HSK-T63	-		50	Q	-	D	C	L	N	R	- 12	
0		1	2	3		4	5	6	7	8	9	10

0 System/size

UT = UTS
according to ISO 26622
UT40 = UTS 40 mm
UT50 = UTS 50 mm
UT63 = UTS 63 mm

HSK-T
according to ISO 12164
HSK-T63 = 63 mm
HSK-T100 = 100 mm

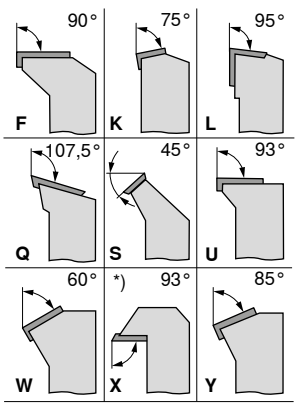
1 Shank type

S	Steel shank	**E**	As C with coolant hole
A	Steel shank with coolant hole	**F**	As C with antivibration system
B	Steel shank with antivibration system	**G**	As C with coolant hole and antivibration system
D	Steel shank with coolant hole and antivibration system	**H**	Heavy metal
C	Carbide shank with steel head	**J**	Heavy metal with coolant hole

5 Insert shape

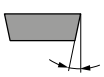
V	35°	Included angle	
D	55°		
E	75°		
C	80°		
M	86°		
K	55°	Included angle	
B	82°		
A	85°		
L	90°	Other shapes	
P	108°		
H	120°		
O	135°		
R	-		
S	90°		
T	60°		
W	80°		

6 Style



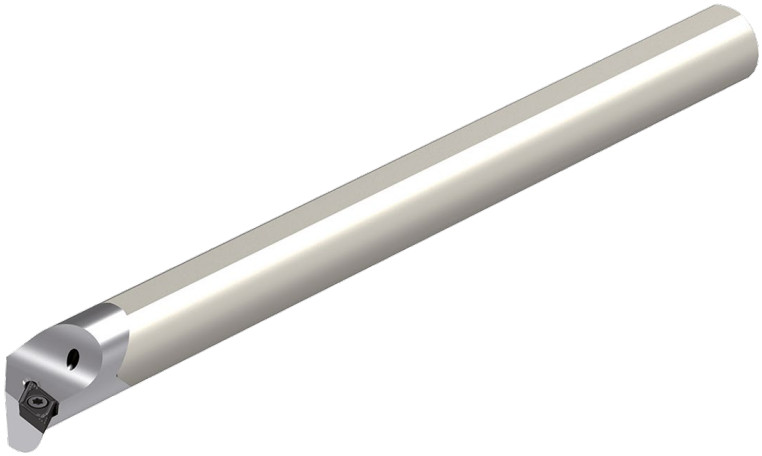
*) CERATIZIT factory standard

7 Clearance angle



	α		α
A	3°	**F**	25°
B	5°	**G**	30°
C	7°	**N**	0°
D	15°	**P**	11°
E	20°		

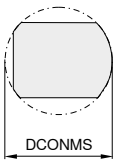
O Clearance angles not included within the standard for which particular information is necessary.



2

Shank type & size

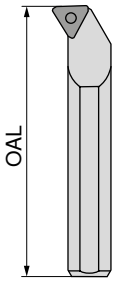
DCONMS mm	DCONMS inch
08	A two-digit figure indicating the boring bar diameter in 1/16 of an inch.
10	
12	
16	
20	
25	
32	
40	
50	
60	



3

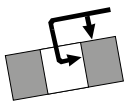
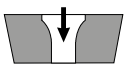
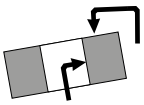
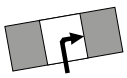
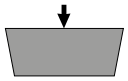
Tool length

OAL mm	OAL inch	
80	3	F
100	3,5	H
110	4	J
125	4,5	K
140	5	L
150	5,5	M
160	6	N
170	6,5	P
180	6,75	Q
200	7	R
250	8	S
300	10	T
350	12	U
400	14	V
450	16	W
500	18	Y
	20	
Special version		X



4

Clamping method

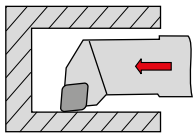
D  Retained from above and via bore	S  Retained via centre screw
M  Retained from above and via bore	P  Retained via the bore
C  Retained from above	X Special version

9

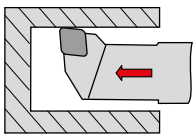
8

Direction of cut

R

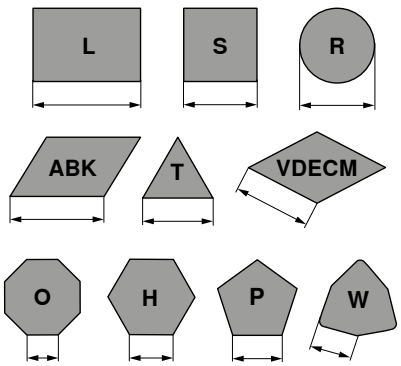


L



9

Cutting length



10

Manufacturer specification

T = Toggle
Special length (mm)
Insert thickness (deviating from standard)
Special version (X..)
Machine manufacturer (specific)

Types of wear

Wear on clearance face

Abrasion on flank: normal wear after a certain machining time

Cause
- Too high cutting speed
- Carbide grade with too low wear resistance
- Feed rate not adapted

Remedy
- Reduce cutting speed
- Use grade with higher wear resistance
- Adapt feed rate to cutting speed and cutting depth

Edge chipping

Through excessive mechanical stress at the cutting edge fracture and chipping can occur.

Cause
- Grade with too high wear resistance
- Vibration
- Too high cutting speed and / or feed rate
- Interrupted cut
- Swarf damage

Remedy
- Use tougher grade
- Use negative cutting edge geometry with chip groove
- Improve stability (tool, work piece)

Cratering

The hot chip which is being evacuated causes cratering at the rake face of the cutting edge.

Cause
- Too high cutting speed and / or feed rate
- Rake angle too shallow
- Grade with insufficient wear resistance
- Insufficient coolant supply

Remedy
- Reduce cutting speed and / or feed rate
- Use grade with higher wear resistance
- Increase coolant quantity and / or pressure, optimise coolant supply
- Use grade which is more resistant to cratering

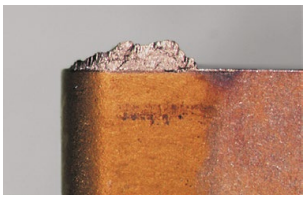
Plastic deformation

High machining temperature and simultaneous mechanical stress can lead to plastic deformation.

Cause
- Too high machining temperature resulting in softening of substrate
- Damage of coating
- Grade with insufficient wear resistance
- Insufficient coolant supply

Remedy
- Reduce cutting speed
- Use grade with higher wear resistance
- Provide cooling

Built-up edge



Built-up material / edges occur when the chip is not evacuated properly due to insufficient cutting temperature.

Cause
- Insufficient cutting speed
- Rake angle too shallow
- Wrong cutting material
- Lack of cooling / lubrication

Remedy
- Increase cutting speed
- Increase rake angle
- Apply TiN coating
- Use emulsion with higher concentration

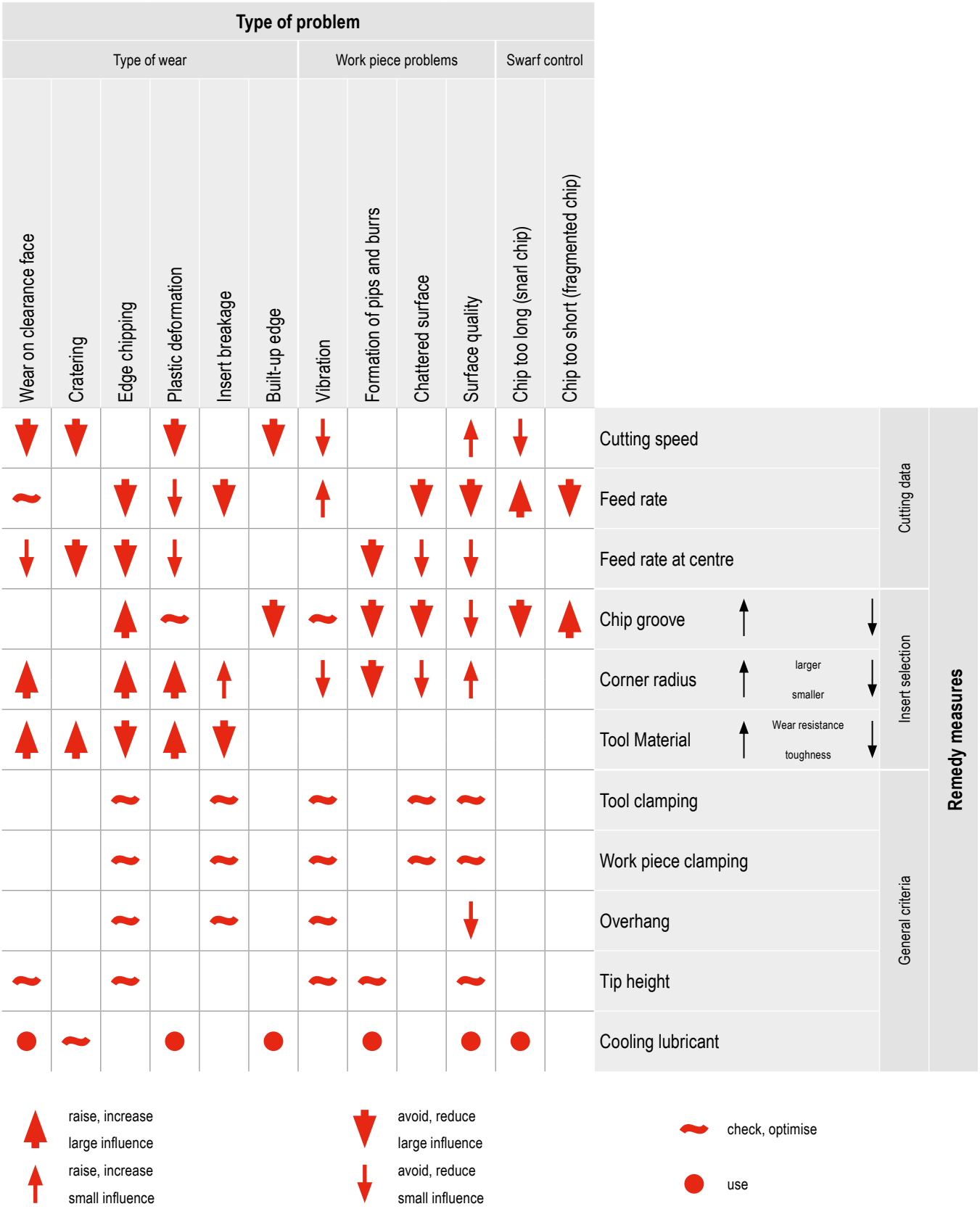
Insert breakage

Excessive stress of the insert causes breakage.

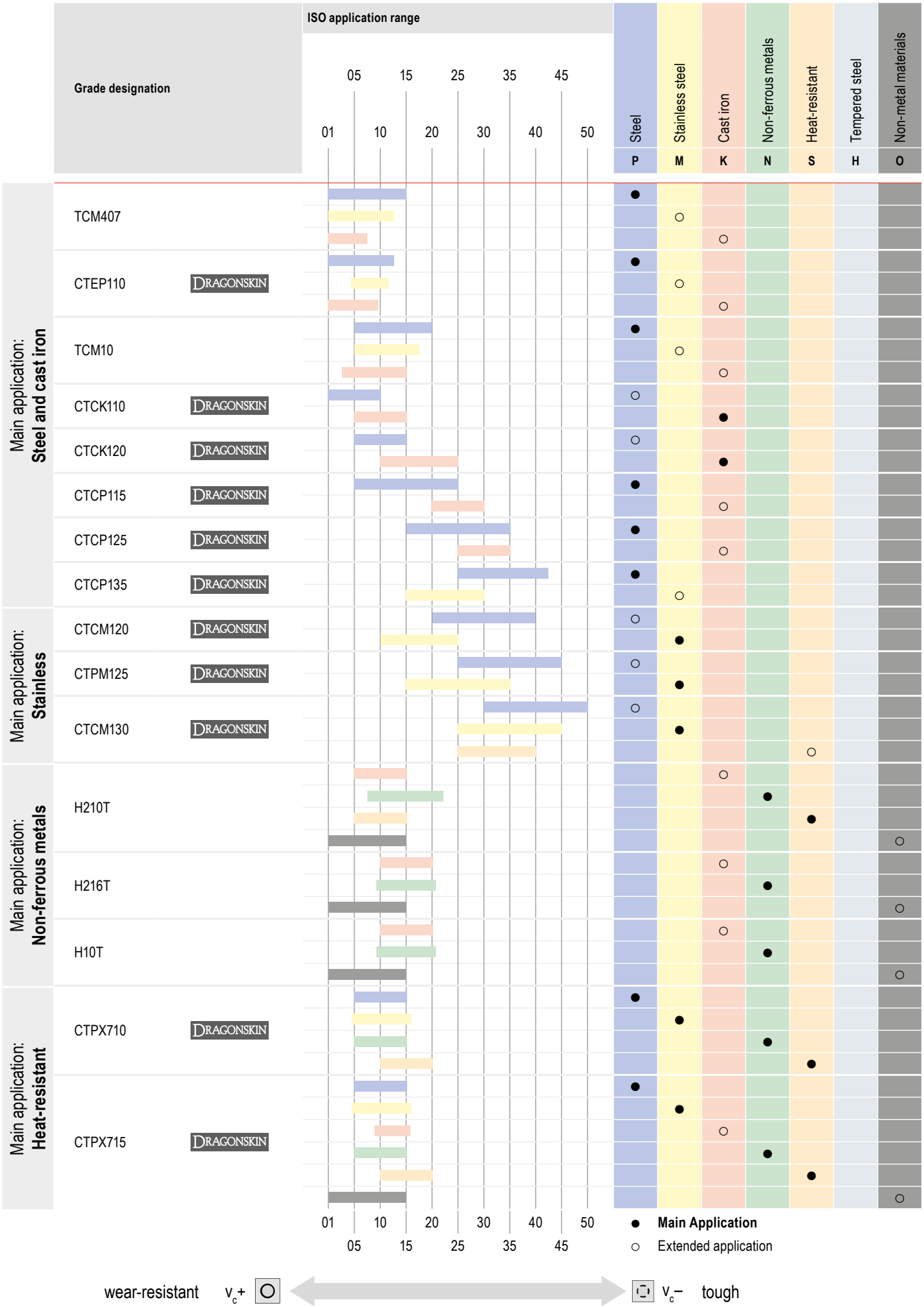
Cause
- Excessive stress of cutting material
- Lack of stability
- Clearance angle too small

Remedy
- Use tougher grade
- Use protective edge chamfer
- Increase edge hone
- Use geometry with higher stability

Recommendation for Optimum Results



Grades Overview



Grade description

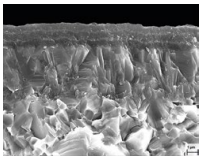
TCM407

ISO | **P10** | M05 | K05

Specification:
Composition: Co 8.0%; WC 16.0%; TaNbC 10.0%; TiCN balance | Grain size: 2-3 µm | Hardness: HV30 1760

Usage recommendation:
The uncoated cermet grade for fine finishing steel materials.

CTEP110



ISO | **P10** | M10 | K05

Specification:
Composition: Co/Ni 12.2%; WC 15.0%; TaNbC 10.0%; TiCN balance | Grain size: 2-3 µm |
Hardness: HV30 1650 | Layer system: CVD TiCN-Al2O3 Multilayer

Usage recommendation:
The cermet grade with toughness reserves for finish machining at high cutting speeds.

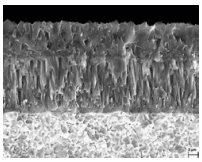
TCM10

P15 | K10

Specification:
Composition: Cermet Co/Ni 12,2%; WC 15,0%; TaNbC 10,0%; TiCN balance | Grain size: 2-3 µm |
Hardness: HV_{30} 1650

Usage recommendation:
The uncoated cermet grade for finishing steel, stainless steel and tempered steel.

CTCK110

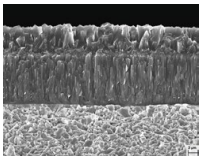


ISO | P10 | **K10**

Specification:
Composition: Co 5.0%, mixed carbides 2.0%, WC balance | Grain size: 1-2 µm | Hardness: HV30 1730 |
Layer system: CVD TiCN-Al2O3

Usage recommendation:
The wear-resistant grade for machining cast iron materials and steels at high cutting speeds with a continuous cut.

CTCK120

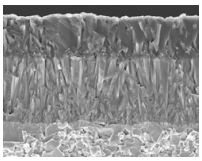


ISO | P20 | **K20**

Specification:
Composition: Co 6.0%, mixed carbides 2.0%, WC balance | Grain size: 1 µm | Hardness: HV_{30} 1630 |
Layer system: CVD TiCN-Al_2O_3

Usage recommendation:
The grade for cast iron machining with high toughness reserves for difficult conditions and interrupted cuts.

CTCP115-P

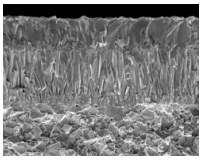


ISO | **P15** | K25

Specification:
Composition: Co 5.5%; mixed carbides 6.4%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1530 |
Layer system: CVD TiCN-Al_2O_3

Usage recommendation:
The wear-resistant high-performance grade for steel machining with stable conditions and a continuous cut.

CTCP125-P

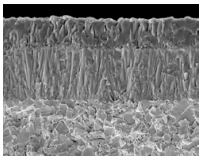


ISO | **P25** | K30

Specification:
Composition: Co 7.0%, mixed carbides 6.0%, WC balance | Grain size: 1-2 µm | Hardness: HV_{30} 1500 |
Layer system: CVD TiCN-Al_2O_3

Usage recommendation:
The first choice for the universal machining of steels.

CTCP135-P



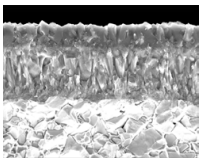
ISO | **P35** | M25

Specification:
Composition: Co 9.6%, mixed carbides 7.8%, WC balance | Grain size: 1-2 µm | Hardness: HV_{30} 1460 |
Layer system: CVD TiCN-Al_2O_3

Usage recommendation:
The tough alternative for extremely interrupted cutting conditions.

Grade description

CTCM120

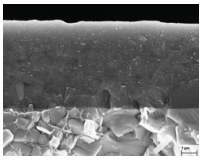


ISO | P15 | **M20**

Specification:
Composition: Co 7%, mixed carbides 6%, WC balance | Grain size: 1-2 µm | Hardness: HV_{30} 1500 | Layer system: CVD TiCN-Al_2O_3

Usage recommendation:
Wear-resistant carbide grade for austenitic, stainless steel with the best levels of performance with a smooth cut.

CTPM125

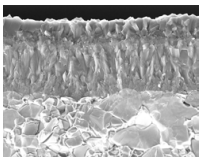


ISO | P35 | **M25**

Specification:
Composition: Co 9.6%; mixed carbides 7.8%; others 0.4%; WC balance | Grain size: 1 - 2 µm | Hardness: HV_{30} 1460 | Coating specification: PVD TiAlTaN

Recommended application:
The first choice for the machining of austenitic steels

CTCM130

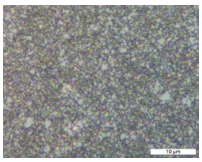


ISO | P25 | **M30** | S30

Specification:
Composition: Co 9.6%, mixed carbides 7.8%, WC balance | Grain size: 1-2 µm | Hardness: HV_{30} 1460 | Layer system: CVD TiCN-Al_2O_3

Usage recommendation:
Robust turning grade for austenitic stainless steel with interrupted cuts.

H210T



ISO | K10 | **N10 | S10** | O10

Specification:
Composition: Co 6.0%; WC balance | Grain size: 0.8 µm | Hardness: HV_{30} 1850

Recommended application:
The wear-resistant uncoated carbide grade for the machining of aluminium and other non-ferrous metals.

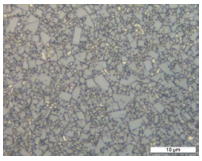
H10T

ISO | K15 | **N15** | S15 | O10

Specification:
Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1630

Recommended application:
The uncoated carbide grade for the machining of aluminium and other non-ferrous metals

H216T

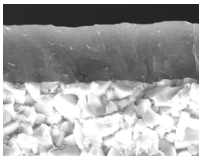


ISO | K15 | **N15** | S15 | O10

Specification:
Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1630

Recommended application:
The uncoated carbide grade for the machining of aluminium and other non-ferrous metals

CTPX710

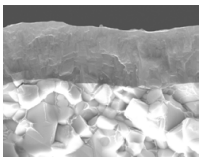


ISO | **P10 | M10** | K10 | **N10 | S15**

Specification:
Composition: Co 6.0%; WC balance | Grain size: 0.8 µm | Hardness: HV_{30} 1820 | Layer system: PVD AlTiN

Usage recommendation:
The universal carbide grade for the most demanding machining requirements on multiple materials.

CTPX715

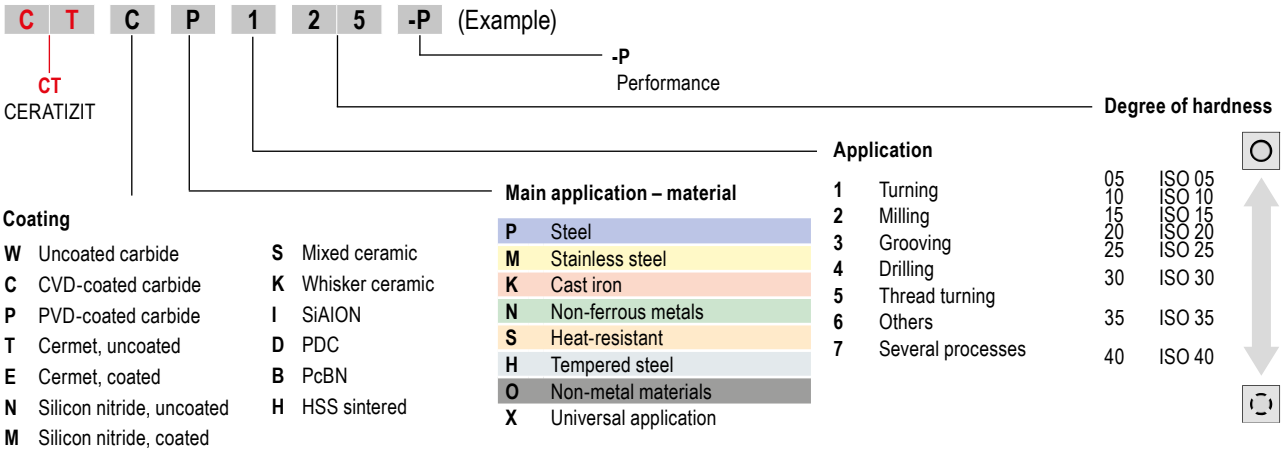


ISO | **P15 | M15** | K15 | **N15 | S20** | O10

Specification:
Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1650 | Layer system: PVD AlTiN

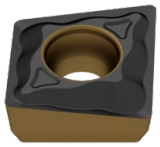
Usage recommendation:
The universal carbide grade for the most demanding machining requirements on multiple materials.

Grade description



New products for machining technicians

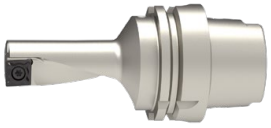
NEW ISO-P indexable inserts



Update of the reliable CVD EcoCut grades CTCP425 / CTCP435. With the update, the grades are more wear-resistant and have a wear-detection coating layer.

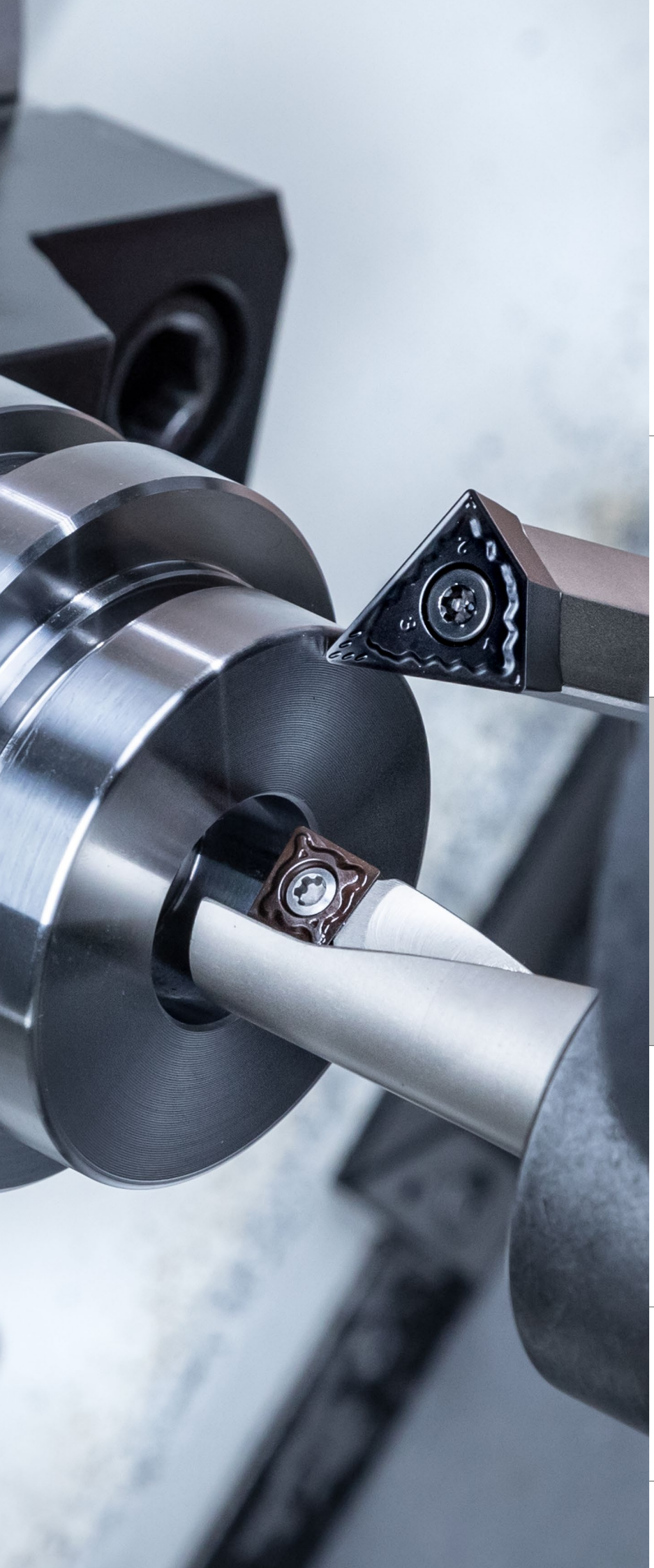
→ Page 11

NEW EcoCut Classic with direct machine interface



The new EcoCut Classic product range with direct machine interface performs the same application functions as all other EcoCut Classic tools, but the new monotools impress when it comes to stability – and therefore run quietly and very reliably. Furthermore, chip removal has been optimised thanks to the updated chip space, guaranteeing process security.

→ Page 15+16



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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Example applications / explanation of symbols	5
Toolfinder	6+7
Product programme	8–26
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General cutting data	27–29
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EcoCut Classic Cutting Data	32+33
EcoCut ProfileMaster Cutting Data	34+35
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FreeTurn chip breaker overview	38
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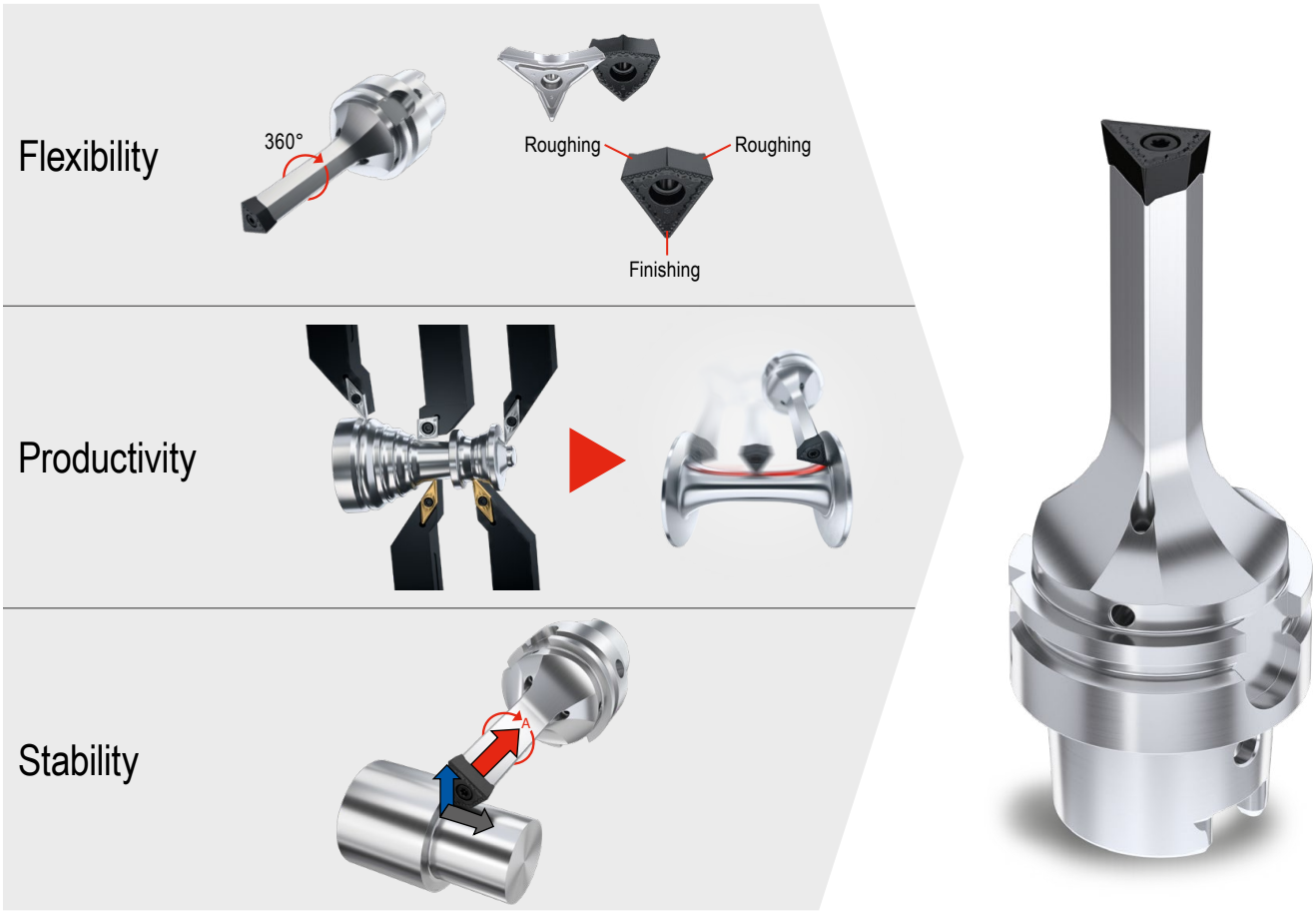
FreeTurn / EcoCut designation system	51+52

CERATIZIT \ Performance

Premium quality tools for high performance.

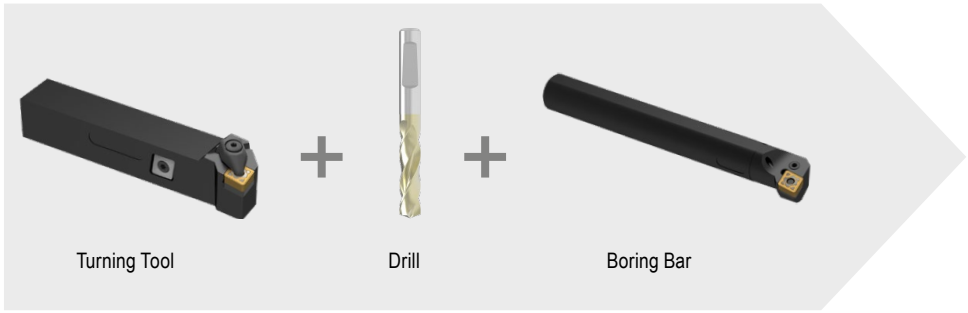
The premium quality tools from the **CERATIZIT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium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

Advantages of FreeTurn

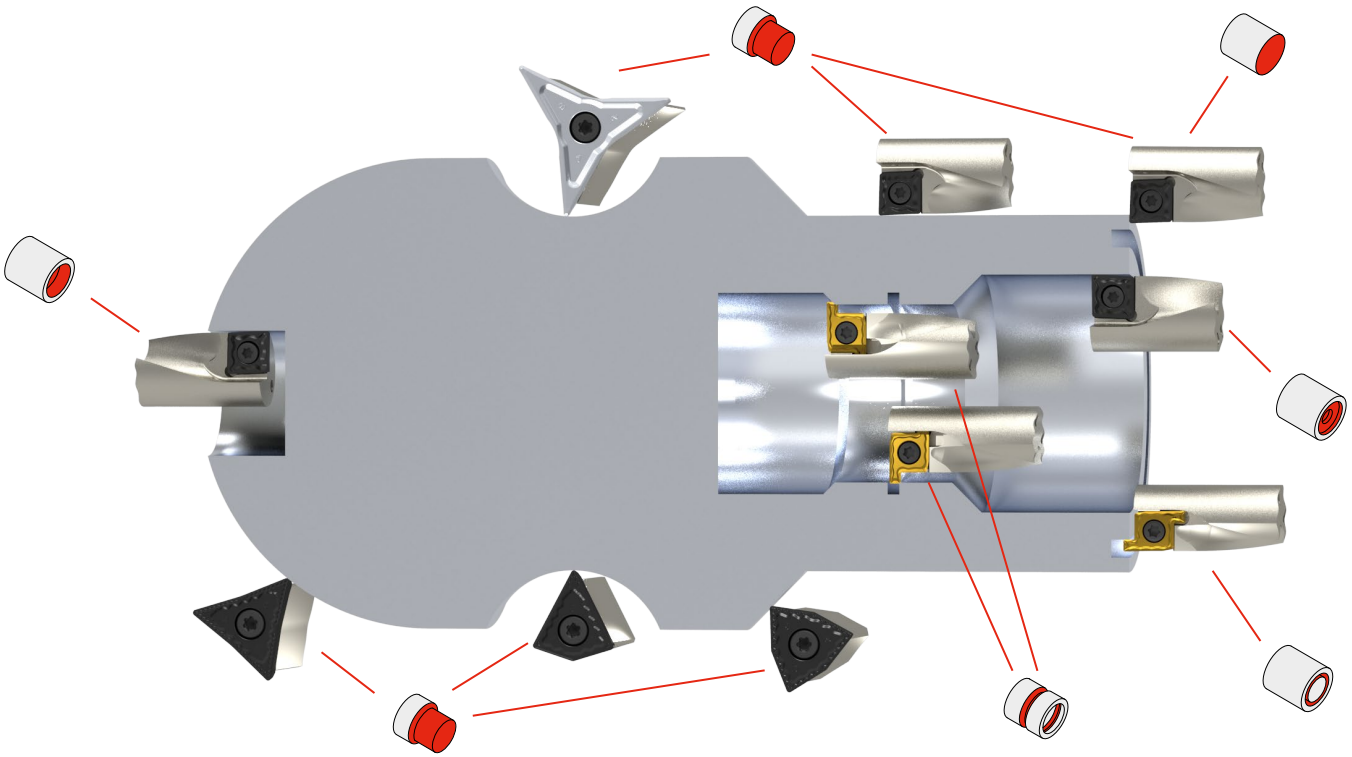


Advantages of EcoCut

- ▲ reduced machining time
- ▲ reduced need for tool positions
- ▲ generates flat bottom of hole
- ▲ less programming
- ▲ lower set-up costs / reduced setting time
- ▲ time savings due to fewer tool changes



Application examples



Symbol explanation

Turning outside profiles

Face turning

Drilling into full material

Turning internal profiles

External / internal radial grooving

Axial grooving

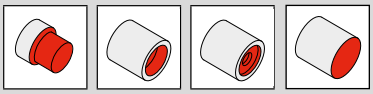
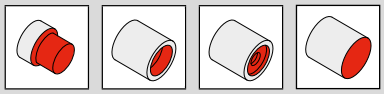
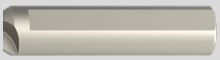
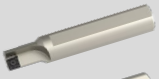
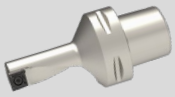
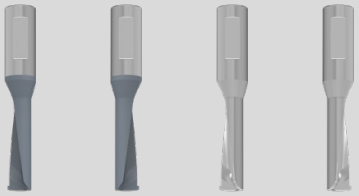
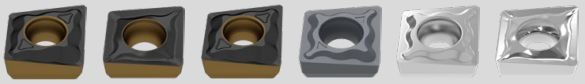
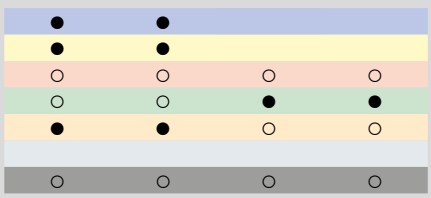
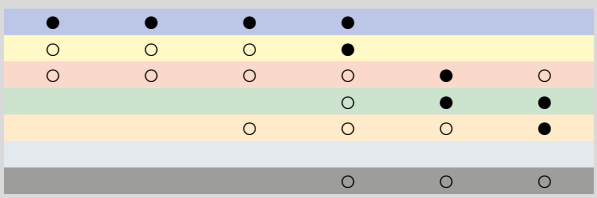
Int. coolant supply

-28P — Polished chip breaker
H216T — Carbide Grade

F	Fine Machining
M	Medium Machining
R	Rough Machining

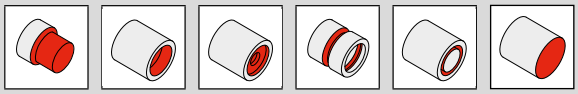
Smooth cut
Irregular cutting depth
Interrupted cut

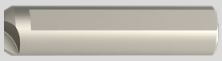
Toolfinder

Tool system	EcoCut Mini	EcoCut Classic
Application		
Machine interface	→ 9+10 Adapter for EcoCut Mini	 HSK-T 63 PSC 50 PSC 63
Lengths and diameters Versions	2,25xD Ø 2–8 → 8 4,0xD Ø 2–8 → 8	1,5xD Ø 8–32  → 12 2,25xD Ø 8–32 → 13 3,0xD Ø 8–32 → 14 2,25xD Ø 16–32 HSK-T → 15 2,25xD Ø 16–32  PSC → 16
Cutting material designation	CTPP435 | CTPP435 | CTWN425 | CTWN425	CTCP425-P | -M50Q CTCP425-P | CTCP435-P | CTPP430 | -27P H216T | -27Q H210T
Cutting conditions	DRAGONSKIN	DRAGONSKIN
		
	Solid carbide Left-hand | Solid carbide Right-hand | Solid carbide Left-hand | Solid carbide Right-hand	M XCNT | M XCNT | M XCNT | M XCNT | M XCET | M XCET
Application range		
Page No.	→ 8 | → 8 | → 8 | → 8	→ 11 | → 11 | → 11 | → 11 | → 11 | → 11
	→ v_c Page 28	→ v_c Page 28

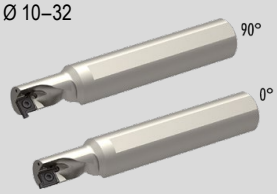
→ **Page 39**
EcoCut tools are suitable for off-centre drilling. This permits certain deviations from the nominal tool diameter to be achieved.

EcoCut ProfileMaster



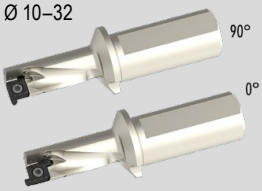


1,5xD
Ø 10–32



→ 18

2,25xD
Ø 10–32



→ 19

-M20 CTPP430	-M20 CTPP430
DRAGONSKIN	DRAGONSKIN

M	M
PM-R	PM-L
●	●
●	●
○	○
○	○
●	●
○	○

→ 17 → 17

→ v_c Page 28

FreeTurn

HSK-T 63

PSC 63

HSK-T

LPR = 100
LPR = 125

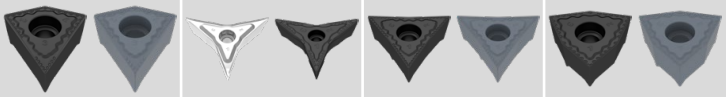
→ 23+26

PSC

LPR = 100
LPR = 125

→ 24+26

CTCP125	CTPM125	-28P H216T	-F CTCP125	CTCP125	CTPM125	CTCP125	CTPM125
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



M	M	F	F	F	F	F	F	M	M	M
FT15 . 808055...			FT15 . 353535...			FT15 . 555555...			FT17 . 808080...		
●	○			●		●	○		●	○	
	●						●			●	
○			○	○		○			○		
			●								
			○								
			○								

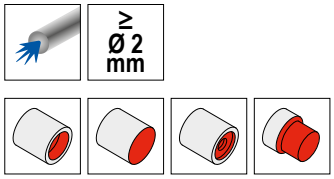
→ 20 → 20 → 21 → 21 → 22 → 22 → 25 → 25

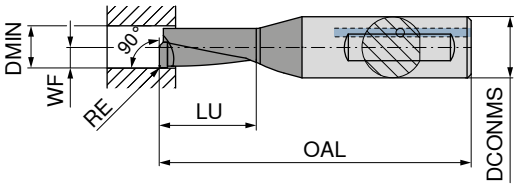
→ v_c Page 29

10

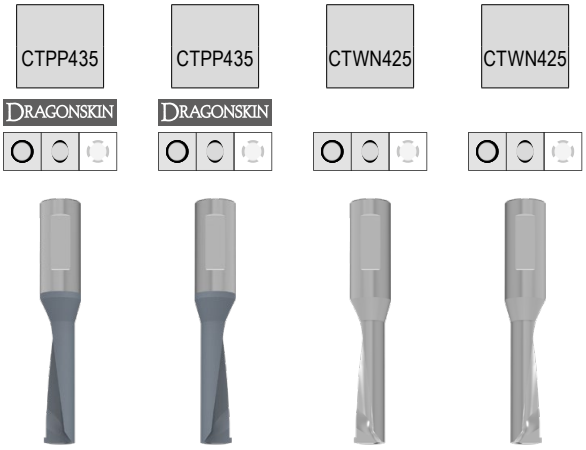
EcoCut – Mini

▲ Drilling and turning tool for small diameters





Illustrations show right-hand versions



							Solid carbide Left-hand		Solid carbide Right-hand		Solid carbide Left-hand		Solid carbide Right-hand	
							70 805 ...		70 804 ...		70 805 ...		70 804 ...	
ISO designation	DMIN mm	DCONMS mm	OAL mm	LU mm	WF mm	RE mm								
ECM 02 R/L 2,25D	2,0	4	28	4,50	1,00	0,1	**320**		**320**					
ECM 02 R/L 2,25D AL	2,0	4	28	4,50	1,00	0,1					**420**		**420**	
ECM 02 R/L 4,00D	2,0	4	31	8,00	1,00	0,1	**321**		**321**					
ECM 02 R/L 4,00D AL	2,0	4	31	8,00	1,00	0,1					**421**		**421**	
ECM 02,5 R/L 2,25D	2,5	4	29	5,63	1,25	0,1	**325**		**325**					
ECM 02,5 R/L 2,25D AL	2,5	4	29	5,63	1,25	0,1					**425**		**425**	
ECM 02,5 R/L 4,00D	2,5	4	33	10,00	1,25	0,1	**326**		**326**					
ECM 02,5 R/L 4,00D AL	2,5	4	33	10,00	1,25	0,1					**426**		**426**	
ECM 03 R/L 2,25D	3,0	4	31	6,75	1,50	0,1	**330**		**330**					
ECM 03 R/L 2,25D AL	3,0	4	31	6,75	1,50	0,1					**430**		**430**	
ECM 03 R/L 4,00D	3,0	4	35	12,00	1,50	0,1	**331**		**331**					
ECM 03 R/L 4,00D AL	3,0	4	35	12,00	1,50	0,1					**431**		**431**	
ECM 03,5 R/L 2,25D	3,5	4	32	7,88	1,75	0,1	**335**		**335**					
ECM 03,5 R/L 2,25D AL	3,5	4	32	7,88	1,75	0,1					**435**		**435**	
ECM 03,5 R/L 4,00D	3,5	4	37	14,00	1,75	0,1	**336**		**336**					
ECM 03,5 R/L 4,00D AL	3,5	4	37	14,00	1,75	0,1					**436**		**436**	
ECM 04 R/L 2,25D	4,0	6	35	9,00	2,00	0,2	**300**		**300**					
ECM 04 R/L 2,25D AL	4,0	6	35	9,00	2,00	0,2					**450**		**450**	
ECM 04 R/L 4,00D	4,0	6	41	16,00	2,00	0,2	**301**		**301**					
ECM 04 R/L 4,00D AL	4,0	6	41	16,00	2,00	0,2					**451**		**451**	
ECM 05 R/L 2,25D	5,0	6	37	11,25	2,50	0,2	**302**		**302**					
ECM 05 R/L 2,25D AL	5,0	6	37	11,25	2,50	0,2					**452**		**452**	
ECM 05 R/L 4,00D	5,0	6	45	20,00	2,50	0,2	**303**		**303**					
ECM 05 R/L 4,00D AL	5,0	6	45	20,00	2,50	0,2					**453**		**453**	
ECM 06 R/L 2,25D	6,0	8	38	13,50	3,00	0,2	**306**		**306**					
ECM 06 R/L 2,25D AL	6,0	8	38	13,50	3,00	0,2					**456**		**456**	
ECM 06 R/L 4,00D	6,0	8	49	24,00	3,00	0,2	**312**		**312**					
ECM 06 R/L 4,00D AL	6,0	8	49	24,00	3,00	0,2					**462**		**462**	
ECM 07 R/L 2,25D	7,0	8	42	15,75	3,50	0,2	**308**		**308**					
ECM 07 R/L 2,25D AL	7,0	8	42	15,75	3,50	0,2					**458**		**458**	
ECM 07 R/L 4,00D	7,0	8	53	28,00	3,50	0,2	**314**		**314**					
ECM 07 R/L 4,00D AL	7,0	8	53	28,00	3,50	0,2					**464**		**464**	
ECM 08 R/L 2,25D	8,0	8	45	18,00	4,00	0,2	**310**		**310**					
ECM 08 R/L 2,25D AL	8,0	8	45	18,00	4,00	0,2					**460**		**460**	
ECM 08 R/L 4,00D	8,0	8	57	32,00	4,00	0,2	**316**		**316**					
ECM 08 R/L 4,00D AL	8,0	8	57	32,00	4,00	0,2					**466**		**466**	
P							●		●					
M							●		●					
K							○		○		○		○	
N							○		○		●		●	
S							●		●		○		○	
H														
O							○		○		○		○	

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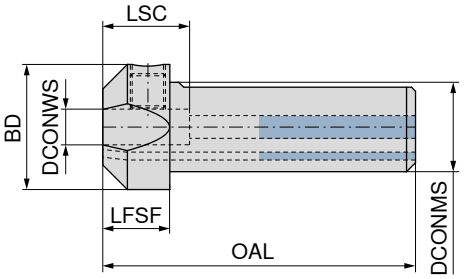
EcoCut – Adapter Mini

Scope of supply:

Toolholder with one clamping screw and one screwdriver



Designation	DCONWS mm	DCONMS mm	BD mm	OAL mm	LFSF mm	LSC mm	70 800 ...
EC-ADX16-04	4	16	22	59	14	18	**716**
EC-ADX20-04	4	20	25	64	14	18	**720**
EC-ADX16-06	6	16	22	59	14	18	**976**
EC-ADX20-06	6	20	25	64	14	18	**996**
EC-ADX16-08	8	16	22	59	14	18	**978**
EC-ADX20-08	8	20	25	64	14	18	**998**

Clamping screw

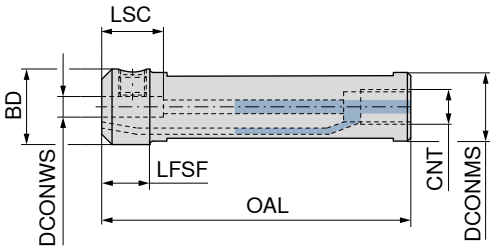
Spare parts DCONWS		70 950 ...
4	M5x10 ISO 4026	**867**
6	M8x1x8 - SW4	**123**
8	M8x1x8 - SW4	**123**

10

EcoCut – Mini adapter with coolant connection thread

Scope of supply:

Toolholder with one clamping screw and one screwdriver



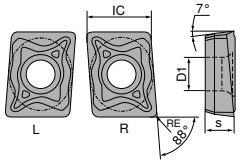
Designation	DCONWS mm	DCONMS mm	BD mm	OAL mm	LFSF mm	LSC mm	CNT	70 801 ...
ECA 16-04	4	16	20,0	75	14	18	G 1/8	**716**
ECA 20-04	4	20	19,6	90	14	18	G 1/8	**720**
ECA 22-04	4	22	21,6	110	14	18	G 1/8	**722**
ECA 16-06	6	16	22,0	75	14	18	G 1/8	**816**
ECA 20-06	6	20	22,0	90	14	18	G 1/8	**820**
ECA 22-06	6	22	21,6	110	14	18	G 1/8	**822**
ECA 16-08	8	16	22,0	75	14	18	G 1/8	**916**
ECA 20-08	8	20	22,0	90	14	18	G 1/8	**920**
ECA 22-08	8	22	21,6	110	14	18	G 1/8	**922**

Clamping screw

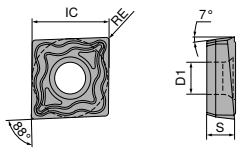
Spare parts DCONWS		70 950 ...
4	M5X8 - DIN 913	**13200**
6	M8x1x8 - SW4	**123**
8	M8x1x8 - SW4	**123**

XCNT / XCET

Designation	S	D1	IC
	mm	mm	mm
XC.T 0401..	1,80	2,10	4,5
XC.T 0502..	2,10	2,25	5,8
XC.T 0602..	2,38	2,50	6,5
XC.T 0703..	3,18	2,80	7,6
XC.T 0803..	3,18	3,40	8,5
XC.T 09T3..	3,97	3,40	9,6
XC.T 10T3..	3,97	4,40	10,6
XC.T 1304..	4,76	5,30	13,5
XC.T 1705..	5,56	5,30	17,5

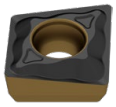
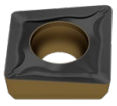
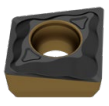
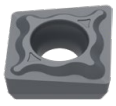
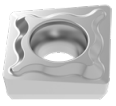


XC. T 04..



XC. T 05../06../07../08../09../10../13../17..

XCNT / XCET

	NEW	NEW	NEW			
	-EN CTCP425-P	-M50Q CTCP425-P	-EN CTCP435-P	-EN CTPP430	-27P H216T	-27Q H210T
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
						
	M	M	M	M	M	M
	XCNT	XCNT	XCNT	XCNT	XCET	XCET
	70 386 ...	70 386 ...	70 386 ...	70 386 ...	70 286 ...	70 286 ...
ISO	RE mm					
040102EL	0,2	72001		82001	920		
040102ER	0,2	72201		82201	922		
040102FL	0,2					620	120
040102FR	0,2					622	122
040104EL	0,4	70001	75001	80001	900		
040104ER	0,4	70201	75201	80201	902		
040104FL	0,4					600	100
040104FR	0,4					602	102
050202EN	0,2	72301		82301	923		
050202FN	0,2					623	123
050204EN	0,4	70301	75301	80301	903		
050204FN	0,4					603	103
060202EN	0,2	72401		82401	924		
060202FN	0,2					624	124
060204EN	0,4	70401	75401	80401	904		
060204FN	0,4					604	104
070304EN	0,4	70501	75501	80501	905		
070304FN	0,4					605	105
080304EN	0,4	70601	75601	80601	906		
080304FN	0,4					606	106
09T304EN	0,4	70701	75701	80701	907		
09T304FN	0,4					607	107
10T304EN	0,4	70801	75801	80801	908		
10T304FN	0,4					608	108
10T308EN	0,8	73801	78801	83801	938		
10T308FN	0,8					628	128
130404EN	0,4	71001	76001	81001	910		
130404FN	0,4					610	110
130408EN	0,8	74001	79001	84001	940		
130408FN	0,8					611	111
170508EN	0,8	71201	76201	81201	912		
170508FN	0,8					612	112
P		●	●	●	●		
M		○	○	○	●		
K		○	○	○	○	●	○
N					○	●	●
S				○	○	○	●
H							
O					○	○	○

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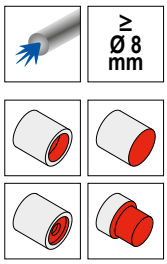
10

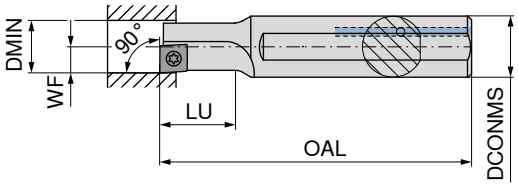
EcoCut – Classic 1.5xD

▲ Drilling and turning tool

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver





Illustrations show right-hand versions

Left-hand

Right-hand

ISO designation	DMIN mm	DCONMS mm	OAL mm	LU mm	WF mm	torque moment Nm	Insert	70 805 ...	70 804 ...
ECC 08 L 1,5D 04	8	12	80	12,0	4,0	0,4	XC.T 0401..EL	**008** [2]	
ECC 08 R 1,5D 04	8	12	80	12,0	4,0	0,4	XC.T 0401..ER		**008** [1]
ECC 10 R/L 1,5D 05	10	12	90	15,0	5,0	0,7	XC.T 0502..	**010**	**010**
ECC 12 R/L 1,5D 06	12	16	100	18,0	6,0	1,0	XC.T 0602..	**012**	**012**
ECC 14 R/L 1,5D 07	14	16	110	21,0	7,0	1,2	XC.T 0703..	**014**	**014**
ECC 16 R/L 1,5D 08	16	20	125	24,0	8,0	2,2	XC.T 0803..	**016**	**016**
ECC 18 R/L 1,5D 09	18	25	135	27,0	9,0	2,2	XC.T 09T3..	**018**	**018**
ECC 20 R/L 1,5D 10	20	25	150	30,0	10,0	3,2	XC.T 10T3..	**020**	**020**
ECC 25 R/L 1,5D 13	25	32	180	37,5	12,5	5,0	XC.T 1304..	**025**	**025**
ECC 32 R/L 1,5D 17	32	40	200	48,0	16,0	5,0	XC.T 1705..	**032**	**032**

1) Note! Right-hand insert on right-hand tool
2) Note! Left-hand insert on left-hand tool

Key D

Clamping screw

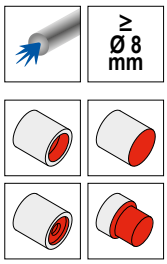
Spare parts Insert		80 950 ...		70 950 ...
XC.T 0401..EL	T06 - IP	**123**	M1,8x3,6 - IP	**862**
XC.T 0401..ER	T06 - IP	**123**	M1,8x3,6 - IP	**862**
XC.T 0502..	T06 - IP	**123**	M2x4,3 - IP	**863**
XC.T 0602..	T07 - IP	**124**	M2,2x5 - IP	**856**
XC.T 0703..	T08 - IP	**125**	M2,5x6 - IP	**857**
XC.T 0803..	T09 - IP	**126**	M3x7 - IP	**819**
XC.T 09T3..	T09 - IP	**126**	M3x7 - IP	**819**
XC.T 10T3..	T15 - IP	**128**	M3,5x8,6 - IP	**859**
XC.T 1304..	T20 - IP	**129**	M4,5x10,5 - IP	**864**
XC.T 1705..	T20 - IP	**129**	M4,5x10,5 - IP	**864**

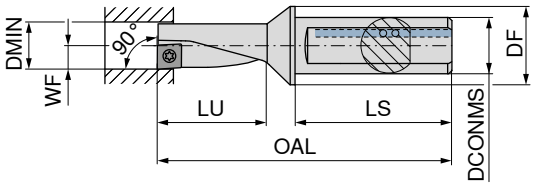
EcoCut – Classic 2.25xD

▲ Drilling and turning tool

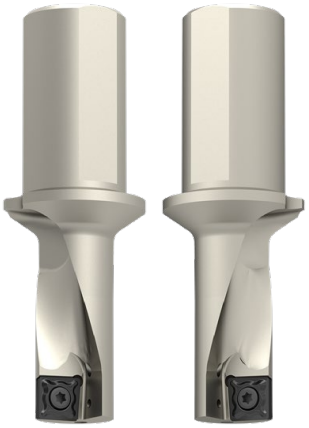
Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver





Illustrations show right-hand versions



Left-hand | Right-hand

ISO designation	DMIN mm	DCONMS mm	DF mm	OAL mm	LU mm	LS mm	WF mm	torque moment Nm	Insert	70 805 ...	70 804 ...
ECC 08 L 2,25D 04	8	10	15	60,0	18,0	38	4,0	0,4	XC.T 0401..EL	**108** [2]	
ECC 08 R 2,25D 04	8	10	15	60,0	18,0	38	4,0	0,4	XC.T 0401..ER		**108** [1]
ECC 10 R/L 2,25D 05	10	12	18	69,5	22,5	42	5,0	0,7	XC.T 0502..	**110**	**110**
ECC 12 R/L 2,25D 06	12	16	22	78,0	27,0	45	6,0	1,0	XC.T 0602..	**112**	**112**
ECC 14 R/L 2,25D 07	14	16	23	83,5	31,5	45	7,0	1,2	XC.T 0703..	**114**	**114**
ECC 16 R/L 2,25D 08	16	20	28	94,0	36,0	50	8,0	2,2	XC.T 0803..	**116**	**116**
ECC 18 R/L 2,25D 09	18	25	36	109,5	40,5	56	9,0	2,2	XC.T 09T3..	**118**	**118**
ECC 20 R/L 2,25D 10	20	25	35	111,0	45,0	56	10,0	3,2	XC.T 10T3..	**120**	**120**
ECC 25 R/L 2,25D 13	25	32	44	129,0	56,5	60	12,5	5,0	XC.T 1304..	**125**	**125**
ECC 32 R/L 2,25D 17	32	40	54	158,0	72,0	70	16,0	5,0	XC.T 1705..	**132**	**132**

1) Note! Right-hand insert on right-hand tool
2) Note! Left-hand insert on left-hand tool

10

Key D

Clamping screw

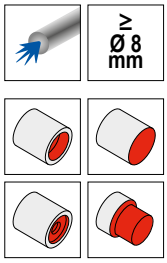
Spare parts Insert		80 950 ...		70 950 ...
XC.T 0401..EL	T06 - IP	**123**	M1,8x3,6 - IP	**862**
XC.T 0401..ER	T06 - IP	**123**	M1,8x3,6 - IP	**862**
XC.T 0502..	T06 - IP	**123**	M2x4,3 - IP	**863**
XC.T 0602..	T07 - IP	**124**	M2,2x5 - IP	**856**
XC.T 0703..	T08 - IP	**125**	M2,5x6 - IP	**857**
XC.T 0803..	T09 - IP	**126**	M3x7 - IP	**819**
XC.T 09T3..	T09 - IP	**126**	M3x7 - IP	**819**
XC.T 10T3..	T15 - IP	**128**	M3,5x8,6 - IP	**859**
XC.T 1304..	T20 - IP	**129**	M4,5x10,5 - IP	**864**
XC.T 1705..	T20 - IP	**129**	M4,5x10,5 - IP	**864**

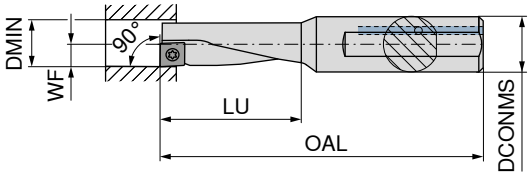
EcoCut – Classic 3xD – Heavy metal

▲ Drilling and turning tool
▲ vibration-damped

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver





Illustrations show right-hand versions

Left-hand

Right-hand

ISO designation	DMIN mm	DCONMS mm	OAL mm	LU mm	WF mm	torque moment Nm	Insert	70 805 ...	70 804 ...
ECC 08 L 3,00D 04 H	8	12	80	24	4,0	0,4	XC.T 0401..EL	**608** [2]	
ECC 08 R 3,00D 04 H	8	12	80	24	4,0	0,4	XC.T 0401..ER		**608** [1]
ECC 10 R/L 3,00D 05 H	10	12	85	30	5,0	0,7	XC.T 0502..	**610**	**610**
ECC 12 R/L 3,00D 06 H	12	16	95	36	6,0	1,0	XC.T 0602..	**612**	**612**
ECC 14 R/L 3,00D 07 H	14	16	100	42	7,0	1,2	XC.T 0703..	**614**	**614**
ECC 16 R/L 3,00D 08 H	16	20	110	48	8,0	2,2	XC.T 0803..	**616**	**616**
ECC 18 R/L 3,00D 09 H	18	25	125	54	9,0	2,2	XC.T 09T3..	**618**	**618**
ECC 20 R/L 3,00D 10 H	20	25	130	60	10,0	3,2	XC.T 10T3..	**620**	**620**
ECC 25 R/L 3,00D 13 H	25	32	150	75	12,5	5,0	XC.T 1304..	**625**	**625**
ECC 32 R/L 3,00D 17 H	32	40	185	96	16,0	5,0	XC.T 1705..	**632**	**632**

1) Note! Right-hand insert on right-hand tool
2) Note! Left-hand insert on left-hand tool

Key D

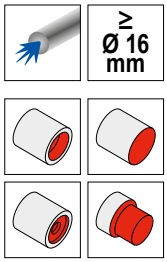
Clamping screw

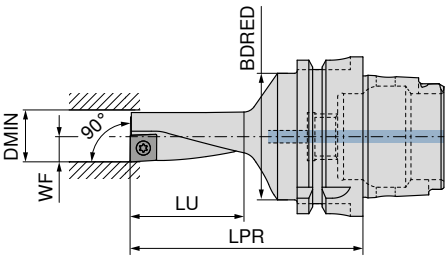
Spare parts Insert		80 950 ...		70 950 ...
XC.T 0401..EL	T06 - IP	**123**	M1,8x3,6 - IP	**862**
XC.T 0401..ER	T06 - IP	**123**	M1,8x3,6 - IP	**862**
XC.T 0502..	T06 - IP	**123**	M2x4,3 - IP	**863**
XC.T 0602..	T07 - IP	**124**	M2,2x5 - IP	**856**
XC.T 0703..	T08 - IP	**125**	M2,5x6 - IP	**857**
XC.T 0803..	T09 - IP	**126**	M3x7 - IP	**819**
XC.T 09T3..	T09 - IP	**126**	M3x7 - IP	**819**
XC.T 10T3..	T15 - IP	**128**	M3,5x8,6 - IP	**859**
XC.T 1304..	T20 - IP	**129**	M4,5x10,5 - IP	**864**
XC.T 1705..	T20 - IP	**129**	M4,5x10,5 - IP	**864**

EcoCut – HSK-T 2.25xD

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver





Illustrations show right-hand versions

NEW NEW

									Left-hand	Right-hand
									74 591 ...	74 590 ...
ISO designation	Adapter	LPR mm	LU mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert		
HSK-T 63 ECC 16 R/L 2,25D 08	HSK-T 63	84	36,00	50	8,0	16	2,2	XC.T 0803..	**51637**	**51637**
HSK-T 63 ECC 20 R/L 2,25D 10	HSK-T 63	92	45,00	50	10,0	20	3,2	XC.T 10T3..	**52037**	**52037**
HSK-T 63 ECC 25 R/L 2,25D 13	HSK-T 63	104	56,25	50	12,5	25	5,0	XC.T 1304..	**52537**	**52537**
HSK-T 63 ECC 32 R/L 2,25D 17	HSK-T 63	120	72,00	50	16,0	32	5,0	XC.T 1705..	**53237**	**53237**

Key D

80 950 ...

Clamping screw

70 950 ...

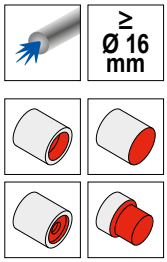
Spare parts				
Insert				
XC.T 0803..	T09 - IP	**126**	M3x7 - IP	**819**
XC.T 10T3..	T15 - IP	**128**	M3,5x8,6 - IP	**859**
XC.T 1304..	T20 - IP	**129**	M4,5x10,5 - IP	**864**
XC.T 1705..	T20 - IP	**129**	M4,5x10,5 - IP	**864**

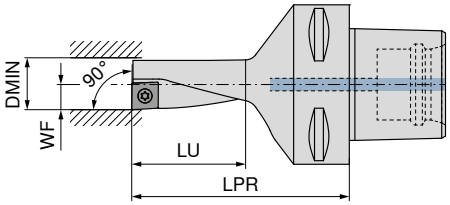
10

EcoCut – Classic PSC 2,25xD

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver





Illustrations show right-hand versions

NEW NEW

								Left-hand	Right-hand
								74 591 ...	**74 590 ...**
ISO designation	Adapter	LPR mm	LU mm	WF mm	DMIN mm	torque moment Nm	Insert		
PSC 50 ECC 16 R/L 2,25D 08	PSC 50	70	36,00	8,0	16	2,2	XC.T 0803..	**51694**	**51694**
PSC 50 ECC 20 R/L 2,25D 10	PSC 50	81	45,00	10,0	20	3,2	XC.T 10T3..	**52094**	**52094**
PSC 50 ECC 25 R/L 2,25D 13	PSC 50	93	56,25	12,5	25	5,0	XC.T 1304..	**52594**	**52594**
PSC 50 ECC 32 R/L 2,25D 17	PSC 50	110	72,00	16,0	32	5,0	XC.T 1705..	**53294**	**53294**
PSC 63 ECC 16 R/L 2,25D 08	PSC 63	75	36,00	8,0	16	2,2	XC.T 0803..	**51693**	**51693**
PSC 63 ECC 20 R/L 2,25D 10	PSC 63	86	45,00	10,0	20	3,2	XC.T 10T3..	**52093**	**52093**
PSC 63 ECC 25 R/L 2,25D 13	PSC 63	97	56,25	12,5	25	5,0	XC.T 1304..	**52593**	**52593**
PSC 63 ECC 32 R/L 2,25D 17	PSC 63	114	72,00	16,0	32	5,0	XC.T 1705..	**53293**	**53293**

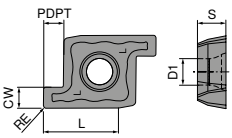
Key D

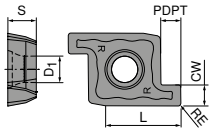
Clamping screw

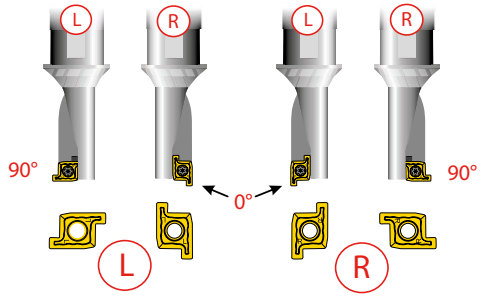
		80 950 ...		**70 950 ...**
Spare parts				
Insert				
XC.T 0803..	T09 - IP	**126**	M3x7 - IP	**819**
XC.T 10T3..	T15 - IP	**128**	M3,5x8,6 - IP	**859**
XC.T 1304..	T20 - IP	**129**	M4,5x10,5 - IP	**864**
XC.T 1705..	T20 - IP	**129**	M4,5x10,5 - IP	**864**

PM-R / PM-L

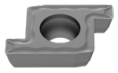
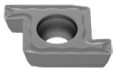
Designation	CW mm	PDPT mm	L mm	S mm	D1 mm
PM 10 G 201504	2,0	1,5	5,0	2,10	2,1
PM 12 G 201804	2,0	1,8	6,0	2,30	2,5
PM 16 G 252004	2,5	2,0	8,0	2,80	3,4
PM 20 G 302504	3,0	2,5	10,0	3,70	4,0
PM 25 G 353004	3,5	3,0	12,5	4,50	4,4
PM 32 G 404004	4,0	4,0	16,0	5,60	6,0







PM-L / PM-R

	-M20 CTPP430 DRAGONSKIN	-M20 CTPP430 DRAGONSKIN
		
	M PM-L	M PM-R
ISO	RE mm	70 289 ...	70 289 ...
PM 10 G 201504	0,4	510	511
PM 12 G 201804	0,4	515	516
PM 16 G 252004	0,4	520	521
PM 20 G 302504	0,4	525	526
PM 25 G 353004	0,4	530	531
PM 32 G 404004	0,4	535	536
P		●	●
M		●	●
K		○	○
N		○	○
S		●	●
H			
O		○	○

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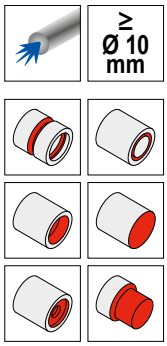
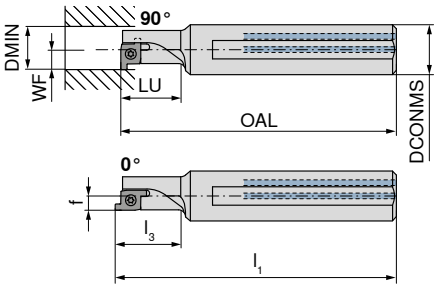
EcoCut – ProfileMaster 1.5xD

▲ Drilling, turning and grooving tool

Scope of supply:

Toolholder with one clamping screw and one screwdriver





Illustrations show right-hand versions

											Left-hand	Right-hand
											70 821 ...	**70 820 ...**
ISO designation	DMIN	DCONMS	OAL	LU	WF	l_1	l_3	f	torque moment	Insert		
	mm	mm	mm	mm	mm	mm	mm	mm	Nm			
PMC 10 R/L 1,5D	10	12	80	15	5,0				0,4	PM 10R/L	**010** [1]	**010** [1]
PMC 12 R/L 1,5D	12	16	90	18	6,0				1,0	PM 12R/L	**012** [1]	**012** [1]
PMC 16 R/L 1,5D	16	20	125	24	8,0	127,3	26,3	5,7	2,2	PM 16R/L	**016**	**016**
PMC 20 R/L 1,5D	20	25	150	30	10,0	152,8	32,8	7,2	2,2	PM 20R/L	**020**	**020**
PMC 25 R/L 1,5D	25	32	180	38	12,5	183,3	40,8	9,2	3,2	PM 25R/L	**025**	**025**
PMC 32 R/L 1,5D	32	40	200	48	16,0	204,3	52,3	11,7	5,0	PM 32R/L	**032**	**032**

1) only usable as 90° version

Key D

Clamping screw

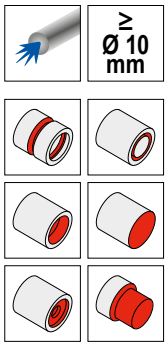
		80 950 ...		**70 950 ...**
Spare parts				
Insert				
PM 10R/L	T06 - IP	**123**	M1,8x3,6 - IP	**862**
PM 12R/L	T07 - IP	**124**	M2,2x4,2 - IP	**137**
PM 16R/L	T09 - IP	**126**	M3x5,7 - IP	**008**
PM 20R/L	T15 - IP	**128**	M3x5,7 - IP	**009**
PM 25R/L	T15 - IP	**128**	M3,5x8,6 - IP	**859**
PM 32R/L	T20 - IP	**129**	M5x10,8 - IP	**010**

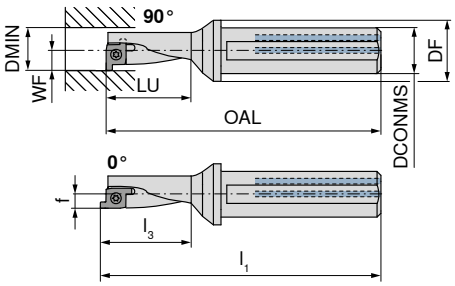
EcoCut – ProfileMaster 2.25xD

▲ Drilling, turning and grooving tool

Scope of supply:

Toolholder with one clamping screw and one screwdriver





Illustrations show right-hand versions

												Left-hand	Right-hand
												70 821 ...	**70 820 ...**
ISO designation	DMIN	DCONMS	DF	OAL	LU	WF	l_1	l_3	f	torque moment	Insert		
	mm	mm	mm	mm	mm	mm	mm	mm	mm	Nm			
PMC 10 R/L 2,25D	10	12	18	72,4	22,50	5,0				0,4	PM 10R/L	**110** 1)	**110** 1)
PMC 12 R/L 2,25D	12	16	22	78,0	27,00	6,0				1,0	PM 12R/L	**112** 1)	**112** 1)
PMC 16 R/L 2,25D	16	20	28	96,5	36,00	8,0	98,8	38,3	5,7	2,2	PM 16R/L	**116**	**116**
PMC 20 R/L 2,25D	20	25	32	111,0	45,00	10,0	113,8	47,8	7,2	2,2	PM 20R/L	**120**	**120**
PMC 25 R/L 2,25D	25	32	44	132,6	56,25	12,5	135,9	59,6	9,2	3,2	PM 25R/L	**125**	**125**
PMC 32 R/L 2,25D	32	40	54	158,0	72,00	16,0	162,3	76,3	11,7	5,0	PM 32R/L	**132**	**132**

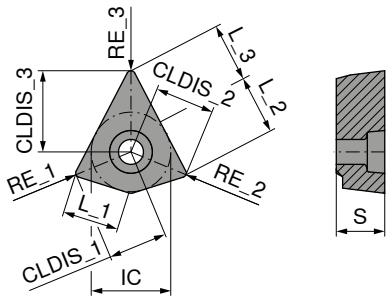
1) only usable as 90° version

Key D

Clamping screw

		80 950 ...		**70 950 ...**
Spare parts				
Insert				
PM 10R/L	T06 - IP	**123**	M1,8x3,6 - IP	**862**
PM 12R/L	T07 - IP	**124**	M2,2x4,2 - IP	**137**
PM 16R/L	T09 - IP	**126**	M3x5,7 - IP	**008**
PM 20R/L	T15 - IP	**128**	M3x5,7 - IP	**009**
PM 25R/L	T15 - IP	**128**	M3,5x8,6 - IP	**859**
PM 32R/L	T20 - IP	**129**	M5x10,8 - IP	**010**

FT15 . 808055...



Designation	IC	CLDIS_1	L_1	CLDIS_2	L_2	CLDIS_3	L_3	S
	mm	mm	mm	mm	mm	mm	mm	mm
FT15 M 808055R080804-MMF	15	11,22	10,8	11,22	11,4	15,78	11,4	9,14
FT15 M 808055R08-MMF	15	11,22	10,8	11,22	11,2	15,31	11,2	9,14
FT15 M 808055R121208-MMF	15	11,00	10,7	11,00	11,2	15,31	11,2	9,14

M M F
FT15 . 808055...
74 003 ...

M M F
FT15 . 808055...
74 003 ...

ISO	RE_1	RE_2	RE_3		
	mm	mm	mm		
FT15 M 808055R080804-MMF	0,8	0,8	0,4	**00400**	
FT15 M 808055R08-MMF	0,8	0,8	0,8	**00200**	**10200**
FT15 M 808055R121208-MMF	1,2	1,2	0,8	**00600**	
P				●	○
M					●
K				○	
N					
S					
H					
O					

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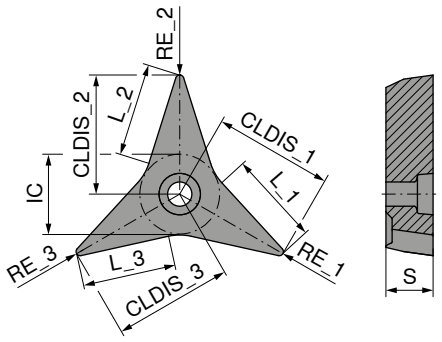
FT15 . 353535...



Designation	IC	CLDIS_1	L_1	CLDIS_2	L_2	CLDIS_3	L_3	S
	mm	mm	mm	mm	mm	mm	mm	mm
FT15 G 353535R04-28P	15	24,01	16,10	24,01	16,10	24,01	16,10	9,14
FT15 G 353535R08-28P	15	23,08	15,20	23,08	15,20	23,08	15,20	9,14
FT15 G 353535R08-F	15	23,08	14,96	23,08	14,96	23,08	14,96	9,14

ISO	RE_1	RE_2	RE_3	-F CTCP125	-28P H216T
	mm	mm	mm		
FT15 G 353535R04-28P	0,4	0,4	0,4		20200
FT15 G 353535R08-28P	0,8	0,8	0,8		20400
FT15 G 353535R08-F	0,8	0,8	0,8	00400	
				F F F	F F F
				FT15 . 353535...	FT15 . 353535...
				74 077 ...	74 001 ...
P				●	
M					
K				○	○
N					●
S					○
H					
O					○

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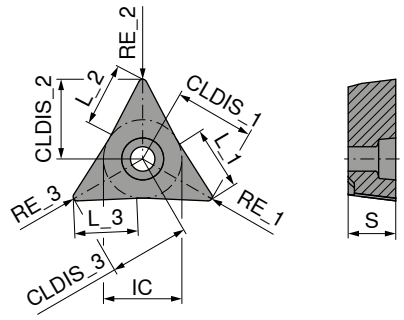
FT15 . 555555...



Designation	IC	CLDIS_1	L_1	CLDIS_2	L_2	CLDIS_3	L_3	S
	mm	mm	mm	mm	mm	mm	mm	mm
FT15 M 555555R04-FFF	15	15,78	12,6	15,78	12,6	15,78	12,6	9,14
FT15 M 555555R08-FFF	15	15,31	12,3	15,31	12,3	15,31	12,3	9,14

F F F

FT15 . 555555...

74 002 ...

F F F

FT15 . 555555...

74 002 ...

ISO	RE_1	RE_2	RE_3		
	mm	mm	mm		
FT15 M 555555R04-FFF	0,4	0,4	0,4	00200	
FT15 M 555555R08-FFF	0,8	0,8	0,8	00400	10400
P				●	○
M					●
K				○	
N					
S					
H					
O					

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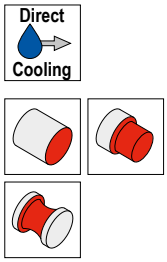
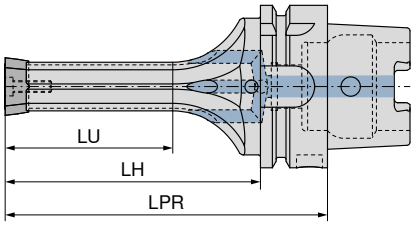
FreeTurn – HSK-T tool holder FT15

▲ Tool holder for FreeTurn indexable insert
▲ DirectCooling coolant supply

Scope of supply:

Toolholder with one clamping screw and one screwdriver





Figures show version FT15 . 808055...

ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	DirectCooling 74 700 ...
HSK-T63-100-FT15 353535	HSK-T 63	100	74	40	FT15 . 353535...	**00137**
HSK-T63-100-FT15 808055	HSK-T 63	100	74	40	FT15 . 808055...	**00537**
HSK-T63-100-FT15 555555	HSK-T 63	100	74	40	FT15 . 555555...	**00337**
HSK-T63-125-FT15 353535	HSK-T 63	125	99	65	FT15 . 353535...	**00237**
HSK-T63-125-FT15 808055	HSK-T 63	125	99	65	FT15 . 808055...	**00637**
HSK-T63-125-FT15 555555	HSK-T 63	125	99	65	FT15 . 555555...	**00437**

Spare parts		Key D 80 950 ...		Clamping screw 70 950 ...	
Adapter					
HSK-T 63		T20 - IP	**121**	M4,5x18 - IP	**25900**

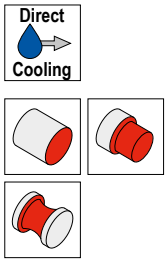
10

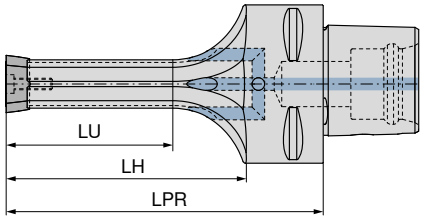
FreeTurn – PSC tool holder FT15

▲ Tool holder for FreeTurn indexable insert
▲ DirectCooling coolant supply

Scope of supply:

Toolholder with one clamping screw and one screwdriver



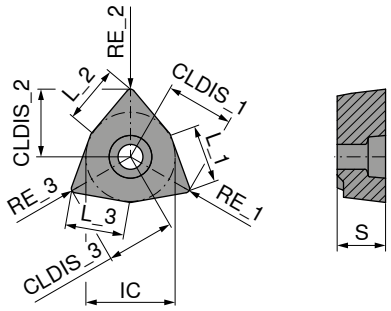


Figures show version FT15 . 808055...

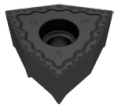
ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	DirectCooling 74 700 ...
PSC-63-100-FT15 353535	PSC 63	100	69,4	40	FT15 . 353535...	**00193**
PSC-63-100-FT15 808055	PSC 63	100	69,3	40	FT15 . 808055...	**00593**
PSC-63-100-FT15 555555	PSC 63	100	69,6	40	FT15 . 555555...	**00393**
PSC-63-125-FT15 353535	PSC 63	125	94,4	65	FT15 . 353535...	**00293**
PSC-63-125-FT15 808055	PSC 63	125	94,3	65	FT15 . 808055...	**00693**
PSC-63-125-FT15 555555	PSC 63	125	94,6	65	FT15 . 555555...	**00493**

Spare parts		Key D 80 950 ...		Clamping screw 70 950 ...	
Adapter					
PSC 63	T20 - IP	**121**	M4,5x18 - IP	**25900**	

FT17 . 808080...



Designation	IC	CLDIS_1	L_1	CLDIS_2	L_2	CLDIS_3	L_3	S
	mm	mm	mm	mm	mm	mm	mm	mm
FT17 M 808080R04-MMM	17	13,00	11,3	13,00	11,3	13,00	11,3	9,14
FT17 M 808080R08-MMM	17	12,78	11,3	12,78	11,3	12,78	11,3	9,14
FT17 M 808080R12-MMM	17	12,56	11,2	12,56	11,2	12,56	11,2	9,14

	CTCP125	CTPM125
	DRAGONSKIN	DRAGONSKIN
		
	M M M	M M M
	FT17 . 808080...	FT17 . 808080...
	74 000 ...	74 000 ...
ISO		
FT17 M 808080R04-MMM	**00200**	
FT17 M 808080R08-MMM	**00400**	**10400**
FT17 M 808080R12-MMM	**00600**	
P	●	○
M		●
K	○	
N		
S		
H		
O		

RE_1	RE_2	RE_3
mm	mm	mm
0,4	0,4	0,4
0,8	0,8	0,8
1,2	1,2	1,2

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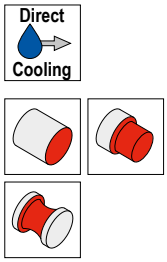
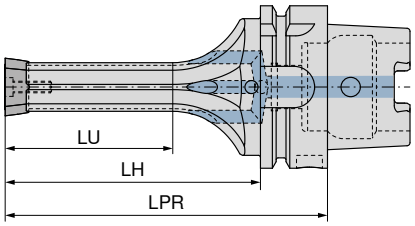
FreeTurn – HSK-T tool holder FT17

▲ Tool holder for FreeTurn indexable insert
▲ DirectCooling coolant supply

Scope of supply:

Toolholder with one clamping screw and one screwdriver





ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	DirectCooling 74 701 ...
HSK-T63-100-FT17 808080	HSK-T 63	100	74	40	FT17 . 808080...	**00737**
HSK-T63-125-FT17 808080	HSK-T 63	125	99	65	FT17 . 808080...	**00837**

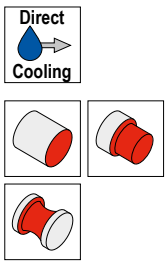
Spare parts		80 950 ...		70 950 ...
Adapter				
HSK-T 63	T20 - IP	**121**	M4,5x18 - IP	**25900**

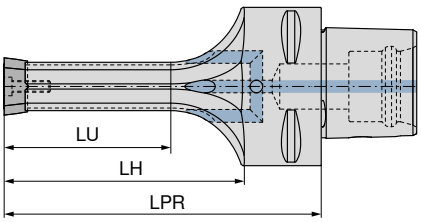
FreeTurn – PSC tool holder FT17

▲ Tool holder for FreeTurn indexable insert
▲ DirectCooling coolant supply

Scope of supply:

Toolholder with one clamping screw and one screwdriver





ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	DirectCooling 74 701 ...
PSC-63-100-FT17 808080	PSC 63	100	69,3	40	FT17 . 808080...	**00793**
PSC-63-125-FT17 808080	PSC 63	125	94,3	65	FT17 . 808080...	**00893**

Spare parts		80 950 ...		70 950 ...
Adapter				
PSC 63	T20 - IP	**121**	M4,5x18 - IP	**25900**

Material examples for cutting data tables

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

* Tensile strength

Cutting data standard values for EcoCut

Index	EcoCut Mini CTWN425	DRAGONSKIN EcoCut Mini CTPP435	DRAGONSKIN EcoCut Classic CTCP425-P	DRAGONSKIN EcoCut Classic CTCP435-P	DRAGONSKIN EcoCut Classic CTPP430	EcoCut Classic H210T	EcoCut Classic H216T	DRAGONSKIN EcoCut ProfileMaster CTPP430
	v_c in m/min							
P.1.1		145	270	230	180			170
P.1.2		125	235	200	155			140
P.1.3		105	200	165	130			115
P.1.4		100	190	155	125			105
P.1.5		90	175	140	110			95
P.2.1		130	240	200	160			145
P.2.2		100	185	155	120			105
P.2.3		90	175	140	110			95
P.2.4		70	130	105	80			60
P.3.1		105	185	160	115			110
P.3.2		70	135	110	85			75
P.3.3		30	80	60	55			40
P.4.1		105	185	160	115			110
P.4.2		85	160	130	100			95
M.1.1		105	160	160	115			110
M.2.1		65			85			75
M.3.1		95			110			100
K.1.1	140	140	205	185	160	110	170	180
K.1.2	115	120	205	185	140	90	130	260
K.2.1	150	140	200	180	160	120	180	160
K.2.2	110	120	200	180	140	85	130	250
K.3.1	170	150	195	175	125	140	190	130
K.3.2	140	125	195	175	110	110	160	230
N.1.1	300	40			40	40	60	300
N.1.2	50	290			290	290	310	200
N.2.1	300	290			290	290	60	300
N.2.2	300	190			190	190	460	200
N.2.3	450	340			340	340	60	150
N.3.1	350	240			240	240	460	300
N.3.2	350	240			240	240	460	300
N.3.3	250	190			190	190	360	200
N.4.1	200	140			140	140	260	200
S.1.1	40	35		35	55	35	45	35
S.1.2	30	30		30	55	25	35	30
S.2.1	30	20		20	55	25	35	20
S.2.2	25	15		15	55	20	25	15
S.2.3	20	15		15	55	20	20	15
S.3.1	90	85		85	70	65	110	85
S.3.2	55	40		40	60	45	70	40
S.3.3	40	30		30	40	30	50	30
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1	130	110			110	110	155	130
O.1.2								
O.2.1	105	95			95	95	140	105
O.2.2								
O.3.1								

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for FreeTurn

Index	F		M		-28P
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
	CTCP125	CTPM125	CTCP125	CTPM125	H216T
	v_c in m/min				
P.1.1	**295**	205	**295**	205	
P.1.2	**255**	170	**255**	170	
P.1.3	**215**	140	**215**	140	
P.1.4	**200**	130	**200**	130	
P.1.5	**180**	120	**180**	120	
P.2.1	**260**	175	**260**	175	
P.2.2	**195**	130	**195**	130	
P.2.3	**180**	120	**180**	120	
P.2.4	**130**	80	**130**	80	
P.3.1	**170**	140	**170**	140	
P.3.2	**105**	95	**105**	95	
P.3.3	**45**	50	**45**	50	
P.4.1	**170**	140	**170**	140	
P.4.2	**140**	120	**140**	120	
M.1.1		**140**		**140**	
M.2.1		**100**		**100**	
M.3.1		**130**		**130**	
K.1.1	170		170		170
K.1.2	160		160		130
K.2.1	180		180		180
K.2.2	160		160		130
K.3.1	200		200		190
K.3.2	160		160		160
N.1.1					**1650**
N.1.2					**1350**
N.2.1					**1200**
N.2.2					**1100**
N.2.3					**600**
N.3.1					**525**
N.3.2					**500**
N.3.3					**375**
N.4.1					**275**
S.1.1					45
S.1.2					35
S.2.1					35
S.2.2					25
S.2.3					20
S.3.1					110
S.3.2					70
S.3.3					50
H.1.1					
H.1.2					
H.1.3					
H.1.4					
H.2.1					
H.3.1					
O.1.1					160
O.1.2					
O.2.1					140
O.2.2					
O.3.1					

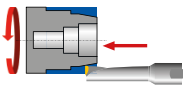
10

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Depth of Cut and Feedrate for EcoCut Mini

Turning

2.25xD

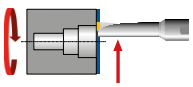


EcoCut Mini Size	Depth of Cut a_p in mm									
	0,25	0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.									
ECM 02..	0,02–0,07	0,02–0,07								
ECM 02,5..	0,02–0,07	0,02–0,07	0,02–0,05							
ECM 03..	0,02–0,07	0,02–0,07	0,02–0,05	0,02–0,05						
ECM 03,5..	0,02–0,07	0,02–0,07	0,02–0,05	0,02–0,05	0,02–0,05					
ECM 04..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,07	0,01–0,05				
ECM 05..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04			
ECM 06..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04		
ECM 07..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04	
ECM 08..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04

4xD

EcoCut Mini Size	Depth of Cut a_p in mm									
	0,25	0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.									
ECM 02..	0,02–0,05	0,01–0,05								
ECM 02,5..	0,02–0,05	0,01–0,05								
ECM 03..	0,02–0,05	0,02–0,05	0,01–0,05							
ECM 03,5..	0,02–0,05	0,02–0,05	0,02–0,05	0,01–0,05						
ECM 04..	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,01–0,05					
ECM 05..	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,085	0,02–0,06	0,01–0,04				
ECM 06..	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,085	0,02–0,06	0,01–0,04				
ECM 07..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04			
ECM 08..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,095	0,03–0,08	0,02–0,06	0,01–0,04		

Face turning

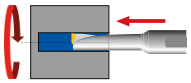


EcoCut Mini Size	2,25xD		4xD	
	$a_{p\,max.}$ in mm	f in mm/rev.	$a_{p\,max.}$ in mm	f in mm/rev.
ECM 02..	0,30	0,01–0,05	0,30	0,01–0,03
ECM 02,5..	0,30	0,01–0,05	0,30	0,01–0,03
ECM 03..	0,50	0,01–0,06	0,50	0,01–0,04
ECM 03,5..	0,50	0,01–0,06	0,50	0,01–0,04
ECM 04..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 05..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 06..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 07..	1,00	0,04–0,08	1,00	0,03–0,06
ECM 08..	1,00	0,04–0,08	1,00	0,03–0,06

Depth of Cut and Feedrate for EcoCut Mini

Drilling

Feed rate



EcoCut Mini Size	2,25xD	4xD
	f in mm/rev.	f in mm/rev.
ECM 02..	0,0025–0,0075	0,0025–0,005
ECM 02,5..	0,0025–0,010	0,0025–0,005
ECM 03..	0,0025–0,0125	0,0025–0,010
ECM 03,5..	0,0025–0,0150	0,0025–0,010
ECM 04..	0,005–0,030	0,005–0,0125
ECM 05..	0,005–0,030	0,005–0,015
ECM 06..	0,005–0,030	0,005–0,020
ECM 07..	0,005–0,035	0,005–0,025
ECM 08..	0,005–0,040	0,005–0,030

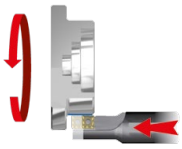
max. bore depth

EcoCut Mini Size	2,25xD	4xD
	Max. hole depth in mm	Max. hole depth in mm
ECM 02..	4,50	8,0
ECM 02,5..	5,63	10,0
ECM 03..	6,75	12,0
ECM 03,5..	7,88	14,0
ECM 04..	9,0	16,0
ECM 05..	11,25	20,0
ECM 06..	13,5	24,0
ECM 07..	15,75	28,0
ECM 08..	18,0	32,0

Depth of Cut and Feedrate for EcoCut Classic

Turning

1.5xD



EcoCut Classic Size	Depth of Cut a_p in mm											
	1	2	3	4	5	6	7	8	9	10	12	14
	Feed rate f in mm/rev.											
ECC 08	0,06–0,12	0,06–0,12	0,04–0,10	0,02–0,08								
ECC 10	0,07–0,15	0,07–0,15	0,05–0,13	0,04–0,11	0,02–0,09							
ECC 12	0,08–0,16	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12	0,02–0,10						
ECC 14	0,09–0,18	0,09–0,18	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,02–0,11					
ECC 16	0,10–0,20	0,10–0,20	0,10–0,20	0,10–0,20	0,08–0,18	0,06–0,16	0,04–0,14	0,02–0,12				
ECC 18	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,05–0,16	0,03–0,13			
ECC 20	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,11–0,23	0,09–0,21	0,07–0,19	0,05–0,17	0,03–0,15		
ECC 25	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,11–0,24	0,09–0,22	0,07–0,20	0,03–0,16	
ECC 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,14–0,30	0,15–0,30	0,15–0,30	0,13–0,28	0,11–0,26	0,07–0,22	0,03–0,18

Feed f may be increased by 50–75 % when using -M50Q and -27Q.

2.25xD

EcoCut Classic Size	Depth of Cut a_p in mm										
	1,0	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0	7,0
	Feed rate f in mm/rev.										
ECC 08	0,06–0,12	0,04–0,10	0,02–0,08								
ECC 10	0,07–0,15	0,05–0,13	0,03–0,11	0,02–0,09							
ECC 12	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12	0,02–0,10						
ECC 14	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,04–0,13	0,02–0,11					
ECC 16	0,10–0,20	0,10–0,20	0,09–0,19	0,07–0,17	0,05–0,15	0,03–0,13					
ECC 18	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,05–0,16	0,03–0,14				
ECC 20	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,10–0,22	0,08–0,20	0,06–0,18	0,04–0,16			
ECC 25	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,12–0,25	0,10–0,23	0,08–0,21	0,06–0,19	0,04–0,17	
ECC 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,14–0,29	0,12–0,27	0,10–0,25	0,08–0,23	0,05–0,20

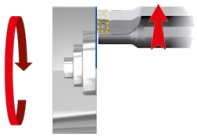
Feed f may be increased by 50–75 % when using -M50Q and -27Q.

3xD

EcoCut Classic Size	Depth of Cut a_p in mm								
	1,0	2,0	2,5	3,0	3,5	4,0	5,0	6,0	7,0
	Feed rate f in mm/rev.								
ECC 08	0,05–0,10	0,02–0,06							
ECC 10	0,06–0,11	0,03–0,07							
ECC 12	0,06–0,12	0,04–0,10	0,02–0,08						
ECC 14	0,07–0,13	0,05–0,11	0,02–0,09						
ECC 16	0,07–0,15	0,06–0,14	0,04–0,12	0,02–0,09					
ECC 18	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12					
ECC 20	0,09–0,18	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,03–0,12			
ECC 25	0,10–0,19	0,10–0,19	0,10–0,19	0,08–0,17	0,06–0,15	0,03–0,13			
ECC 32	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,03–0,14		

Depth of Cut and Feedrate for EcoCut Classic

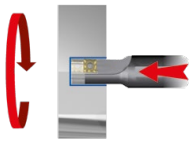
Face turning



EcoCut Classic Size	1,5xD		2,25xD		3xD	
	a_p in mm	f in mm/rev.	a_p in mm	f in mm/rev.	a_p in mm	f in mm/rev.
ECC 08	2,00	0,05–0,10	1,90	0,04–0,09	1,10	0,04–0,07
ECC 10	2,50	0,06–0,12	2,20	0,05–0,10	1,20	0,04–0,09
ECC 12	3,00	0,07–0,14	2,60	0,06–0,12	1,40	0,05–0,11
ECC 14	3,50	0,08–0,16	3,00	0,07–0,14	1,60	0,06–0,12
ECC 16	4,00	0,09–0,18	3,40	0,08–0,16	1,90	0,06–0,13
ECC 18	4,50	0,10–0,20	3,80	0,09–0,18	2,00	0,07–0,14
ECC 20	5,00	0,11–0,22	4,20	0,10–0,20	2,20	0,08–0,15
ECC 25	6,00	0,12–0,24	5,00	0,11–0,22	2,60	0,09–0,18
ECC 32	8,00	0,13–0,27	6,00	0,12–0,25	3,00	0,10–0,20

Drilling

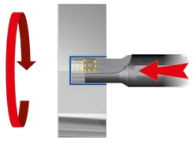
Feed rate



EcoCut Classic Size	1,5xD	2,25xD	3xD
	f in mm/rev.	f in mm/rev.	f in mm/rev.
ECC 08	0,01–0,04	0,01–0,04	0,01–0,02
ECC 10	0,01–0,05	0,01–0,05	0,01–0,03
ECC 12	0,01–0,05	0,01–0,05	0,01–0,04
ECC 14	0,01–0,07	0,01–0,07	0,01–0,05
ECC 16	0,02–0,08	0,02–0,08	0,02–0,06
ECC 18	0,03–0,09	0,03–0,09	0,03–0,07
ECC 20	0,03–0,10	0,03–0,10	0,03–0,08
ECC 25	0,03–0,12	0,03–0,12	0,04–0,09
ECC 32	0,05–0,15	0,05–0,15	0,05–0,11

10

max. bore depth

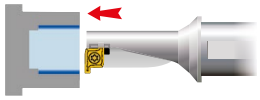


EcoCut Classic Size	1,5xD	2,25xD	3xD
	Max. hole depth in mm	Max. hole depth in mm	Max. hole depth in mm
ECC 08	12,0	18,0	24,0
ECC 10	15,0	22,5	30,0
ECC 12	18,0	27,0	36,0
ECC 14	21,0	31,5	42,0
ECC 16	24,0	36,0	48,0
ECC 18	27,0	40,5	54,0
ECC 20	30,0	45,0	60,0
ECC 25	37,5	56,5	75,0
ECC 32	48,0	72,0	96,0

Depth of Cut and Feedrate for EcoCut ProfileMaster 90°

Turning

1,5xD



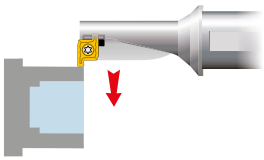
EcoCut ProfileMaster Size	Depth of Cut a_p in mm							
	1	2	3	4	5	6	7	8
	Feed rate f in mm/rev.							
EC PM 10	0,07–0,20	0,05–0,17	0,02–0,12					
EC PM 12	0,07–0,20	0,05–0,17	0,02–0,12					
EC PM 16	0,10–0,25	0,07–0,23	0,05–0,21	0,02–0,17				
EC PM 20	0,12–0,27	0,10–0,26	0,007–0,24	0,05–0,20	0,02–0,14			
EC PM 25	0,15–0,30	0,15–0,30	0,13–0,28	0,10–0,26	0,05–0,22	0,02–0,18		
EC PM 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,10–0,27	0,07–0,24	0,05–0,21	0,02–0,15

2,25xD

EcoCut ProfileMaster Size	Depth of Cut a_p in mm							
	1	2	3	4	5	6	7	8
	Feed rate f in mm/rev.							
EC PM 10	0,07–0,19	0,02–0,13						
EC PM 12	0,07–0,19	0,02–0,13						
EC PM 16	0,10–0,25	0,07–0,21	0,02–0,13					
EC PM 20	0,12–0,27	0,07–0,24	0,05–0,19					
EC PM 25	0,15–0,30	0,10–0,27	0,07–0,23	0,02–0,15				
EC PM 32	0,15–0,30	0,15–0,30	0,10–0,27	0,07–0,23	0,02–0,15			

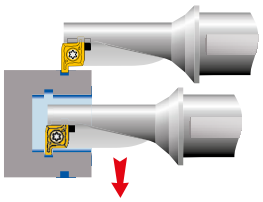
Face turning

1.5xD and 2.25xD



EcoCut ProfileMaster Size	Depth of Cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
EC PM 10	0,02–0,15	0,02–0,15				
EC PM 12	0,02–0,15	0,02–0,15				
EC PM 16	0,05–0,20	0,05–0,20	0,05–0,20			
EC PM 20	0,08–0,22	0,08–0,22	0,08–0,22	0,08–0,22		
EC PM 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	
EC PM 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25

Internal + external – radial grooving

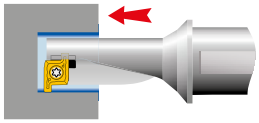


EcoCut ProfileMaster Size	1,5xD
	f in mm/rev.
EC PM 10	0,01–0,08
EC PM 12	0,02–0,10
EC PM 16	0,04–0,15
EC PM 20	0,04–0,16
EC PM 25	0,07–0,20
EC PM 32	0,08–0,22

EcoCut ProfileMaster Size	2,25xD
	f in mm/rev.
EC PM 10	0,01–0,08
EC PM 12	0,02–0,10
EC PM 16	0,04–0,15
EC PM 20	0,04–0,16
EC PM 25	0,07–0,20
EC PM 32	0,08–0,22

Drilling

Feed and max. hole depth



EcoCut ProfileMaster Size	1,5xD	
	f in mm/rev.	Max. hole depth in mm
EC PM 10	0,01–0,05	15,0
EC PM 12	0,01–0,06	18,0
EC PM 16	0,02–0,09	24,0
EC PM 20	0,03–0,10	30,0
EC PM 25	0,04–0,12	37,5
EC PM 32	0,04–0,14	48,0

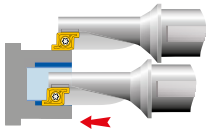
EcoCut ProfileMaster Size	2,25xD	
	f in mm/rev.	Max. hole depth in mm
EC PM 10	0,01–0,05	22,5
EC PM 12	0,01–0,06	27,0
EC PM 16	0,02–0,09	36,0
EC PM 20	0,03–0,10	45,0
EC PM 25	0,04–0,12	56,3
EC PM 32	0,04–0,14	72,0

Depth of Cut and Feedrate for EcoCut ProfileMaster 0°

EcoCut ProfileMaster Sizes 10 and 12 can not be used as 0° version.

Turning

1,5xD



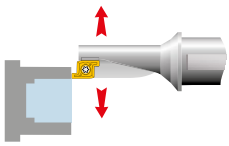
EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
EC PM 16	0,04–0,20	0,04–0,20	0,04–0,20			
EC PM 20	0,06–0,22	0,06–0,22	0,06–0,22	0,06–0,22		
EC PM 25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	
EC PM 32	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28

2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
EC PM 16	0,04–0,20	0,04–0,20	0,04–0,20			
EC PM 20	0,06–0,22	0,06–0,22	0,06–0,22	0,06–0,22		
EC PM 25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	
EC PM 32	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28

Face turning

1,5xD

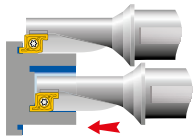


EcoCut ProfileMaster Size	Depth of cut a_p in mm						
	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.						
EC PM 16	0,05–0,20	0,05–0,20	0,05–0,20				
EC PM 20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20			
EC PM 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25		
EC PM 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25

2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm						
	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.						
EC PM 16	0,05–0,20	0,05–0,20	0,05–0,20				
EC PM 20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20			
EC PM 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25		
EC PM 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25

Axial grooving external + internal



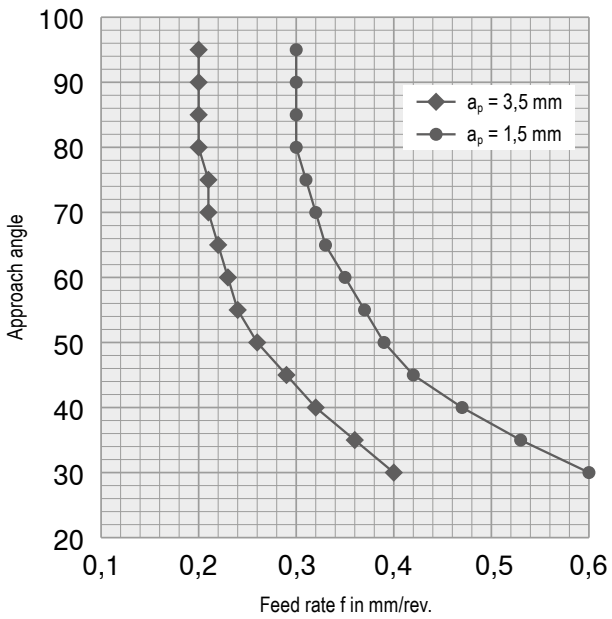
EcoCut ProfileMaster Size	1,5xD
	Feed rate f in mm/rev.
EC PM 16	0,02–0,12
EC PM 20	0,04–0,14
EC PM 25	0,06–0,18
EC PM 32	0,08–0,20

EcoCut ProfileMaster Size	2,25xD
	Feed rate f in mm/rev.
EC PM 16	0,02–0,12
EC PM 20	0,04–0,14
EC PM 25	0,06–0,18
EC PM 32	0,08–0,20

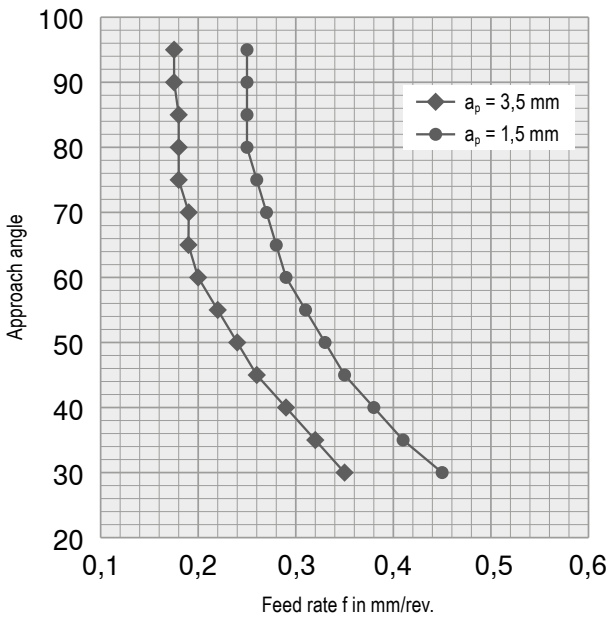
Initial curves for FreeTurn

	Material				Inserts		v_c in m/min	Cooling
Steel	1.7225	42CrMo4	1010 N/mm²	P.2.3	FT1x M 80xxxxR08 -M	CTCP125	200	Emulsion
Stainless steel	1.4301	X5CrNi18-10	610 N/mm²	M.1.1	FT1x M 80xxxxR08 -M	CTPM125	140	Emulsion
Non-ferrous metals	3.2341	G-AlSi 5 Mg	200 N/mm²	N2.2	FT1x G 35xxxxR08-28P	H210T	1100	Emulsion

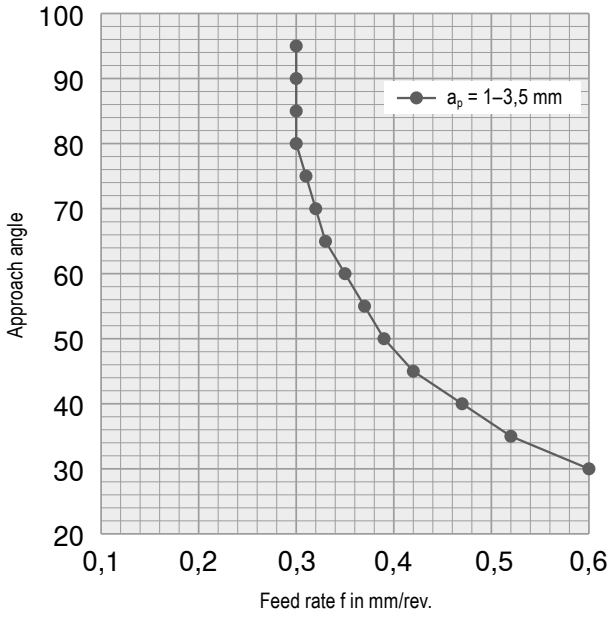
Steel



Stainless steel

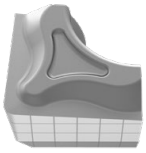
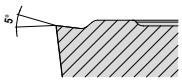
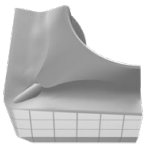
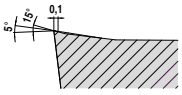
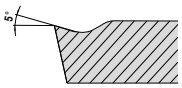
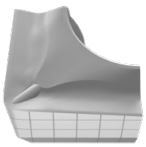
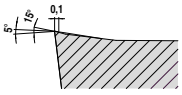


Non-ferrous metals

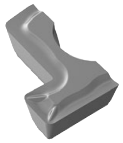
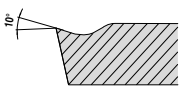


Chip Breakers Overview

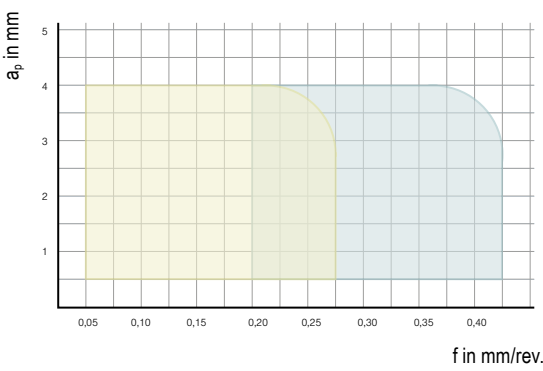
EcoCut Classic

	Model	Smooth cut ○	Irregular cutting depth ◔	Interrupted cut ◌	Sectional illustration f mm
-EN ▲ Universal geometry ▲ Excellent chip breakage ▲ Positive cutting edge ▲ Low to medium feeds		**CTCP425-P** **CTCP425-P / CTPP430** CTCP425-P CTPP430 CTCP435-P / CTPP430 CTCP435-P / CTPP430	**CTCP435-P / CTPP430** **CTPP430** CTCP435-P / CTPP430 CTPP430 CTCP435-P / CTPP430 CTCP435-P / CTPP430	**CTPP430 / CTCP435-P** **CTPP430** CTCP435-P CTPP430 CTCP435-P CTCP435-P	 0,05–0,275
-M50Q ▲ With wiper geometry ▲ Excellent surface qualities ▲ Good chip formation ▲ Medium to high feeds		**CTCP425-P** CTCP425-P CTCP425-P	**CTCP425-P** CTCP425-P		 0,2–0,425
-27P ▲ Positive cutting edge ▲ Periphery ground ▲ Polished rake face ▲ First choice for non-ferrous metals		**H216T** **H216T** H216T H216T	**H216T** **H216T** H216T H216T	**H216T** **H216T** 	 0,1–0,4
-27Q ▲ With wiper geometry ▲ Extremely positive geometry ▲ Periphery ground ▲ Low adhesion		H210T **H210T** **H210T** H210T	H210T **H210T** **H210T** H210T		 0,2–0,5

EcoCut ProfileMaster

	Model				
-M20 ▲ Positive geometry ▲ Universal application ▲ Low to medium feeds		**CTPP430** **CTPP430** CTPP430 CTPP430 **CTPP430** CTPP430	**CTPP430** **CTPP430** CTPP430 CTPP430 **CTPP430** CTPP430	**CTPP40** **CTPP430** CTPP430 CTPP430 CTPP430	 0,05–0,25

Application area of -EN and -M50Q chip breakers



EcoCut Classic 2.25xD – ECC16 – XCNT 080304

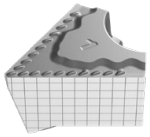
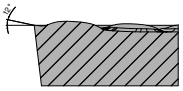
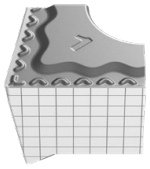
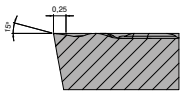
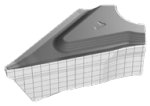
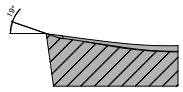
= -M50Q

= Standard

10

Chip Breakers Overview

FreeTurn

	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration
					f mm
-F ▲ Traditional finishing geometry ▲ High surface quality ▲ First choice for finishing steel		**CTCP125** CTCP125 	**CTCP125** CTCP125 	 	 0–6
-M ▲ Average to rough machining ▲ Aggressive chip breaker		CTPM125 **CTPM125** 	CTPM125 **CTPM125** 	 	 0–6
-28P ▲ Traditional finishing geometry ▲ Sharp cutting edge ▲ First choice for aluminium		 H216T **H216T** H216T H216T	 H216T **H216T** H216T H216T	 H216T **H216T** 	 0–1,8

EcoCut Classic – Application as the most stable boring tool

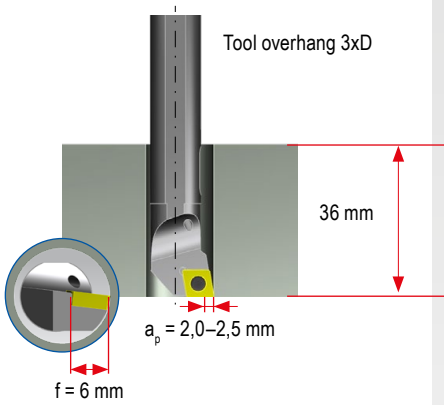
EcoCut can be used not only as a multifunctional tool. In comparison with a boring bar EcoCut used as a pure boring tool gives the user enormous benefits.

Example: machining bores, 16 mm diameter by 36 mm depth

Differences in the tool

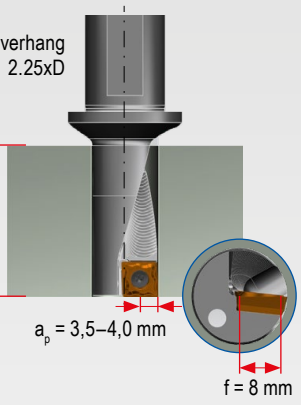
Boring Bar

A12K SCFCR 06



EcoCut Classic

ECC 16R-2.25D 08



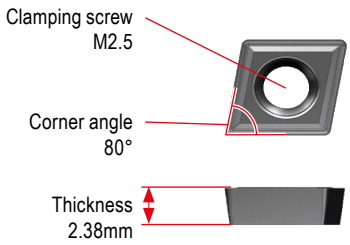
Your Advantages

Large, stable toolholder
- Absorption of high cutting forces
- Low vibration
- Chip Booster for perfect cooling and chip evacuation

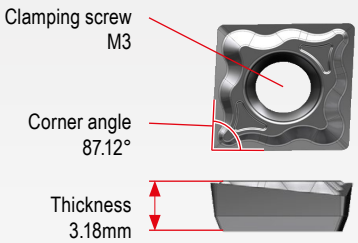
Benefits
- High surface quality
- Perfect chip control
- Max. process security

Differences in the insert

CCMT 060204



XCNT 080304

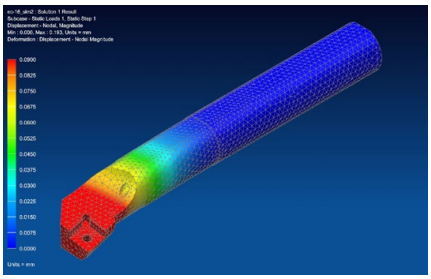


Large and stable insert
- Increased process security
- Enables large depths of cut
- Higher cutting data
- Higher tool life

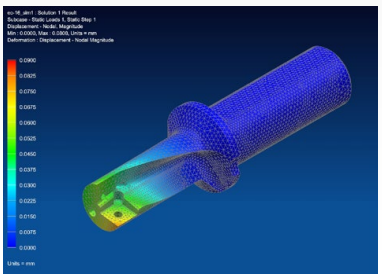
Benefits
- Reduction in machining time
- Increased productivity
- Reduced tooling costs

Stability Comparison

Calculation using FEM
A load of 1000 N on the insert seat corresponds to an approx. a_p of 2.0 mm and f 0.2 mm



Deflection 0.19mm

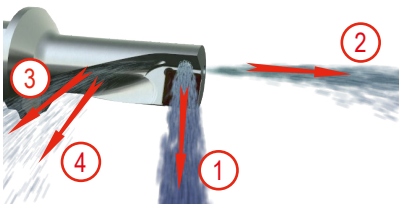


Deflection 0.08mm

Practical experience shows:

- Reduced machining time by up to **75 %**
- Increase in tool life by **400 %** possible

Innovative chip removal – Chip-Booster



EcoCut tools are equipped with a unique coolant and chip removal system.

1. Cooling of the indexable insert
2. General coolant stream
3. Chip booster for improved chip transport
4. Chip booster prevents chips from getting stuck between tool and workpiece

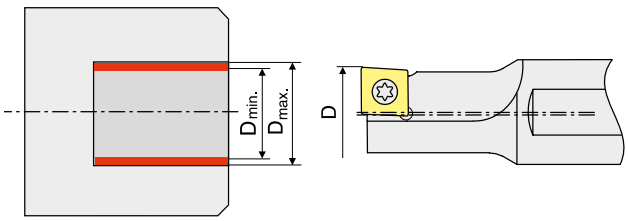
For maximum chip transport efficiency when drilling, coolant pressure must be 3–6 bar minimum (optimal 7–10 bar).

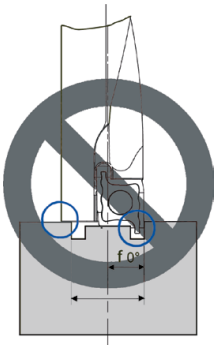
10

Application Tips

Drilling Off centre

Due to the special construction of the EcoCut tool and insert, off-centre drilling is possible.
Deviations from the tool nominal Ø, can be achieved (see adjacent table).





ProfileMaster 0°
Not suitable for drilling!

EcoCut Mini	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
ECM 02 L/R - ...D	2	1,95	2,1
ECM 02,5 L/R - ...D	2,5	2,45	2,6
ECM 03 L/R - ...D	3	2,95	3,15
ECM 03,5 L/R - ...D	3,5	3,45	3,65
ECM 04 R/L - ...D	4	3,90	4,20
ECM 05 R/L - ...D	5	4,90	5,20
ECM 06 R/L - ...D	6	5,90	6,20
ECM 07 R/L - ...D	7	6,90	7,20
ECM 08 R/L - ...D	8	7,90	8,20

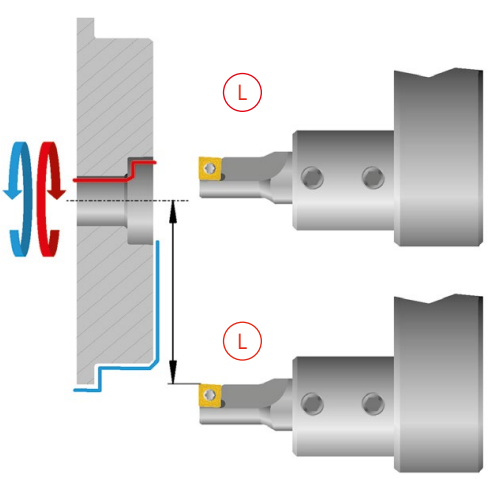
EcoCut Classic	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
ECC 08 R/L - ... 04	8	7,85	8,30
ECC 10 R/L - ... 05	10	9,85	10,50
ECC 12 R/L - ... 06	12	11,85	12,50
ECC 14 R/L - ... 07	14	13,85	14,50
ECC 16 R/L - ... 08	16	15,85	16,50
ECC 18 R/L - ... 09	18	17,85	18,50
ECC 20 R/L - ... 10	20	19,80	20,50
ECC 25 R/L - ... 13	25	24,80	25,80
ECC 32 R/L - ... 17	32	31,80	33,00

EcoCut ProfileMaster	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
PM 10R/L ...	10	9,85	12
PM 12R/L ...	12	11,85	15
PM 16R/L ...	16	15,85	19
PM 20R/L ...	20	19,80	24
PM 25R/L ...	25	24,80	29
PM 32R/L ...	32	31,80	38

Machining over centre

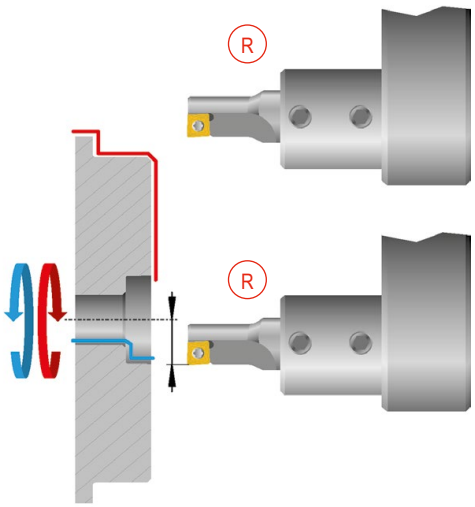
Problem

In case of insufficient movement of the machine across the centre line, the external diameter can not be machined with the same tool.



Solution

Use a right hand EcoCut tool.

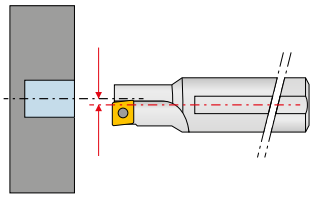


Application Tips

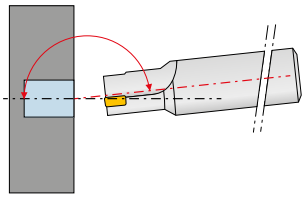
With axial displacement there is the danger of collision!

Problems

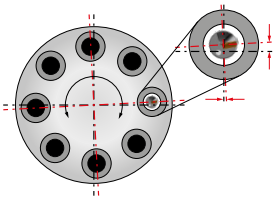
Displacement in x-direction:



Angular error:



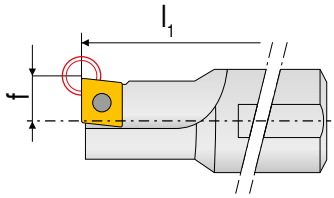
Turret position error:



Remedy

When pre-setting the tool:

▲ Definition as an internal turning tool for programming

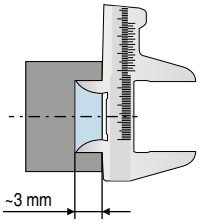


▲ Enter the tool nominal Ø as bore target Ø

At the machine:

▲ Make measuring cut, approx. 3 mm deep

▲ Measure drilled diameter produced

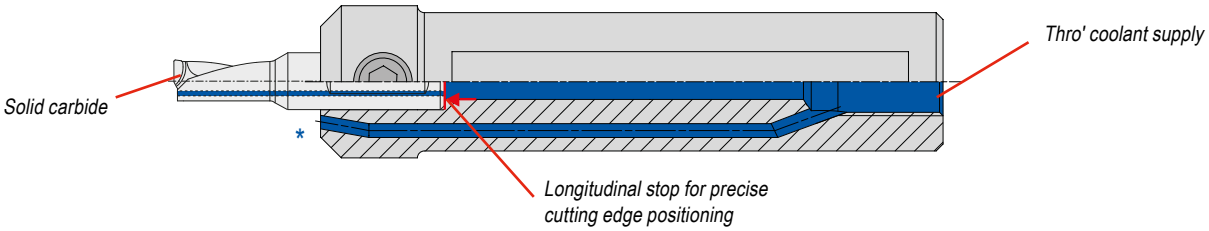


▲ If necessary correct drilling Ø

▲ Start machining

10

EcoCut Mini adapter – Design



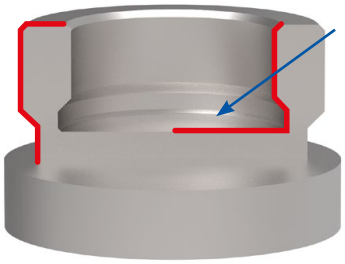
* Cross-section rotated by 90° for clarity

Mounting of the insert for EcoCut Classic

For tools up to Ø 8 mm right and left handed inserts are required.
From Ø 10-32 mm neutral inserts are used.

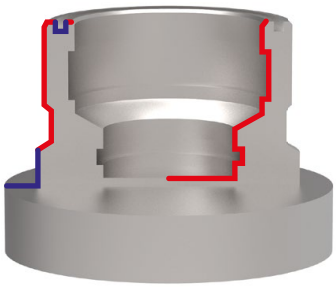
Note!
Ensure correct installation position.

EcoCut ProfileMaster – the highlight with regard to efficiency



Right hand tool

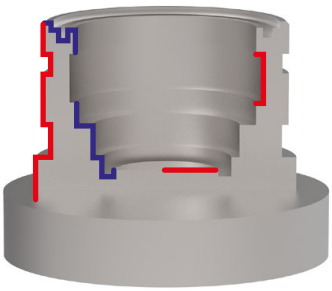
right hand insert



Right hand tool

left hand insert

right hand insert

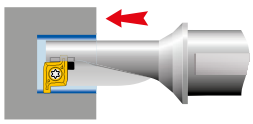


Left hand tool

Right hand tool

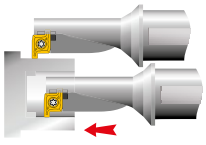
right hand insert

Version 90°



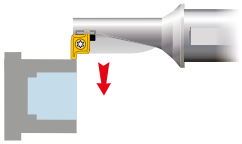
Drilling into solid material with flat bottom hole

Boring

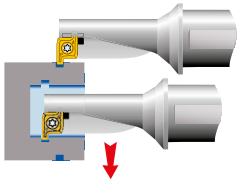


Turning External Diameters

Turning Internal Diameters



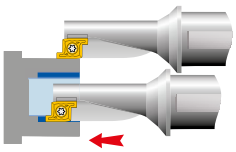
Turning Profiles



External radial grooving

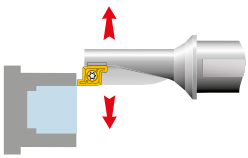
Internal radial grooving

Version 0°

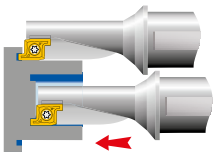


Turning External Diameters

Turning Internal Diameters



Turning Profiles



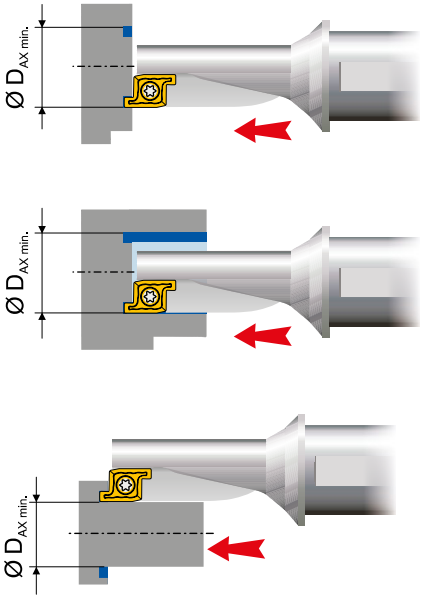
Axial grooving external

Axial grooving internal

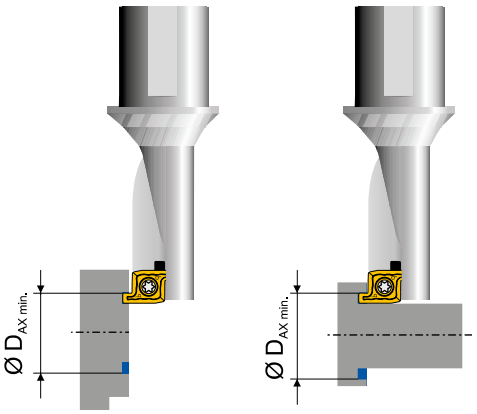
For maximum chip transport efficiency when drilling, coolant pressure must be 3–6 bar minimum (optimal 7–10 bar).

EcoCut ProfileMaster – Axial Grooving

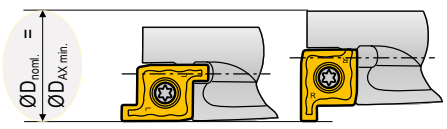
0° (from Ø 16 mm)



90°



EcoCut ProfileMaster	$ØD_{noml.}$ mm	$ØD_{AX\ min.}$ mm	$ØD_{AX\ max.}$ mm
PM 10R/L 1,5D	10	10	> 10
PM 10R/L 2,25D	10	10	> 10
PM 12R/L 1,5D	12	12	> 12
PM 12R/L 2,25D	12	12	> 12
PM 16R/L 1,5D	16	16	> 16
PM 16R/L 2,25D	16	16	> 16
PM 20R/L 1,5D	20	20	> 20
PM 20R/L 2,25D	20	20	> 20
PM 25R/L 1,5D	25	25	> 25
PM 25R/L 2,25D	25	25	> 25
PM 32R/L 1,5D	32	32	> 32
PM 32R/L 2,25D	32	32	> 32

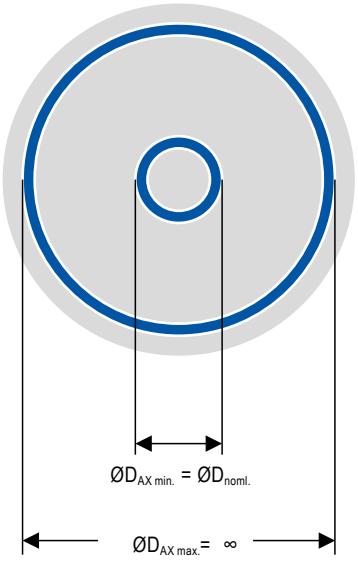


$ØD_{noml.}$ = Nominal tool diameter

$ØD_{AX\ min.}$ = smallest diameter for axial grooving

$ØD_{AX\ max.}$ = largest diameter for axial grooving

$ØD_{AX\ min.} = ØD_{noml.}$



10

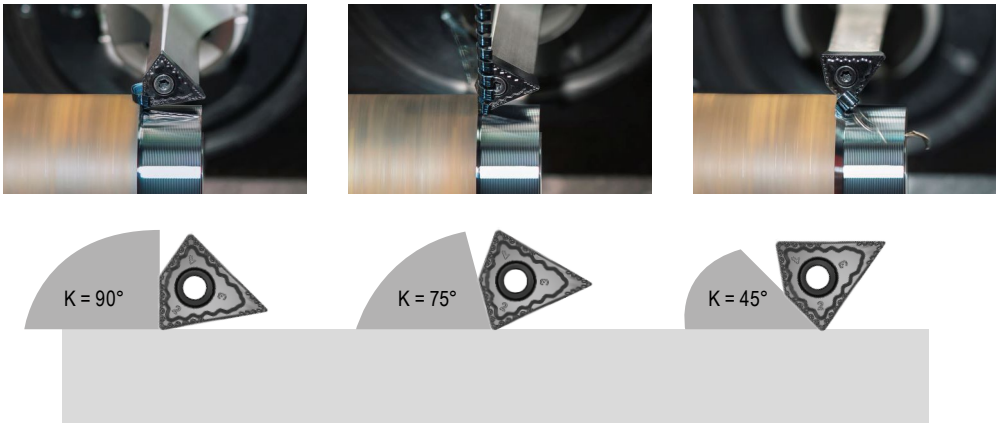
Application Tips

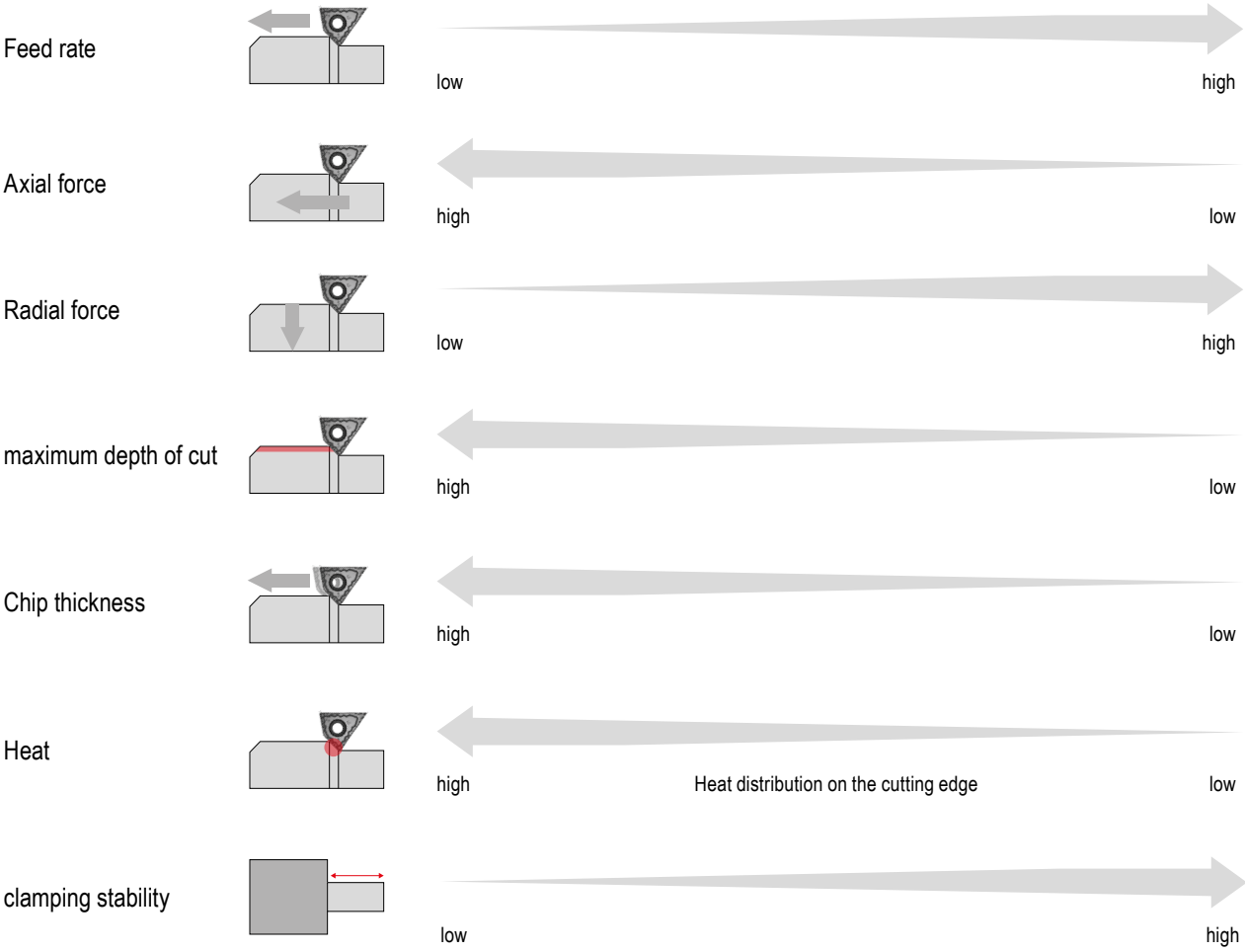
Recommendation for Optimum Results

Type of problem										
Type of wear				Work piece problems		Swarf control				
Edge breakage	Built-up edge	Wear on clearance face	Plastic deformation	Vibration	Surface quality	Chip too long (snarl chip)	Chip too short (fragmented chip)	Remedy measures		
	↑	↓	↓	↓	↑	↓		Cutting data	Cutting speed	
↓		~	↓	↑	↓	↑	↓		Feed rate	
↑		↑	↑	↓	↑			Insert selection	Corner radius	larger ↑ ↓ smaller
↓		↑	↑						Tool Material	Wear resistance ↑ ↓ toughness
~				~	~			General criteria	Tool clamping	
~				~	~				Work piece clamping	
~				~	↓				Overhang	
~		~		~	~				Tip height	
	●	●	●		●	●			Cooling lubricant	

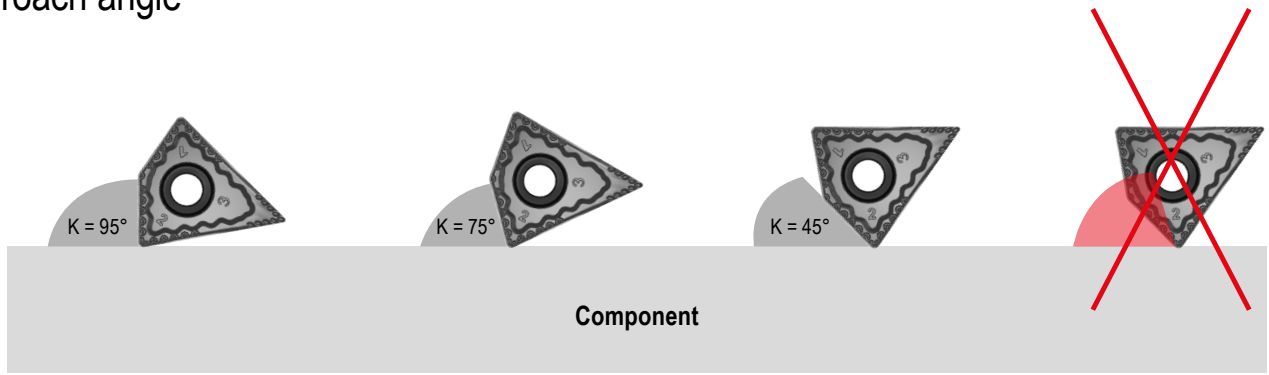
↑ raise, increase large influence
↑ raise, increase small influence
↓ avoid, reduce large influence
↓ avoid, reduce small influence
~ control, optimize
● use

Factors influencing the selection of the correct cutting angle



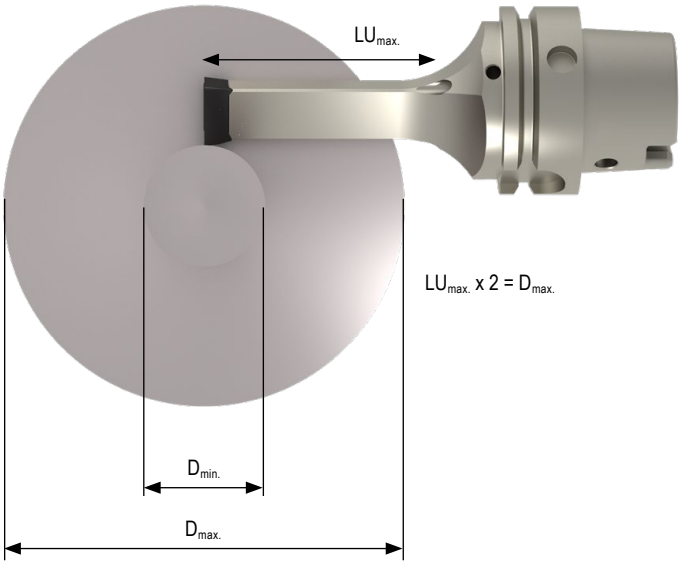


Approach angle



The approach angle always works from the edge of the component to the main cutting edge (tool).

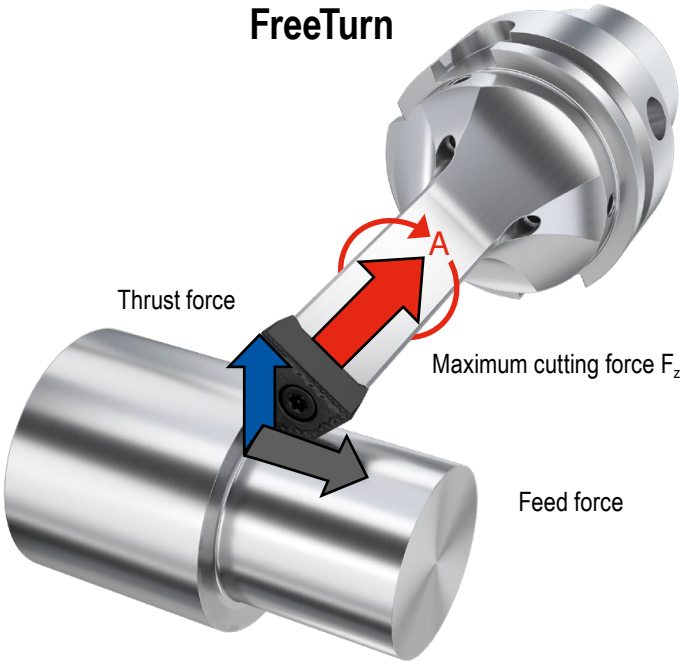
Tool / workpiece length ratio

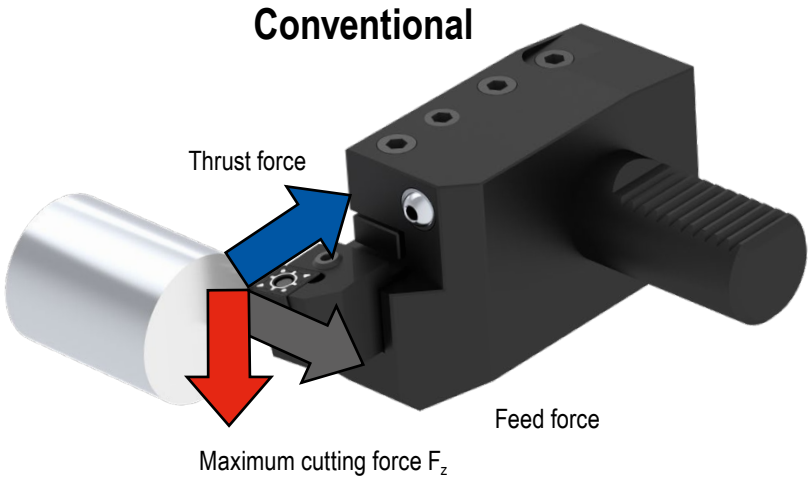


This table shows the diameter ranges you can work in with the different tool lengths.

Tool	$D_{max.}$ in mm	200	190	180	170	160	150	140	130	120	110	100	90	80
PSC-63-**100**-FT 808055	$D_{min.}$ in mm					127	115	102	88	73	56	34	0	0
PSC-63-**125**-FT 808055	$D_{min.}$ in mm	138	125	110	90	70	42	0	0	0	0	0	0	0

Force data from the process





Practical test	
Steel machining shaft Ø 60 mm 1.7227 / 42CrMoS4 R_m 850 Nm	Cutting data: v_c = 175 m/min. f = 0.3 mm/rev. a_p = 3.0 mm K = 95°

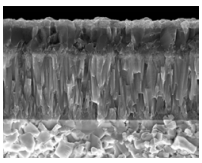
FreeTurn		Conventional
2136 N	F XYZ	2206 N
920 N	F XY (feed force)	2143 N
1928 N	Maximum cutting force F_z	526 N

10

Grade description

EcoCut Classic

CTCP425-P

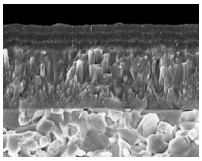


ISO **P25** | M20 | K30

Specification:
Composition: Co 7.0%; mixed carbides 8.1%; WC balance | Grain size: 1-2 µm | Hardness: HV_{30} 1470 |
Coating specification: CVD Ti(CN) + Al_2O_3 multi-layer

Recommended application:
The wear-resistant solution for steel and cast iron under stable conditions and with high cutting speed

CTCP435-P

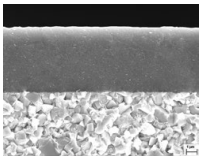


ISO **P35** | M30 | K40 | S25

Specification:
Composition: Co 9.6%; mixed carbides 7.8%; others 0.4%; WC balance | Grain size: 1-2 µm | Hardness: HV_{30} 1400 |
Coating specification: CVD Ti(C,N) + Al_2O_3 multi-layer

Recommended application:
The reliable choice when machining steel and cast iron under unstable conditions.

CTPP430

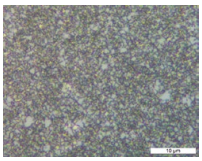


ISO | **P30** | **M25** | K30 | N25 | S25 | O25

Specification:
Composition: Co 9.0%; others 0.75%; WC balance | Grain size: 0.85 µm | Hardness: HV_{30} 1590 | Coating specification: PVD TiAlN

Recommended application:
The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

H210T

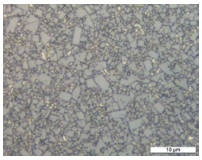


ISO | K10 | **N10** | **S10** | O10

Specification:
Composition: Co 6.0%; WC balance | Grain size: 0.8 µm | Hardness: HV_{30} 1850

Recommended application:
The wear-resistant uncoated carbide grade for the machining of aluminium and other non-ferrous metals.

H216T



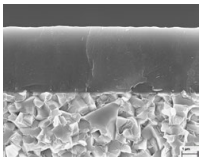
ISO | K15 | **N15** | S15 | O10

Specification:
Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1630

Recommended application:
The uncoated carbide grade for the machining of aluminium and other non-ferrous metals

EcoCut Mini

CTPP435

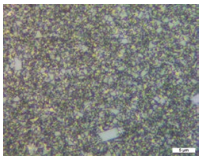


ISO **P35** | **M30** | K30 | N30 | **S30** | O30

Specification:
Composition: Co 10.3%; others 1.2%; WC balance | Grain size: 0.7 µm | Hardness: HV_{30} 1600 | Coating specification: PVD TiN / TiAlN

Recommended application:
The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

CTWN425



ISO K20 | **N25** | S25 | O25

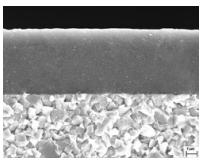
Specification:
Composition: Co 10.3%; others 1.2%; WC balance | Grain size: 0.7 µm (submicron grade) | Hardness: HV_{30} 1600

Recommended application:
The uncoated carbide grade for the machining of aluminium and other non-ferrous metals.

Grade description

EcoCut ProfileMaster

CTPP430



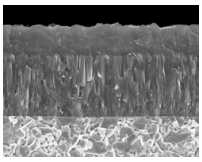
ISO | **P30** | **M25** | K30 | N25 | S25 | O25

Specification:
Composition: Co 9.0%; others 0.75%; WC balance | Grain size: 0.85 µm | Hardness: HV_{30} 1590 | Coating specification: PVD TiAlN

Recommended application:
The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

FreeTurn

CTCP125

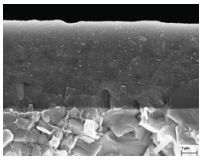


ISO | **P25** | K25

Specification:
Composition: Co 7.0%; mixed carbides 8.0%; WC balance | Grain size: 1 - 2 µm | Hardness: HV_{30} 1450 |
Coating specification: CVD TiCN-Al_2O_3

Recommended application:
The first choice for the universal machining of steel

CTPM125

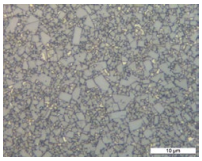


ISO | P35 | **M25**

Specification:
Composition: Co 9.6%; mixed carbides 7.8%; others 0.4%; WC balance | Grain size: 1 - 2 µm | Hardness: HV_{30} 1460 |
Coating specification: PVD TiAlTaN

Recommended application:
The first choice for the machining of austenitic steels

H216T



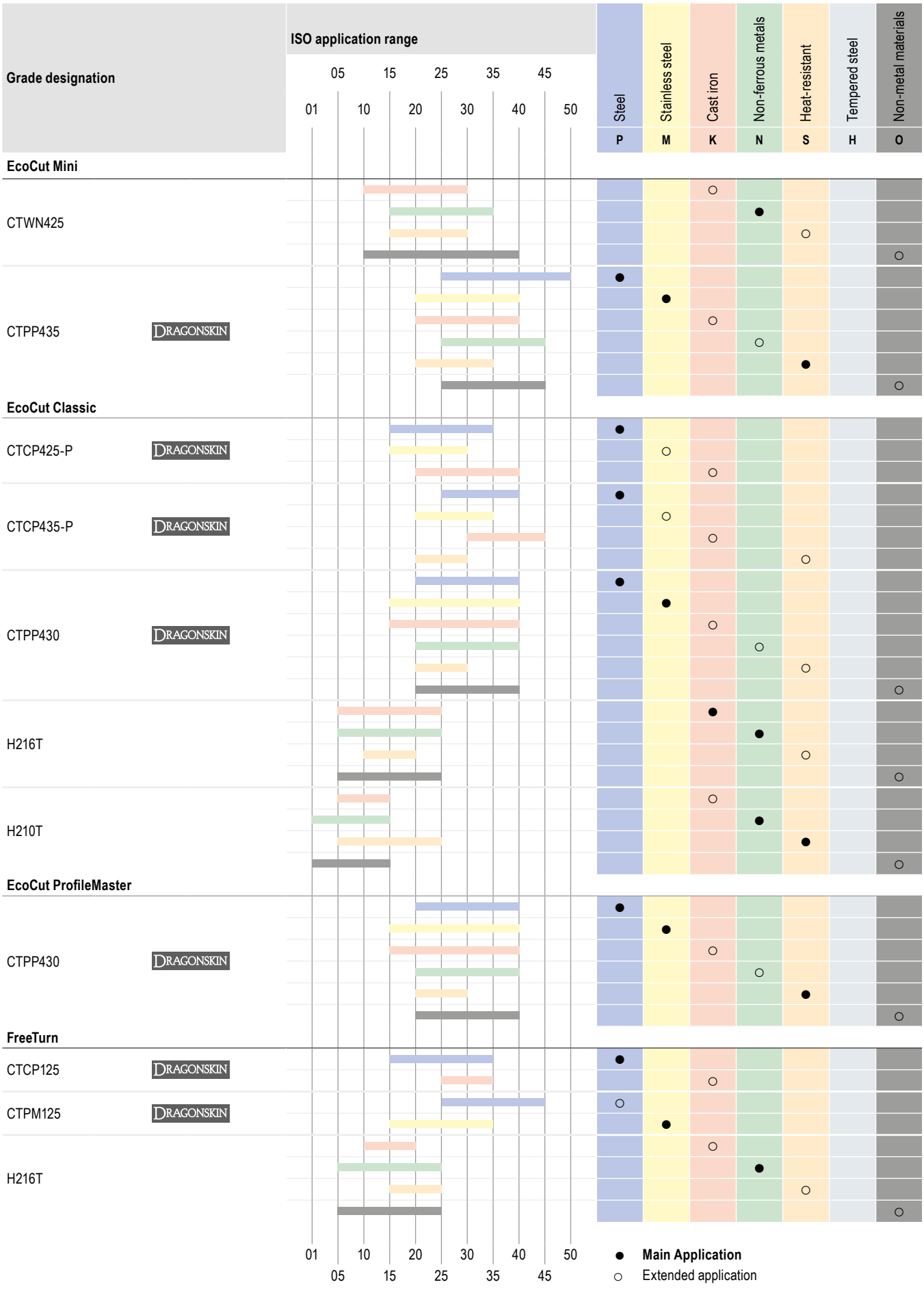
ISO | K15 | **N15** | S15 | O10

Specification:
Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1630

Recommended application:
The uncoated carbide grade for the machining of aluminium and other non-ferrous metals

10

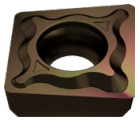
Application



Designation System

EcoCut – indexable insert designation

X	C	E	T		17	05	08	F	N	-	27P
1	2	3	4		5	6	7	8	9		10



1 Insert shape
2 Clearance angle
3 Tolerances
4 Characteristics
5 Cutting length
6 Insert thickness
7 Corner radius
8 Cutting edge
9 Direction of cut
10 Chip groove

EcoCut – holder designation

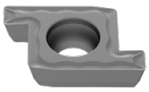
ECC	32	R	-	3.0D	17	H
1	2	3		4	5	6

1 System
2 Nominal diameter in mm
3 Direction of cut
4 maximum hole depth
5 insert size
6 Tool holder version in Densimet

10

EcoCut ProfileMaster – indexable insert designation

PM	25	R	G	35	30	04	-	M20
1	2	3	4	5	6	7		8



1 ProfileMaster
2 Nominal diameter in mm
3 Direction of cut
4 Version
5 Groove width in mm/10
6 Groove depth in mm/10
7 Corner radius
8 Chip groove

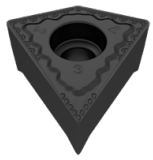
EcoCut ProfileMaster – holder designation

PMC	25	R	-	2.25D
1	2	3		4

1 ProfileMaster
2 Nominal diameter in mm
3 Direction of cut
4 maximum hole depth

Designation System

FreeTurn – indexable insert designation



FT15	M/G	808055	R	080804	Q	MMF	CTCP125
1	2	3	4	5	6	7	8	9	10	11	12

1. FreeTurn
2. Nominal diameter in mm
3. ISO tolerance (M = sintered, G = polished)
4. Cutter angle 1 in degrees
5. Cutter angle 2 in degrees
6. Cutter angle 3 in degrees
7. Corner radius 1 in mm
8. Corner radius 2 in mm
9. Corner radius 3 in mm
10. Wiper geometry
11. Chip breaker (M = medium, F = fine)
12. Carbide Grade

FreeTurn – holder designation

HSK	-	T63	-	100	-	FT15	808055
1	2	3	4	5	6	7	8

1. System
2. Size
3. Overhang length
4. FreeTurn
5. Nominal diameter in mm
6. Cutter angle 1 in degrees
7. Cutter angle 2 in degrees
8. Cutter angle 3 in degrees

New products for machining technicians

NEW -M7

The new M7 geometry is designed for grooving and parting off.
With medium-high feed rates, its best performance is achieved in steel.

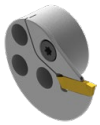
→ Page 18

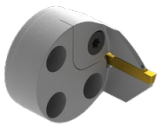
NEW -M8

The ground M8 geometry will become the first choice for the machining of stainless steel. This geometry can only be used for grooving and parting off.

→ Page 19

NEW **MaxiChange** – Exchangeable head system





As the MaxiChange exchangeable head system is modular, it is extremely flexible and can be used for a variety of applications thanks to the wide selection of exchangeable heads. On top of these advantages, the MaxiChange GX also includes a grooving function for internal and external machining as well as axial and radial machining.

For radial grooving GX 16 → Page 51
For axial grooving GX 24 → Page 70

Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools 11

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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System overview	5
Toolfinder	6–13
Product programme	14–86
Technical Information	
Cutting Data	87+88
Depths of Cut and Feedrates	89–93
Grooving depth reduction	94+95
Clamping Methods	96+97
Torque Moment ModularClamp Module Screws	98
Advantages due to DirectCooling	99
Advantages of the trochoidal turning strategy	99
General references	100
Measures for problems and causes of wear	101+102
Chip Breakers Overview	103–105
Example of Coding Grooving Tools	106
Grade description and overview	107+108

CERATIZIT \ Performance

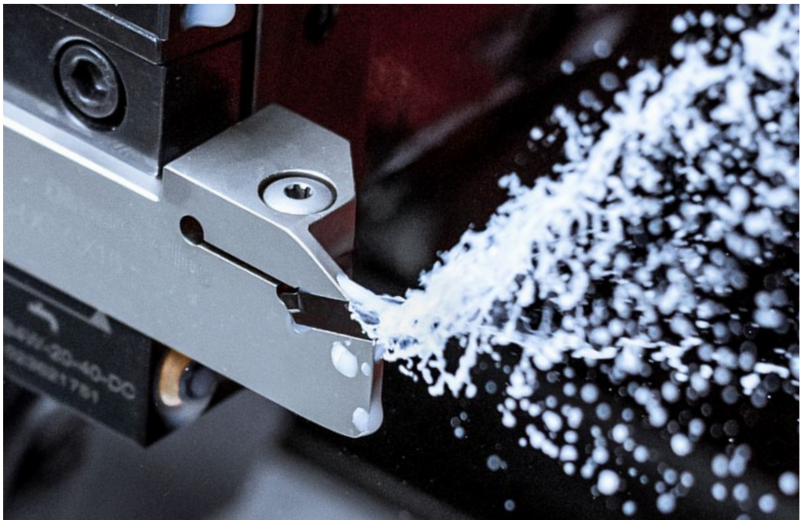
Premium quality tools for high performance.

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

Advantages due to DirectCooling

Direct Cooling

- ▲ Improved chip control
- ▲ Longer service life of the indexable insert
- ▲ Greater process security
- ▲ Application of higher cutting data
- ▲ Reduced wear
- ▲ Universal application



cuttingtools.ceratizit.com/int/en/direct-cooling

Symbol explanation

Grooving

Parting

Grooving and Turning

Copy Turning

Axial Grooving and Turning

Circlip Grooves

Internal machining

Internal thread

External thread

F Fine Machining

M Medium Machining

R Rough Machining

Main Application / Extended application

DirectCooling

Int. coolant supply

Repeatability

-F2 CTPP345 Chip groove / Carbide Grade

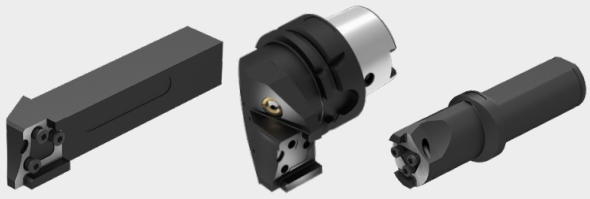
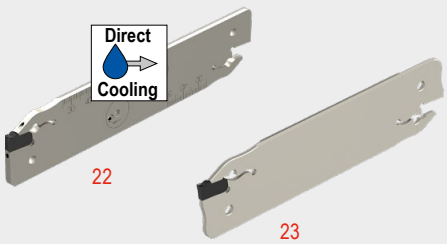
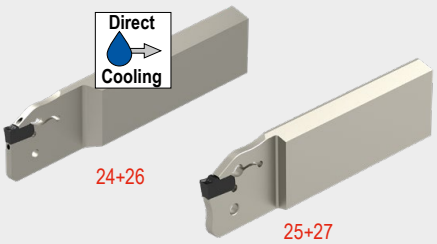
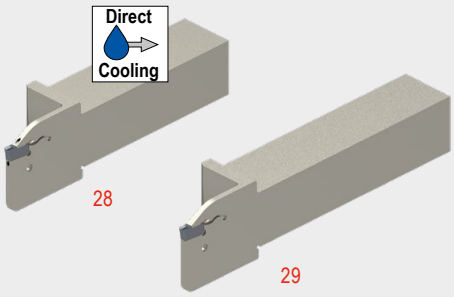
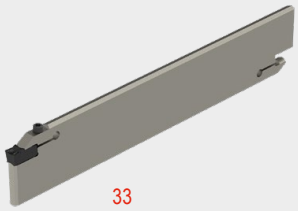
Smooth cut / Irregular cutting depth / Interrupted cut

System overview

No. of cutting edges	System	Grooving	Parting	Grooving and Turning	Copy Turning	Axial Grooving and Turning	Circlip Grooves	Internal machining	External machining CW (mm)	External machining CDX max. (mm)	Internal machining DMIN (mm)	Internal machining CDX max. (mm)	Axial machining DAXN (mm)	Axial machining CDX max. (mm)	Page No.
1	SX	●	●	●	●				2–6	60					14–29
	LX	●	●	●	●	●			8–10	80	200	34	500	39	30–33
2	GX 09	●	●	●	●		●	●	2–3,5	7	16	6			34–51
	GX 16	●	●	●	●		●	●	2–6	12	20,5	11			34–51
	GX 24	●	●	●	●	●		●	2–6	21	42	19	45	25	52–70
3	TX	●	●	●	●	●	●	●	0,5–5,15	8	46	2	20	3	71–79

11

Toolfinder

System	ModularClamp	MonoClamp
	 0° / 90° 80+81 · 0° 82 · 1,5xD / 2,5xD 83	84–86 · → Chapter 16
SX	21	 Direct Cooling 22 · 23
		 Direct Cooling 24+26 · 25+27
		 Direct Cooling 28 · 29
LX	32	 33

System		Chip groove	Groove width	Grooving	Parting	Grooving and Turning	Copy Turning	Axial Grooving and Turning	Circlip Grooves	Fine Machining F	Medium Machining M	Rough Machining R	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Page No.
SX		-F2	2–4										●	●	●	○	●		○	14
		-M1	2–6										●	●	●	○	●		○	15
		-M2	2–6										●	●	●	○	●		○	16
		-M3	CRE 1,5–3,0										●	●	●	○	●		○	17
		NEW -M7	2–6										●	●	●	○	●		○	18
		NEW -M8	2–6										●	●	●	○	●		○	19
		-27P	2–4												●	●	○		○	20
LX		-M2	8–10										●	●	●	○	●		○	30
		-M3	CRE 4,0										●	●	●	○	●		○	31

11

Toolfinder

System

ModularClamp

0° / 90°
80+81

0°
82

1,5xD / 2,5xD
83

MonoClamp

→ Chapter 16

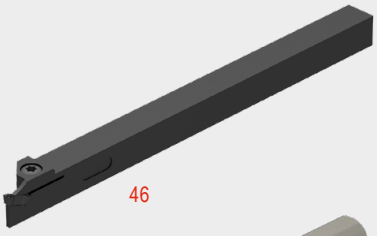
GX 09

42

43

44

45



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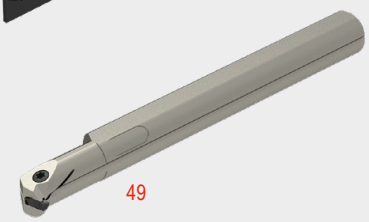


49

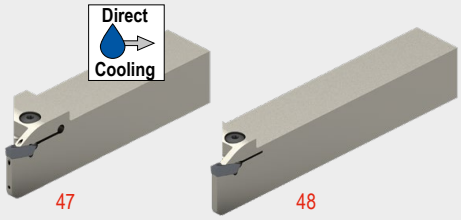
GX 16

42

43

44

45



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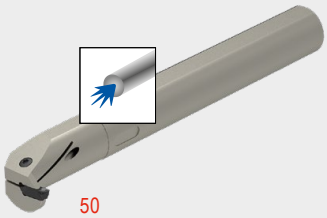
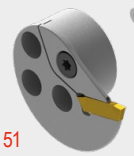


50

MaxiChange

→ Page 12+13
Here you will find a detailed system overview.

NEW



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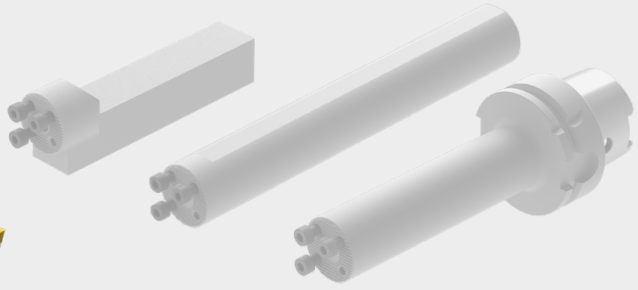
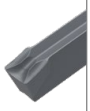
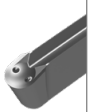


→ Chapter 9 – Turning Tools
Here you will find the suitable base adaptors.

System		Chip groove	Groove width	Grooving	Parting	Grooving and Turning	Copy Turning	Axial Grooving and Turning	Circlip Grooves	Fine Machining F	Medium Machining M	Rough Machining R	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Page No.
GX 09 GX 16		-F2	2–5										●	●	●	○	●		○	34
		Standard	2–6										●	●	●	○	●		○	35
		-M40	2–6										●	●	●	○	●		○	36
		Standard	CRE 0,8–3,0										●	●	●	○	●		○	40
		Standard	1–4,25										●	●	●	○	●		○	39
GX 16		-M1	2–4										●	●	●	○	●		○	37
		-27P	2–6												●	●	○		○	38
		-27P	CRE 1,5–2,5												●	●	○		○	41

11

Toolfinder

System

ModularClamp

0° / 90°
80+81

0°
82

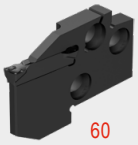
1,5xD / 2,5xD
83

MonoClamp

85+86

→ Chapter 16

GX 24



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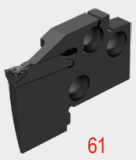
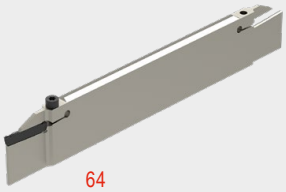


61

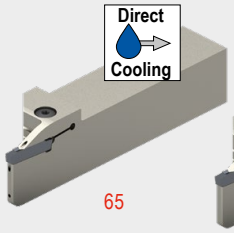
62

63



64

Direct Cooling



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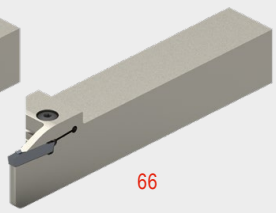
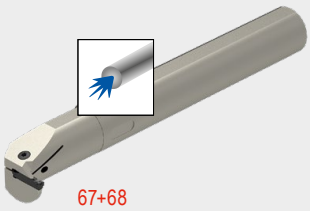


66

69

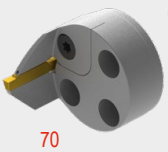


67+68

MaxiChange

→ Page 12+13
Here you will find a detailed system overview.

NEW



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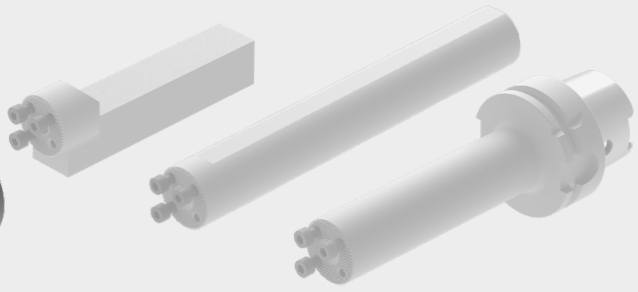
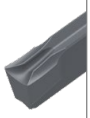
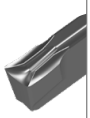


→ Chapter 9 – Turning Tools
Here you will find the suitable base adaptors.

System		Chip groove	Groove width	Grooving	Parting	Grooving and Turning	Copy Turning	Axial Grooving and Turning	Circlip Grooves	Fine Machining F	Medium Machining M	Rough Machining R	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Page No.
GX 24		-F2	3–6										●	●	●	○	●		○	52
		-E	3–6										●	●	●	○	●		○	53
		-M1	2–4										●	●	●	○	●		○	54
		-M40	3–6										●	●	●	○	●		○	55
		-M3	CRE 1,5–3,0										●	○	●		○			56
		-M33	CRE 1,5–3,0										●	○	●		○			57
		-27P	3–6												●	●	○		○	58
		-27PF	CRE 3–4												●	●	○		○	59

11

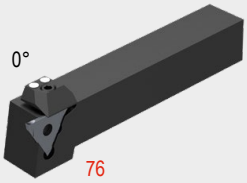
Toolfinder

System

MonoClamp

→ Chapter 16

TX



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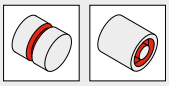

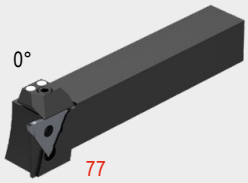

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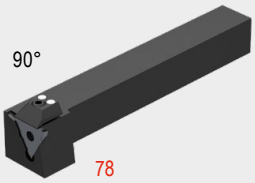

78

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System overview

MaxiChange

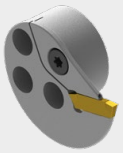
Exchangeable heads

For radial grooving

NEW

GX 16

51

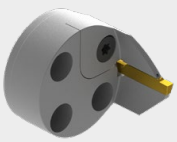


For axial grooving

NEW

GX 24

70



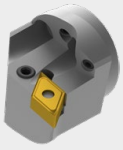
→ **Chapter 9 – Turning Tools**

Exchangeable heads

For negative inserts

PCLN 95°

PDUN 93°

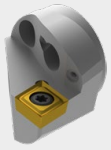


PDQN 107,5°

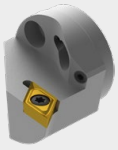
PWLN 95°

For positive inserts

SCLC 95°



SDUC 93°



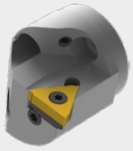
SDQC 107,5°

SVPC 117,5°

SVUC 93°

SVQC 107,5°

For internal thread



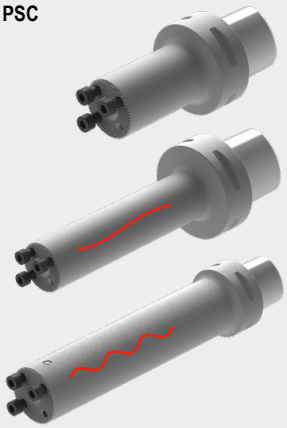
System		Chip groove	Groove width	Grooving	Parting	Grooving and Turning	Copy Turning	Axial Grooving and Turning	Circlip Grooves	Fine Machining F	Medium Machining M	Rough Machining R	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Page No.
TX			1,99–2,79										●	●	●	●	●	○	●	71
			0,57–5,29										●	●	●	●	●	○	●	72
			CRE 0,25–2,5										●	●	●	●	●	○	●	73
			1,5–4,0										●	●	●	●	●	○	●	74
			1,5–3,0										●	●	●	●	●	○	●	75

MaxiChange

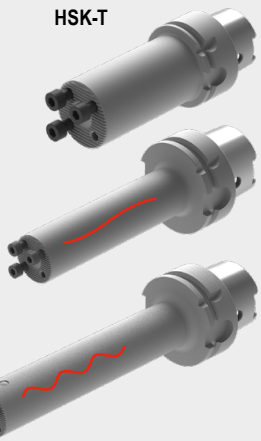
→ **Chapter 9 – Turning Tools**

Tool holder

PSC



HSK-T

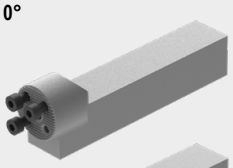


Vibration damped

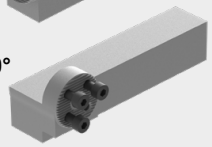
Actively vibration-damped

Square shank holder

0°



90°



Cylindrical shank

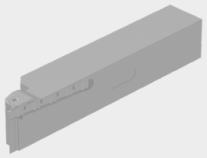
Actively vibration-damped

→ **cuttingtools.ceratizit.com**

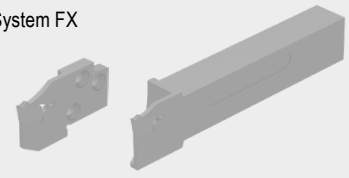
VertiClamp

→ catalouge: sliding head

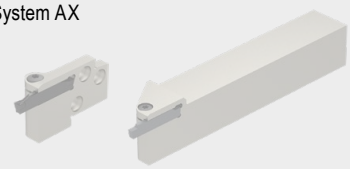
MaxiClick



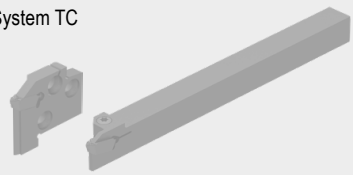
System FX



System AX



System TC

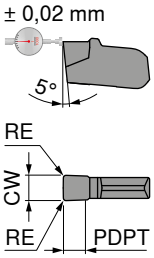


11

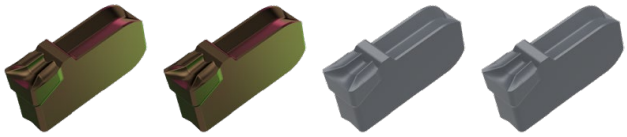
Insert SX

▲ High precision ground geometry

F	M	R



-F2 CTCP325	-F2 CTCP335	-F2 CTPP345	-F2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 346 ...	70 346 ...	70 346 ...	70 346 ...
SX E2.00 N 0.20	2	0,2	1,5	-SX2			822	622
SX E3.00 N 0.30	3	0,3	2,0	-SX3	923	523	823	623
SX E4.00 N 0.40	4	0,4	2,5	-SX4			824	624
P					●	●	●	●
M					○	○	●	●
K					●	●		●
N								○
S					○		○	●
H								
O								○

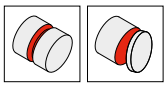
→ v_c Page 88
→ Application recommendation on page 92

Internal machining | *External machining*

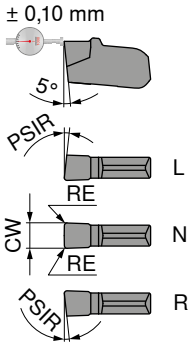
→ 21 | → 22+23 | → 24–27 | → 28+29

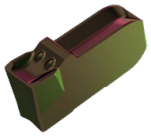
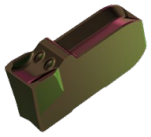
Insert SX

▲ Specially developed geometry with negative edge-chamfers available in right, left and neutral types



F	M	R



-M1 CTCP325	-M1 CTCP335	-M1 CTPP345	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
			

Designation	IH	CW +/-0,05 mm	RE +/-0,05 mm	PSIR	for tool holder	70 342 ...	70 342 ...	70 342 ...	70 342 ...
SX E2.00 L 6	L	2	0,2	6°	-SX2				**612**
SX E3.00 L 6	L	3	0,2	6°	-SX3	**913**			**613**
SX E4.00 L 6	L	4	0,3	6°	-SX4				**614**
SX E2.00 N 0.20	N	2	0,2		-SX2	**922**	**52200**	**822**	**622**
SX E3.00 N 0.20	N	3	0,2		-SX3	**923**	**523**	**823**	**623**
SX E4.00 N 0.30	N	4	0,3		-SX4	**924**	**524**	**824**	**624**
SX E5.00 N 0.30	N	5	0,3		-SX5	**925**	**52500**	**825**	**625**
SX E6.00 N 0.40	N	6	0,4		-SX6	**926**	**52600**	**826**	**626**
SX E2.00 R 6	R	2	0,2	6°	-SX2				**602**
SX E3.00 R 6	R	3	0,2	6°	-SX3	**903**			**603**
SX E4.00 R 6	R	4	0,3	6°	-SX4				**604**
P						●	●	●	●
M						○	○	●	●
K						●	●		●
N									○
S						○		○	●
H									
O									○

→ v_c Page 88
→ Application recommendation on page 92

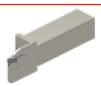
11

Note: reduce feed rate by 20–50 % with R/L version!

→ **Page 100**
Here you will find further information.

Internal machining

External machining

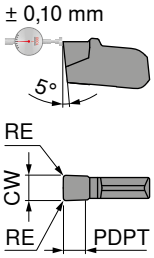


→ 21 | → 22+23 | → 24–27 | → 28+29

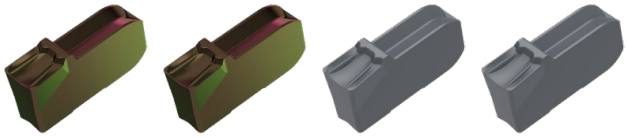
Insert SX

▲ All purpose geometry for parting, grooving & turning.

F	M	R



-M2 CTCP325	-M2 CTCP335	-M2 CTPP345	-M2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 343 ...	70 343 ...	70 343 ...	70 343 ...
SX E2.00 N 0.20	2	0,2	1,5	-SX2	**922**	**522**	**822**	**622**
SX E3.00 N 0.30	3	0,3	2,0	-SX3	**923**	**523**	**823**	**623**
SX E4.00 N 0.40	4	0,4	2,5	-SX4	**924**	**524**	**824**	**624**
SX E5.00 N 0.40	5	0,4	2,7	-SX5	**925**	**525**	**825**	**625**
SX E6.00 N 0.50	6	0,5	3,0	-SX6	**926**	**526**	**826**	**626**
P					●	●	●	●
M					○	○	●	●
K					●	●		●
N								○
S					○		○	●
H								
O								○

→ v_c Page 88
→ Application recommendation on page 92

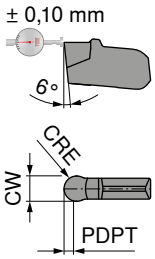
Internal machining | *External machining*

→ 21 | → 22+23 | → 24–27 | → 28+29

Radius Grooving Insert SX

▲ for grooving and copy turning
▲ very good chip control

F	M	R
	◯	



-M3	-M3
CTCP335	CTP1340
DRAGONSKIN	DRAGONSKIN

Designation	CW +/-0,05 mm	CRE mm	PDPT mm	for tool holder	70 344 ...	70 344 ...
SX R1.50 N	3	1,5	1,5	-SX3	**531**	**631**
SX R2.00 N	4	2,0	2,0	-SX4	**532**	**632**
SX R2.50 N	5	2,5	2,5	-SX5	**533**	**633**
SX R3.00 N	6	3,0	3,0	-SX6		**634**
P					●	●
M					○	●
K					●	●
N						○
S						●
H						
O						○

→ v_c Page 88
→ Application recommendation on page 93

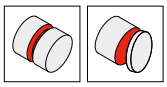
Internal machining | *External machining*

→ 21 | → 22+23 | → 24–27 | → 28+29

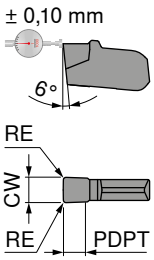
11

Insert SX

▲ For grooving and parting off in steel at medium to high feed rates



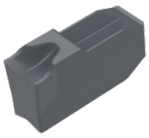
F	M	R



NEW

-M7
CTP1340

DRAGONSKIN



70 347 ...

Designation	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	
SX E2.00 N 0.20	2	0,2	1,5	-SX2	**62200**
SX E3.00 N 0.20	3	0,2	2,0	-SX3	**62300**
SX E4.00 N 0.30	4	0,3	2,5	-SX4	**62400**
SX E5.00 N 0.30	5	0,3	2,7	-SX5	**62500**
SX E6.00 N 0.40	6	0,4	3,0	-SX6	**62600**

P	●
M	●
K	●
N	○
S	●
H	
O	○

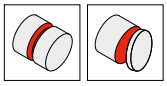
→ v_c Page 88
→ Application recommendation on page 92

Internal machining | *External machining*

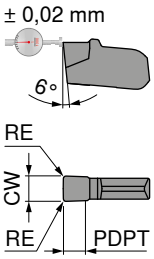
→ 21 | → 22+23 | → 24–27 | → 28+29

Insert SX

▲ Ground geometry
▲ First choice for the grooving and parting off of stainless steel



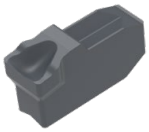
F	M	R



NEW

-M8
CTP1340

DRAGONSKIN



70 348 ...

Designation	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	
SX E2.00 N 0.20	2	0,2	1,5	-SX2	**62200**
SX E3.00 N 0.20	3	0,2	2,0	-SX3	**62300**
SX E4.00 N 0.30	4	0,3	2,5	-SX4	**62400**
SX E5.00 N 0.30	5	0,3	2,7	-SX5	**62500**
SX E6.00 N 0.40	6	0,4	3,0	-SX6	**62600**

P	●
M	●
K	●
N	○
S	●
H	
O	○

→ v_c Page 88
→ Application recommendation on page 92

Internal machining | *External machining*

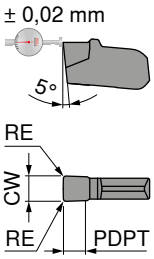
→ 21 | → 22+23 | → 24–27 | → 28+29

11

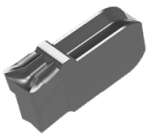
Insert SX

▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ Specialist for aluminum and other soft long-chipping non-ferrous metals

F	M	R



-27P
H216T



70 349 ...

Designation	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	
SX E2.00 N 0.20	2	0,2	2,0	-SX2	**122**
SX E3.00 N 0.30	3	0,3	2,5	-SX3	**123**
SX E4.00 N 0.40	4	0,4	3,0	-SX4	**124**

P	
M	
K	●
N	●
S	○
H	
O	○

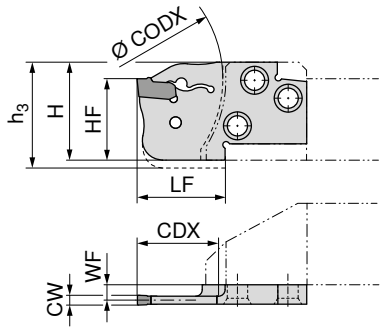
→ v_c Page 88
→ Application recommendation on page 92

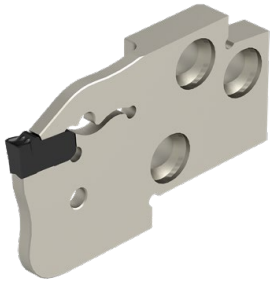
Internal machining			*External machining*			
			→ 21	→ 22+23	→ 24–27	→ 28+29

ModularClamp MSS – Radial grooving module SX

▲ for parting, grooving and finish turning

Scope of supply:
Grooving module only





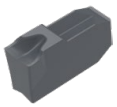
Illustrations show right-hand versions

ISO designation	HF mm	CW mm	WF mm	LF mm	H mm	h_3 mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 897 ...	Right-hand 70 896 ...
E20 R/L 20-SX2	20	2	3,57	22	24	27	60	20	SX .2..	**020**	**020**
E20 R/L 20-SX3	20	3	3,20	22	24	27	60	20	SX .3..	**120**	**120**
E25 R/L 20-SX2	25	2	5,07	22	30		75	20	SX .2..	**025**	**025**
E25 R/L 25-SX3	25	3	4,70	27	30		75	25	SX .3..	**125**	**125**
E25 R/L 35-SX3	25	3	4,70	37	30		75	35	SX .3..	**225**	**225**
E25 R/L 25-SX4	25	4	4,30	27	30		75	25	SX .4..	**325**	**325**
E25 R/L 35-SX4	25	4	4,30	37	30		75	35	SX .4..	**425**	**425**

Ejector SX

Spare parts for grooving inserts		70 950 ...
SX .2..	SX 2-3	**836**
SX .3..	SX 2-3	**836**
SX .4..	SX 4-6	**837**

Please order SX assembly key separately if required.



→ 14–20

→ 80+81

→ 82

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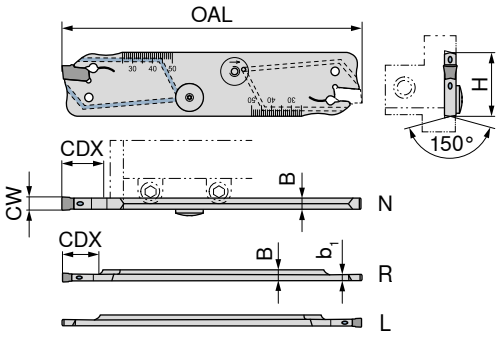
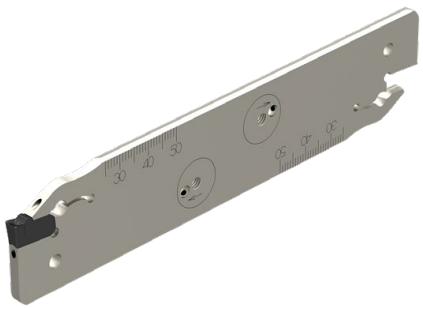
MonoClamp – Radial Blade SX-DC Standard

Scope of supply:
Blade incl. 1 sealing screw

Direct Cooling



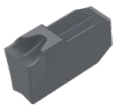


70 884 ...

ISO designation	R/L/N	CW mm	H mm	B mm	b_1 mm	OAL mm	CDX mm	for grooving inserts	
XLCF L 2602-DC-SX2	L	2	26	2,4	1,6	110	25	SX .2..	**712**
XLCF R 2602-DC-SX2	R	2	26	2,4	1,6	110	25	SX .2..	**512**
XLCF N 2603-DC-SX3	N	3	26	2,5		110	35	SX .3..	**613**
XLCF N 2604-DC-SX4	N	4	26	3,3		110	40	SX .4..	**614**
XLCF L 3202-DC-SX2	L	2	32	2,4	1,6	150	26	SX .2..	**702**
XLCF R 3202-DC-SX2	R	2	32	2,4	1,6	150	26	SX .2..	**502**
XLCF N 3203-DC-SX3	N	3	32	2,5		150	50	SX .3..	**603**
XLCF N 3204-DC-SX4	N	4	32	3,3		150	50	SX .4..	**604**
XLCF N 3205-DC-SX5	N	5	32	4,3		150	55	SX .5..	**605**
XLCF N 3206-DC-SX6	N	6	32	5,2		150	60	SX .6..	**606**

	Key D		Ejector SX		Sealing screw	
	80 950 ...		**70 950 ...**		**70 950 ...**	
Spare parts for grooving inserts						
SX .2..	T15 - IP	**128**	SX 2-3	**836**	M4 x 3	**450**
SX .3..	T15 - IP	**128**	SX 2-3	**836**	M4 x 3	**450**
SX .4..	T15 - IP	**128**	SX 4-6	**837**	M4 x 3	**450**
SX .5..	T15 - IP	**128**	SX 4-6	**837**	M4 x 3	**450**
SX .6..	T15 - IP	**128**	SX 4-6	**837**	M4 x 3	**450**

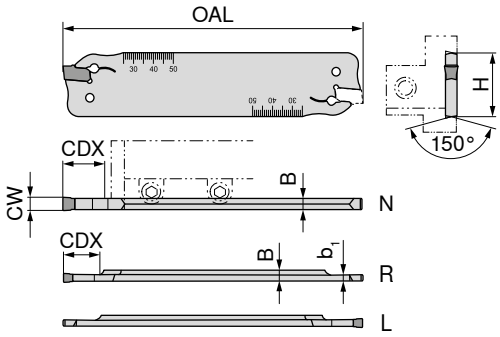
Please order SX assembly key separately if required.

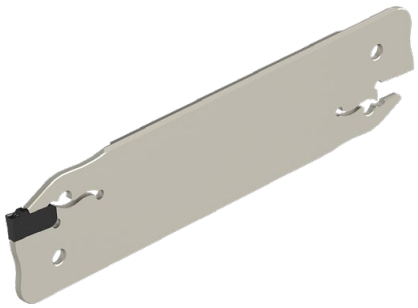


→ 14–20 | → 84 | → **Chapter 16** | → **Chapter 16**

MonoClamp – Radial Blade SX Standard

Scope of supply:
Blade only





ISO designation	R/L/N	CW mm	H mm	B mm	b_1 mm	OAL mm	CDX mm	for grooving inserts	70 884 ...
XLCF L 2602-SX2	L	2	26	2,4	1,5	110	25	SX .2..	**212**
XLCF R 2602-SX2	R	2	26	2,4	1,5	110	25	SX .2..	**012**
XLCF N 2603-SX3	N	3	26	2,4		110	35	SX .3..	**113**
XCLF N 2604-SX4	N	4	26	3,2		110	40	SX .4..	**114**
XLCF L 3202-SX2	L	2	32	2,4	1,5	150	25	SX .2..	**202**
XLCF R 3202-SX2	R	2	32	2,4	1,5	150	25	SX .2..	**002**
XLCF N 3203-SX3	N	3	32	2,4		150	50	SX .3..	**103**
XLCF N 3204-SX4	N	4	32	3,2		150	50	SX .4..	**104**
XLCF N 3205-SX5	N	5	32	4,2		150	55	SX .5..	**105**
XLCF N 3206-SX6	N	6	32	5,2		150	60	SX .6..	**106**

Ejector SX

Spare parts for grooving inserts		70 950 ...
SX .2..	SX 2-3	**836**
SX .3..	SX 2-3	**836**
SX .4..	SX 4-6	**837**
SX .5..	SX 4-6	**837**
SX .6..	SX 4-6	**837**

Please order SX assembly key separately if required.

→ 14–20

→ 85+86

→ **Chapter 16**

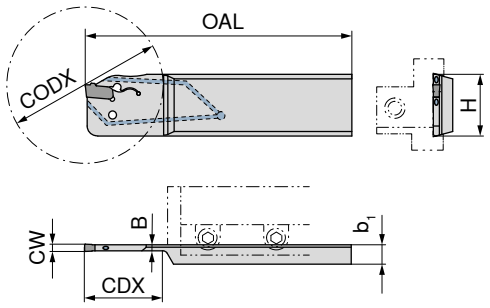
→ **Chapter 16**

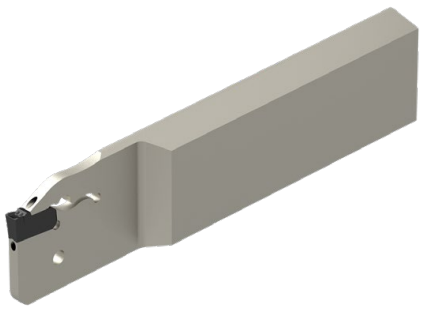
11

MonoClamp – Radial Blade SX-DC reinforced

Scope of supply:
Blade only

Direct Cooling





Illustrations show right-hand versions

ISO designation	R/L/N	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	70 879 ...
XLCF L 2608-DC-SX3	L	3	26	2,5	8	110	66	33	SX .3..	**713**
XLCF R 2608-DC-SX3	R	3	26	2,5	8	110	66	33	SX .3..	**513**
XLCF L 3208-DC-SX3	L	3	32	2,5	8	110	66	33	SX .3..	**703**
XLCF R 3208-DC-SX3	R	3	32	2,5	8	110	66	33	SX .3..	**503**

Ejector SX

Spare parts for grooving inserts	70 950 ...
SX .3..	SX 2-3 **836**

Please order SX assembly key separately if required.

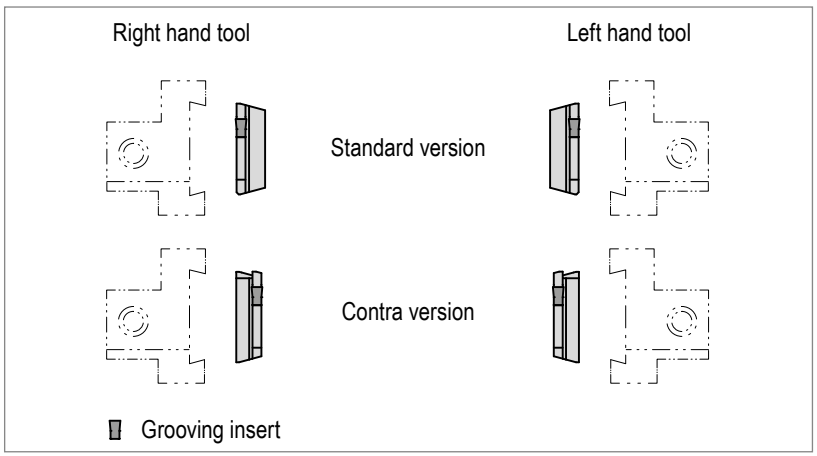
→ 14–20

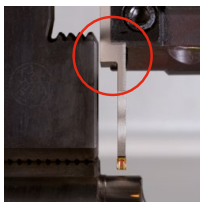
→ 84

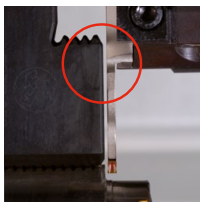
→ **Chapter 16**

→ **Chapter 16**

Correct Tool Selection

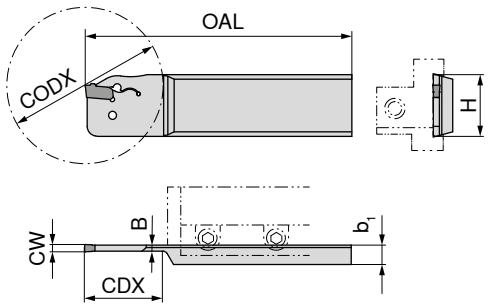


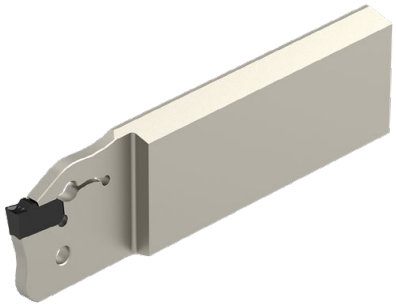




MonoClamp – Radial Blade SX reinforced

Scope of supply:
Blade only





Illustrations show right-hand versions

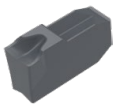
ISO designation	R/L/N	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	70 879 ...
XLCF L 2608-SX3	L	3	26	2,5	8	110	44	22	SX .3..	**213** [1]
XLCF R 2608-SX3	R	3	26	2,5	8	110	44	22	SX .3..	**013** [1]
XLCF L 3208-SX3	L	3	32	2,5	8	110	66	33	SX .3..	**203**
XLCF R 3208-SX3	R	3	32	2,5	8	110	66	33	SX .3..	**003**
XLCF L 3208-SX4	L	4	32	3,4	8	110	66	33	SX .4..	**204**
XLCF R 3208-SX4	R	4	32	3,4	8	110	66	33	SX .4..	**004**

1) can be used in both directions

Ejector SX

Spare parts for grooving inserts		70 950 ...
SX .3..	SX 2-3	**836**
SX .4..	SX 4-6	**837**

Please order SX assembly key separately if required.



→ 14–20

→ 85+86

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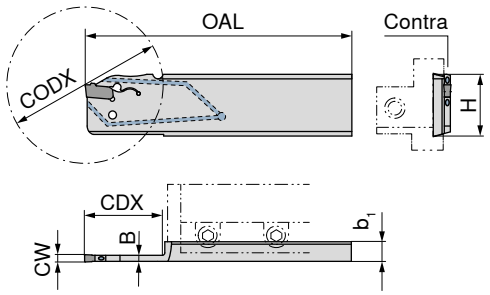
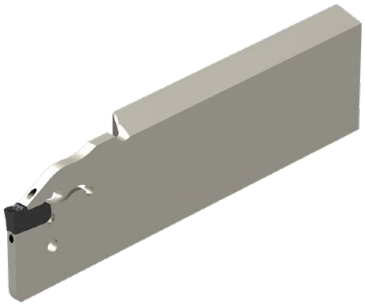
MonoClamp – SX-DC reinforced Contra radial blade

Scope of supply:
Blade only

Direct Cooling





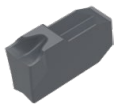
Illustrations show right-hand versions

ISO designation	R/L/N	Version	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	70 877 ...
XLCF L 3208C-DC-SX3	L	Contra	3	32	2,5	8	110	66	33	SX .3..	**703**
XLCF R 3208C-DC-SX3	R	Contra	3	32	2,5	8	110	66	33	SX .3..	**503**

Ejector SX

Spare parts for grooving inserts		70 950 ...
SX .3..	SX 2-3	**836**

Please order SX assembly key separately if required.



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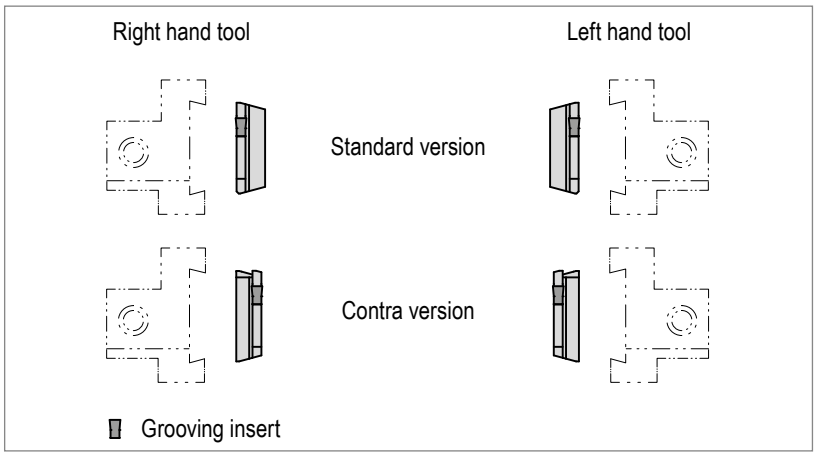
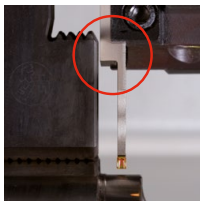
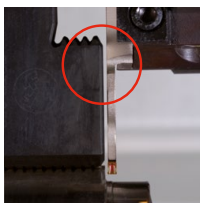
Correct Tool Selection

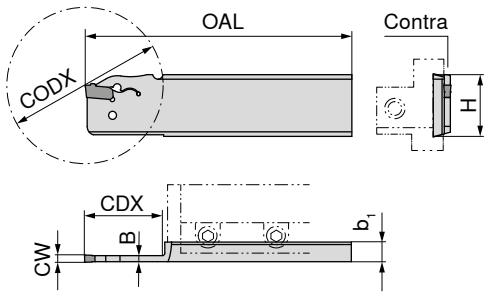


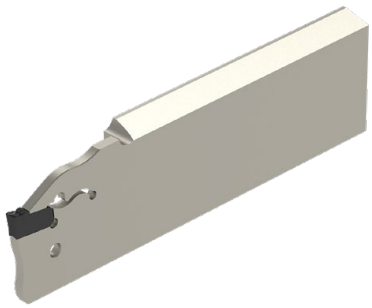




MonoClamp – SX reinforced Contra radial blade

Scope of supply:
Blade only





Illustrations show right-hand versions

ISO designation	R/L/N	Version	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	70 877 ...
XLCF L 3208C-SX3	L	Contra	3	32	2,5	8	110	66	33	SX .3..	**203**
XLCF R 3208C-SX3	R	Contra	3	32	2,5	8	110	66	33	SX .3..	**003**

Ejector SX

Spare parts for grooving inserts		70 950 ...
SX .3..	SX 2-3	**836**

Please order SX assembly key separately if required.

→ 14–20

→ 85+86

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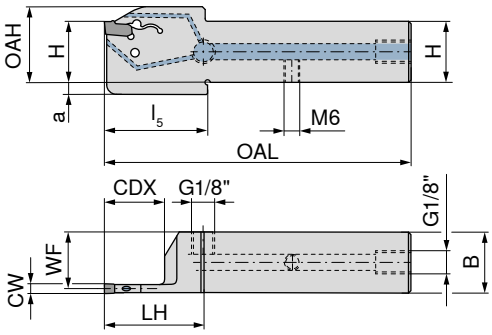
→ **Chapter 16**

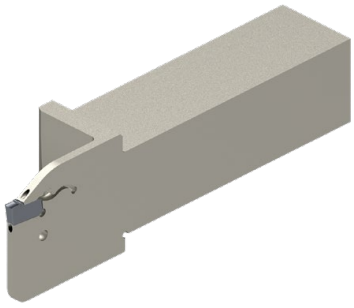
11

MonoClamp – Radial Monoholder SX-DC

Scope of supply:
Mono holder incl. screw plug and grub screw

Direct Cooling





Illustrations show right-hand versions

ISO designation	H mm	B mm	CW mm	WF mm	OAL mm	LH mm	l_5 mm	OAH mm	CDX mm	a mm	for grooving inserts	Left-hand 70 847 ...	Right-hand 70 847 ...
E12 R/L 0022-1212X-K-DC-SX2	12	12	2	11,20	71	27	28	22	22	5	SX .2..	**21201**	**21200**
E16 R/L 0026-1616X-K-DC-SX2	16	16	2	15,20	87	32	33	26	26	4	SX .2..	**21601**	**21600**
E16 R/L 0026-1616X-K-DC-SX3	16	16	3	14,75	87	32	33	26	26	4	SX .3..	**31601**	**31600**
E20 R/L 0026-2020X-K-DC-SX2	20	20	2	19,20	102	32	33	31	26	5	SX .2..	**22001**	**22000**
E20 R/L 0026-2020X-K-DC-SX3	20	20	3	18,75	102	32	33	31	26	5	SX .3..	**32001**	**32000**
E20 R/L 0033-2020X-K-DC-SX4	20	20	4	18,30	109	39	40	32	33	5	SX .4..	**42001**	**42000**
E25 R/L 0033-2525X-K-DC-SX2	25	25	2	24,20	126	41	42	36	33	5	SX .2..	**22501**	**22500**
E25 R/L 0026-2525X-K-DC-SX3	25	25	3	23,75	117	33		31	26		SX .3..	**32501**	**32500**
E25 R/L 0033-2525X-K-DC-SX3	25	25	3	23,75	126	41	42	36	33	5	SX .3..	**32601**	**32600**
E25 R/L 0033-2525X-K-DC-SX4	25	25	4	23,30	126	41	42	36	33	5	SX .4..	**42501**	**42500**
E25 R/L 0040-2525X-K-DC-SX4	25	25	4	23,30	133	48	49	38	40	6	SX .4..	**42601**	**42600**
E25 R/L 0040-2525X-K-DC-SX5	25	25	5	22,85	133	48	49	38	40	6	SX .5..	**52501**	**52500**
E25 R/L 0040-2525X-K-DC-SX6	25	25	6	22,35	133	48	49	38	40	6	SX .6..	**62501**	**62500**

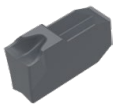
Ejector SX

Coolant screw plug

Grubscrew

Spare parts for grooving inserts	70 950 ...		70 950 ...		70 950 ...	
SX .2..	SX 2-3	**836**	G 1/8"	**294**	M6x6	**86700**
SX .3..	SX 2-3	**836**	G 1/8"	**294**	M6x6	**86700**
SX .4..	SX 4-6	**837**	G 1/8"	**294**	M6x6	**86700**
SX .5..	SX 4-6	**837**	G 1/8"	**294**	M6x6	**86700**
SX .6..	SX 4-6	**837**	G 1/8"	**294**	M6x6	**86700**

Please order SX assembly key separately if required.



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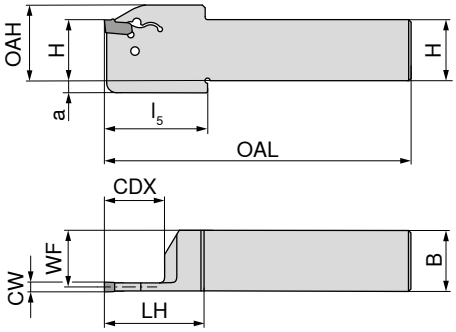
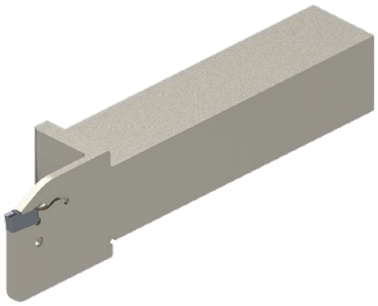
MonoClamp – Radial Monoholder SX

Scope of supply:
Mono holder only





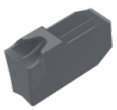
Illustrations show right-hand versions

ISO designation	H mm	B mm	CW mm	WF mm	OAL mm	LH mm	l_5 mm	OAH mm	CDX mm	a mm	for grooving inserts	Left-hand 70 846 ...	Right-hand 70 846 ...
E12 R/L 0022-1212K-K-SX2	12	12	2	11,20	125	27	28	22	22	5	SX .2..	**21201**	**21200**
E16 R/L 0026-1616K-K-SX2	16	16	2	15,20	125	32	33	26	26	4	SX .2..	**21601**	**21600**
E16 R/L 0026-1616K-K-SX3	16	16	3	14,75	125	32	33	26	26	4	SX .3..	**31601**	**31600**
E20 R/L 0026-2020K-K-SX2	20	20	2	19,20	125	32	33	31	26	5	SX .2..	**22001**	**22000**
E20 R/L 0026-2020K-K-SX3	20	20	3	18,75	125	32	33	31	26	5	SX .3..	**32001**	**32000**
E20 R/L 0033-2020K-K-SX4	20	20	4	18,30	125	39	40	32	33	5	SX .4..	**42001**	**42000**
E25 R/L 0033-2525M-K-SX2	25	25	2	24,20	150	41	42	36	33	5	SX .2..	**22501**	**22500**
E25 R/L 0033-2525M-K-SX3	25	25	3	23,75	150	41	42	36	33	5	SX .3..	**32601**	**32600**
E25 R/L 0026-2525M-K-SX3	25	25	3	23,75	150	33		31	26		SX .3..	**32501**	**32500**
E25 R/L 0040-2525M-K-SX4	25	25	4	23,30	150	48	49	38	40	6	SX .4..	**42601**	**42600**
E25 R/L 0033-2525M-K-SX4	25	25	4	23,30	150	41	42	37	33	5	SX .4..	**42501**	**42500**
E25 R/L 0040-2525M-K-SX5	25	25	5	22,85	150	48	49	38	40	6	SX .5..	**52501**	**52500**
E25 R/L 0040-2525M-K-SX6	25	25	6	22,35	150	48	49	38	40	6	SX .6..	**62501**	**62500**

Ejector SX

Spare parts for grooving inserts		70 950 ...
SX .2..	SX 2-3	**836**
SX .3..	SX 2-3	**836**
SX .4..	SX 4-6	**837**
SX .5..	SX 4-6	**837**
SX .6..	SX 4-6	**837**

Please order SX assembly key separately if required.



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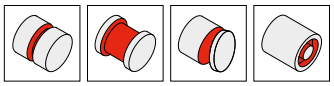
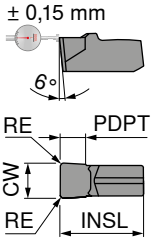
Insert LX

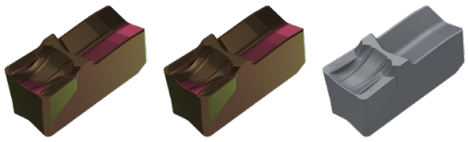
- ▲ Grooving width 8 and 10 mm
- ▲ Axial grooving from Ø 500 mm onwards
- ▲ Internal grooving and turning, from Ø 200 mm onwards



F	M	R



-M2 CTCP325	-M2 CTCP335	-M2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW -/+0,08 mm	RE +/-0,1 mm	PDPT mm	for tool holder	70 337 ...	70 337 ...	70 337 ...
LXE 8.00N0.80-M2	19	8	0,8	5	E32 N ..-LX	**928**	**578**	**682**
LXE 10.00N0.80-M2	19	10	0,8	5	E32 N ..-LX	**932**	**582**	**678**
P						●	●	●
M						○	○	●
K						●	●	●
N								○
S						○		●
H								
O								○

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→ Application recommendation on page 93

Internal machining

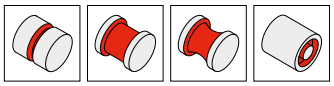
→ 32

External machining

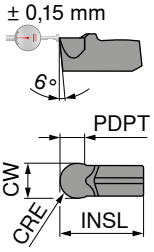
→ 32
→ 33

Radial Grooving Insert LX

- ▲ Grooving width 8 mm
- ▲ Axial grooving from Ø 500 mm
- ▲ Internal grooving and turning, from Ø 200 mm



F	M	R



-M3 CTCP325	-M3 CTCP335	-M3 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN

Designation	INSL mm	CW -/+0,08 mm	CRE mm	PDPT mm	for tool holder	70 337 ... 908	70 337 ... 518	70 337 ... 618
LXR 4.00N-M3	19	8	4	5	E32 N ..-LX			
P						●	●	●
M						○	○	●
K						●	●	●
N								○
S						○		●
H								
O								○

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Internal machining

→ 32

External machining

→ 32
→ 33

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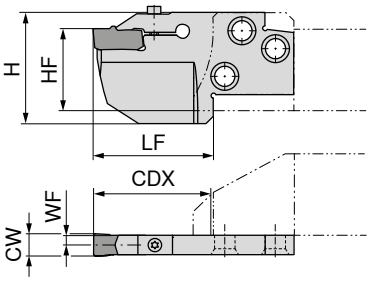
ModularClamp MSS – Axial and radial grooving module LX

▲ Grooving width 8 and 10 mm
▲ Axial grooving from Ø 500 mm onwards
▲ Internal grooving and turning, from Ø 200 mm onwards

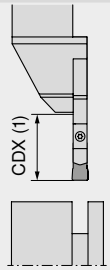
Scope of supply:
Grooving module only



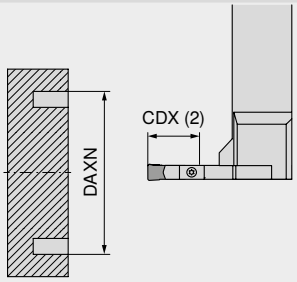
Neutral

ISO designation	CW mm	WF mm	LF mm	HF mm	H mm	CDX (1) mm	CDX (2) mm	CDX (3) mm	for grooving inserts	70 835 ...
E32 N 25-LX	8 / 10	3,4	27	32	44	25	19	14	LX ..	**032**
E32 N 32-LX	8 / 10	3,4	34	32	44	32	26	21	LX ..	**132**
E32 N 45-LX	8 / 10	3,4	47	32	44	45	39	34	LX ..	**232**

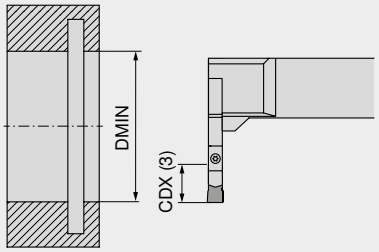
Radial grooving



Axial grooving DAXN > 500 mm



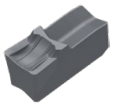
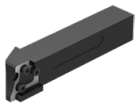
Internal grooving DMIN > 200 mm



Key D — **80 950 ...**

Clamping screw — **70 950 ...**

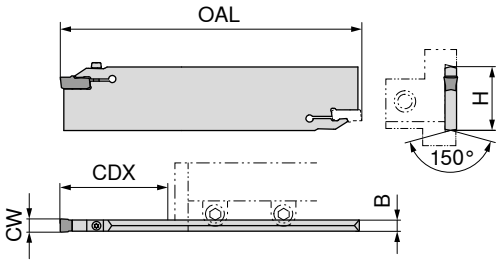
Spare parts for grooving inserts				
LX ..	T20	**114**	M4x18	**204**

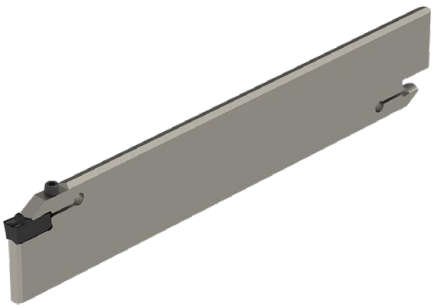



→ 30+31 → 80+81 → 82 → 83

MonoClamp – Blade LX

Scope of supply:
Blade incl. key and clamping screw



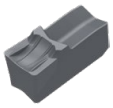


ISO designation	H mm	B mm	OAL mm	CW mm	CDX mm	for grooving inserts	70 833 ...
XLCEN 4608-LX	46	6,8	250	8/10	80	LX ..	**108**

Key D

Clamping screw

Spare parts for grooving inserts		80 950 ...		70 950 ...
LX ..	T20	**114**	M4x18	**204**



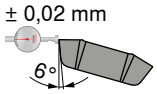
→ 30+31 → 85+86 → **Chapter 16**

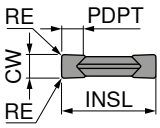
11

Insert GX 09/16

▲ Insert with ground periphery
▲ Suitable also for parting off tubes and thin-walled workpieces

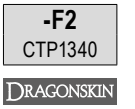
F	M	R





-F2
CTP1340

DRAGONSKIN



70 360 ...

Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	
GX 09-1 E2.00 N 0.20	9	2,0	0,2	1,5	GX 09-1	**600**
GX 09-1 E2.50 N 0.20	9	2,5	0,2	1,5	GX 09-1	**602**
GX 09-2 E3.00 N 0.30	9	3,0	0,3	2,0	GX 09-2	**604**
GX 16-1 E2.00 N 0.20	16	2,0	0,2	2,5	GX 16-1	**650**
GX 16-2 E3.00 N 0.30	16	3,0	0,3	3,0	GX 16-2	**652**
GX 16-3 E4.00 N 0.40	16	4,0	0,4	3,5	GX 16-3	**654**
GX 16-3 E5.00 N 0.40	16	5,0	0,4	3,5	GX 16-3	**656**

P	●
M	●
K	●
N	○
S	●
H	
O	○

→ v_c Page 88
→ Application recommendation on page 89

Internal machining

→ 44+45

→ 49+50

→ 51

External machining

→ 42+43

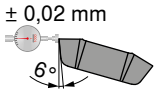
→ 46–48

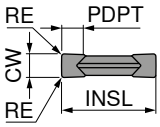
→ 51

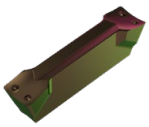
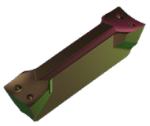
Insert GX 09/16 – Standard

▲ Suitable for parting thin-walled workpieces

F	M	R





CTCP325	CTCP335	CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 350 ...		70 350 ...		70 350 ...	
GX 09-1 E2.00 N 0.20	9	2,0	0,2	1,5	GX 09-1	**984**				**634**	
GX 09-1 E2.50 N 0.20	9	2,5	0,2	1,5	GX 09-1	**988**				**638**	
GX 09-2 E3.00 N 0.30	9	3,0	0,3	2,0	GX 09-2	**992**				**642**	
GX 16-1 E2.00 N 0.20	16	2,0	0,2	2,5	GX 16-1	**900**		**500**		**600**	
GX 16-1 E2.50 N 0.20	16	2,5	0,2	2,5	GX 16-1	**904**		**504**		**604**	
GX 16-2 E3.00 N 0.30	16	3,0	0,3	3,0	GX 16-2	**908**		**508**		**608**	
GX 16-2 E3.00 N 0.50	16	3,0	0,5	3,0	GX 16-2	**910**					
GX 16-2 E3.50 N 0.30	16	3,5	0,3	3,0	GX 16-2	**912**		**512**		**612**	
GX 16-3 E4.00 N 0.40	16	4,0	0,4	3,5	GX 16-3	**916**		**516**		**616**	
GX 16-3 E5.00 N 0.40	16	5,0	0,4	3,5	GX 16-3	**924**		**524**		**624**	
GX 16-4 E6.00 N 0.50	16	6,0	0,5	4,0	GX 16-4	**928**				**628**	
GX 16-4 E6.00 N 0.80	16	6,0	0,8	4,0	GX 16-4	**930**					
P						●		●		●	
M						○		○		●	
K						●		●		●	
N										○	
S						○				●	
H											
O										○	

→ v_c Page 88
→ Application recommendation on page 89

11

Internal machining

→ 44+45

→ 49+50

→ 51

External machining

→ 42+43

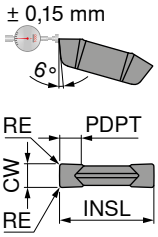
→ 46–48

→ 51

Insert GX 09/16

▲ Very good swarf control

F	M	R



-M40 CTCP325	-M40 CTPP345	-M40 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 351 ...		70 351 ...		70 351 ...	
GX 09-1 E2.00 N 0.20	9	2	0,2	1,5	GX 09-1	986		886		686	
GX 09-2 E3.00 N 0.30	9	3	0,3	2,0	GX 09-2	994		894		694	
GX 16-1 E2.00 N 0.20	16	2	0,2	2,5	GX 16-1	902		802		602	
GX 16-2 E3.00 N 0.30	16	3	0,3	3,0	GX 16-2	910		810		610	
GX 16-3 E4.00 N 0.40	16	4	0,4	3,5	GX 16-3	918		818		618	
GX 16-3 E5.00 N 0.40	16	5	0,4	3,5	GX 16-3	926		826		626	
GX 16-4 E6.00 N 0.50	16	6	0,5	4,0	GX 16-4	930		830		630	
P						●		●		●	
M						○		●		●	
K						●				●	
N										○	
S						○		○		●	
H											
O										○	

→ v_c Page 88
→ Application recommendation on page 89

Internal machining

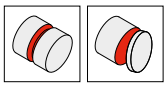
→ 44+45 | → 49+50 | → 51

External machining

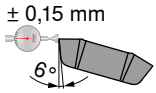
→ 42+43 | → 46–48 | → 51

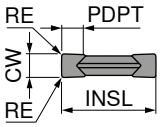
Insert GX 16

▲ Very good swarf control



F	M	R





-M1 CTCP325	-M1 CTPP345	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 362 ...	70 362 ...	70 362 ...
GX 16-1 E2.00 N 0.20	16	2	0,2	2,0	GX 16-1		**800**	**600**
GX 16-2 E3.00 N 0.20	16	3	0,2	2,5	GX 16-2	**902**	**802**	**602**
GX 16-3 E4.00 N 0.30	16	4	0,3	3,0	GX 16-3	**904**		**604**
P						●	●	●
M						○	●	●
K						●		●
N								○
S						○	○	●
H								
O								○

→ v_c Page 88
→ Application recommendation on page 90

Internal machining

→ 44+45

→ 50

→ 51

External machining

→ 42+43

→ 47+48

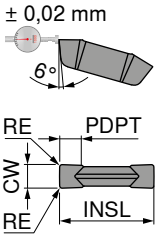
→ 51

11

Insert GX 16

▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ ground periphery

F	M	R



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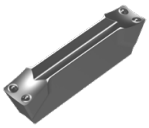


70 350 ...

Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	
GX 16-1 E2.00 N 0.20	16	2	0,2	2,5	GX 16-1	**650**
GX 16-2 E3.00 N 0.30	16	3	0,3	3,0	GX 16-2	**658**
GX 16-3 E4.00 N 0.40	16	4	0,4	3,5	GX 16-3	**670**
GX 16-4 E6.00 N 0.50	16	6	0,5	4,0	GX 16-4	**678**

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 88
→ Application recommendation on page 89

Internal machining

→ 44+45

→ 50

→ 51

External machining

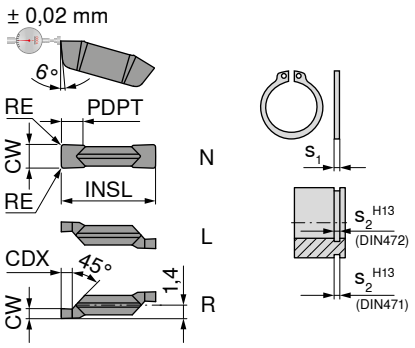
→ 42+43

→ 47+48

→ 51

Circlip groove insert GX 09/16 – Standard

F	M	R



Designation	IH	INSL mm	s_1 mm	s_2 mm	CW +/-0,02 mm	RE +/-0,05 mm	CDX mm	PDPT mm	for tool holder	70 352 ...	70 352 ...
GX 09-1 S1.00 L	L	9	0,80	0,90	1,00		1,14		R/L 02-GX 09-1		**684**
GX 09-1 S1.20 L	L	9	1,00	1,10	1,20		1,34		R/L 02-GX 09-1		**686**
GX 09-1 S1.40 L	L	9	1,20	1,30	1,40		1,53		R/L 02-GX 09-1		**688**
GX 09-1 S1.70 L	L	9	1,50	1,60	1,70		1,82		R/L 02-GX 09-1		**690**
GX 09-1 S1.95 N	N	9	1,75	1,85	1,95	0,1		2,0	GX 09-1	**692**	
GX 09-1 S2.25 N	N	9	2,00	2,15	2,25	0,1		2,0	GX 09-1	**694**	
GX 09-2 S2.75 N	N	9	2,50	2,65	2,75	0,1		2,0	GX 09-2	**696**	
GX 09-2 S3.25 N	N	9	3,00	3,15	3,25	0,1		2,0	GX 09-2	**698**	
GX 09-1 S1.00 R	R	9	0,80	0,90	1,00		1,14		R/L 02-GX 09-1		**676**
GX 09-1 S1.20 R	R	9	1,00	1,10	1,20		1,34		R/L 02-GX 09-1		**678**
GX 09-1 S1.40 R	R	9	1,20	1,30	1,40		1,53		R/L 02-GX 09-1		**680**
GX 09-1 S1.70 R	R	9	1,50	1,60	1,70		1,82		R/L 02-GX 09-1		**682**
GX 16-2 S0.60 L	L	16	0,40	0,50	0,60		0,75		R/L 03-GX 16-2		**607**
GX 16-2 S0.80 L	L	16	0,60	0,70	0,80		0,94		R/L 03-GX 16-2		**609**
GX 16-2 S0.90 L	L	16	0,70	0,80	0,90		1,04		R/L 03-GX 16-2		**611**
GX 16-2 S1.00 L	L	16	0,80	0,90	1,00		1,14		R/L 03-GX 16-2		**612**
GX 16-2 S1.20 L	L	16	1,00	1,10	1,20		1,34		R/L 03-GX 16-2		**614**
GX 16-2 S1.40 L	L	16	1,20	1,30	1,40		1,53		R/L 03-GX 16-2		**616**
GX 16-2 S1.70 L	L	16	1,50	1,60	1,70		1,82		R/L 03-GX 16-2		**618**
GX 16-2 S1.95 L	L	16	1,75	1,85	1,95		2,07		R/L 03-GX 16-2		**620**
GX 16-2 S2.25 L	L	16	2,00	2,15	2,25		2,36		R/L 03-GX 16-2		**622**
GX 16-2 S2.75 N	N	16	2,50	2,65	2,75	0,1		3,0	GX 16-2	**624**	
GX 16-2 S3.25 N	N	16	3,00	3,15	3,25	0,1		3,0	GX 16-2	**626**	
GX 16-3 S4.25 N	N	16	4,00	4,15	4,25	0,2		3,5	GX 16-3	**628**	
GX 16-2 S0.60 R	R	16	0,40	0,50	0,60		0,75		R/L 03-GX 16-2		**695**
GX 16-2 S0.80 R	R	16	0,60	0,70	0,80		0,94		R/L 03-GX 16-2		**697**
GX 16-2 S0.90 R	R	16	0,70	0,80	0,90		1,04		R/L 03-GX 16-2		**699**
GX 16-2 S1.00 R	R	16	0,80	0,90	1,00		1,14		R/L 03-GX 16-2		**600**
GX 16-2 S1.20 R	R	16	1,00	1,10	1,20		1,34		R/L 03-GX 16-2		**602**
GX 16-2 S1.40 R	R	16	1,20	1,30	1,40		1,53		R/L 03-GX 16-2		**604**
GX 16-2 S1.70 R	R	16	1,50	1,60	1,70		1,82		R/L 03-GX 16-2		**606**
GX 16-2 S1.95 R	R	16	1,75	1,85	1,95		2,07		R/L 03-GX 16-2		**608**
GX 16-2 S2.25 R	R	16	2,00	2,15	2,25		2,36		R/L 03-GX 16-2		**610**

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

→ v_c Page 88
→ Application recommendation on page 90

Attention – applies only to internal machining:
Right-hand insert → left-hand module or monobloc boring bar
Left-hand insert → right-hand module or monobloc boring bar

Internal machining

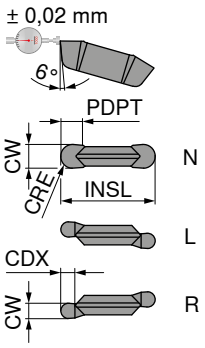
→ 44+45 → 49+50 → 51

External machining

→ 42+43 → 46–48 → 51

Radius groove insert GX 09/16 – Standard

F	M	R



Designation	IH	INSL mm	CW +/-0,02 mm	CRE mm	PDPT mm	CDX mm	for tool holder	70 354 ...	70 354 ...	70 354 ...
GX 09-1 R1.00 N	N	9	2,0	1,0	1,0		GX 09-1		**992**	
GX 09-1 R1.20 N	N	9	2,4	1,2	1,2		GX 09-1		**996**	
GX 16-2 R0.80 L	L	16	1,6	0,8		1,78	R/L 03-GX 16-2	**912**		
GX 16-2 R1.00 L	L	16	2,0	1,0		2,18	R/L 03-GX 16-2	**916**		
GX 16-2 R1.20 L	L	16	2,4	1,2		2,58	R/L 03-GX 16-2	**920**		
GX 16-2 R1.50 N	N	16	3,0	1,5	1,5		GX 16-2		**924**	**624**
GX 16-3 R2.00 N	N	16	4,0	2,0	2,0		GX 16-3		**928**	**628**
GX 16-3 R2.50 N	N	16	5,0	2,5	2,5		GX 16-3		**932**	**632**
GX 16-4 R3.00 N	N	16	6,0	3,0	3,0		GX 16-4		**936**	**636**
GX 16-2 R0.80 R	R	16	1,6	0,8		1,78	R/L 03-GX 16-2	**900**		
GX 16-2 R1.00 R	R	16	2,0	1,0		2,18	R/L 03-GX 16-2	**904**		
GX 16-2 R1.20 R	R	16	2,4	1,2		2,58	R/L 03-GX 16-2	**908**		
P								●	●	●
M								○	○	●
K								●	●	●
N										○
S								○	○	●
H										
O										○

→ v_c Page 88
→ Application recommendation on page 90

Attention – applies only to internal machining:
Right-hand insert → left-hand module or monobloc boring bar
Left-hand insert → right-hand module or monobloc boring bar

Internal machining

→ 44+45

→ 49+50

→ 51

External machining

→ 42+43

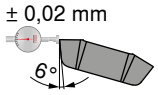
→ 46–48

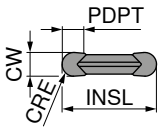
→ 51

Radius groove insert GX 16

▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ ground periphery

F	M	R





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70 354 ...

Designation	INSL mm	CW +/-0,02 mm	CRE mm	PDPT mm	for tool holder	
GX 16-2 R1.50 N	16	3	1,5	1,5	GX 16-2	**674**
GX 16-3 R2.00 N	16	4	2,0	2,0	GX 16-3	**678**
GX 16-3 R2.50 N	16	5	2,5	2,5	GX 16-3	**682**

P	
M	
K	●
N	●
S	○
H	
O	○

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→ Application recommendation on page 90

Internal machining

→ 44+45

→ 50

→ 51

External machining

→ 42+43

→ 47–48

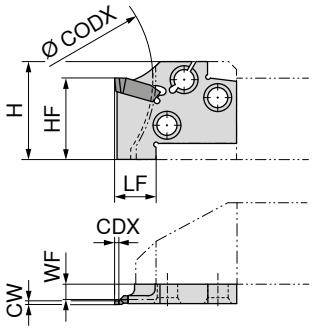
→ 51

11

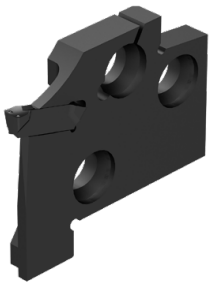
ModularClamp MSS – Radial grooving module GX 09/16

▲ For circlip grooves ≤ 2,75 mm
▲ For radius grooves up to ≤ 1,2 mm
▲ For external recessing

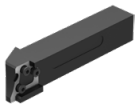
Scope of supply:
Grooving module only



Illustrations show right-hand versions



									Left-hand	Right-hand
									70 871 ...	**70 870 ...**
ISO designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts		
E16 R/L 02-GX 09-1	<1,95	3,15	8	16	19,5	48	2	GX 09-1 ..R/L	**116**	**116**
E20 R/L 03-GX 16-2	<2,75	3,40	13	20	24,0	60	3	GX 16-2 ..R/L	**120**	**120**
E25 R/L 03-GX 16-2	<2,75	4,90	13	25	30,0	75	3	GX 16-2 ..R/L	**125**	**125**

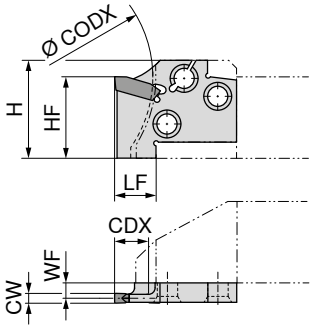


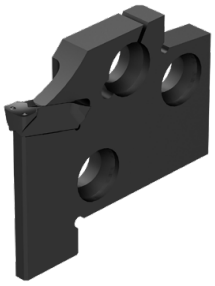
→ 34–41 → 80+81 → 82

ModularClamp MSS – Radial grooving module GX 09/16

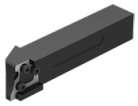
▲ For grooving and turning
▲ For circlip grooves ≤ 5,25 mm
▲ For radius grooves up to ≤ 2,5 mm
▲ For external recessing

Scope of supply:
Grooving module only





									Left-hand		Right-hand
									70 866 ...		**70 865 ...**
ISO designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts			
E16 R/L 07-GX 09-1	2,00 - 2,75	3,15	8	16	19,5	48	7	GX 09-1 ..N	**016**		**016**
E16 R/L 07-GX 09-2	2,76 - 3,75	2,80	8	16	19,5	48	7	GX 09-2 ..N	**116**		**116**
E20 R/L 12-GX 16-1	2,00 - 2,75	3,75	13	20	24,0	60	12	GX 16-1 ..N	**020**		**020**
E20 R/L 12-GX 16-2	2,76 - 3,75	3,40	13	20	24,0	60	12	GX 16-2 ..N	**120**		**120**
E20 R/L 12-GX 16-3	3,76 - 5,00	2,93	13	20	24,0	60	12	GX 16-3 ..N	**220**		**220**
E25 R/L 12-GX 16-1	2,00 - 2,75	5,25	13	25	30,0	75	12	GX 16-1 ..N	**025**		**025**
E25 R/L 12-GX 16-2	2,76 - 3,75	4,90	13	25	30,0	75	12	GX 16-2 ..N	**125**		**125**
E25 R/L 12-GX 16-3	3,76 - 5,00	4,43	13	25	30,0	75	12	GX 16-3 ..N	**225**		**225**
E25 R/L 12-GX 16-4	5,01 - 6,50	3,80	13	25	30,0	75	12	GX 16-4 ..N	**325**		**325**



→ 34–41 → 80+81 → 82

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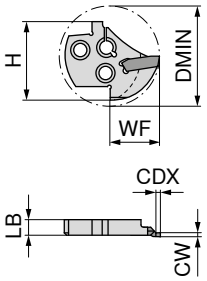
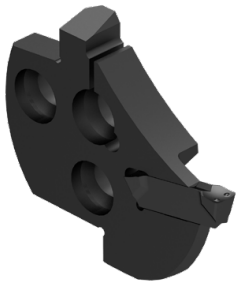
ModularClamp MSS – Radial Grooving module GX 09/16 for Internal machining

▲ For circlip grooves ≤ 2,75 mm
▲ For radius grooves up to ≤ 1,2 mm

Scope of supply:
Grooving module only





Illustrations show right-hand versions

ISO designation	CW mm	LB mm	WF mm	H mm	CDX mm	DMIN mm	for grooving inserts	Left-hand 70 886 ...	Right-hand 70 885 ...
I16 R/L 02-GX 09-1	<1,95	3,8	10,0	16,4	2	20	GX 09-1 ..R/L	**016**	**016**
I20 R/L 02-GX 09-1	<1,95	3,8	12,0	20,3	2	25	GX 09-1 ..R/L	**020**	**020**
I25 R/L 02-GX 09-1	<1,95	3,8	15,5	24,9	2	32	GX 09-1 ..R/L	**025**	**025**
I32 R/L 03-GX 16-2	<2,75	5,9	20,0	32,2	3	40	GX 16-2 ..R/L	**032**	**032**
I40 R/L 03-GX 16-2	<2,75	5,9	24,5	39,6	3	50	GX 16-2 ..R/L	**040**	**040**

Right hand module → left hand insert only
Left hand module → right hand insert only

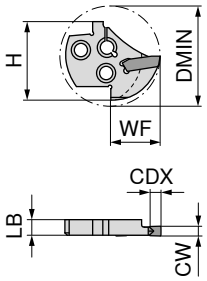
→ 34–41

→ 83

ModularClamp MSS – Radial Grooving module GX 09/16 for Internal machining

▲ For circlip grooves ≤ 5,25 mm
▲ For radius grooves up to ≤ 2,5 mm

Scope of supply:
Grooving module only



Illustrations show right-hand versions

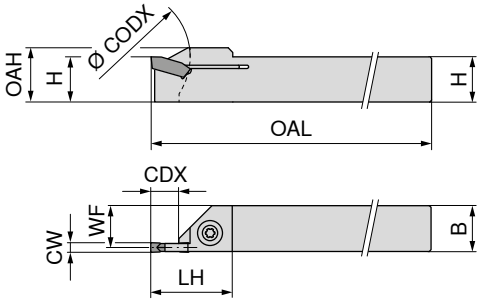
ISO designation	CW mm	LB mm	WF mm	H mm	CDX mm	DMIN mm	for grooving inserts	Left-hand 70 881 ...	Right-hand 70 880 ...
I16 R/L 04-GX 09-1	2,00 - 2,75	3,8	10,0	16,4	4	20	GX 09-1 ..N	**017**	**017**
I16 R/L 04-GX 09-2	2,76 - 3,75	3,8	10,0	16,4	4	20	GX 09-2 ..N	**117**	**117**
I20 R/L 05-GX 09-1	2,00 - 2,75	3,8	12,0	20,3	5	25	GX 09-1 ..N	**021**	**021**
I20 R/L 05-GX 09-2	2,76 - 3,75	3,8	12,0	20,3	5	25	GX 09-2 ..N	**121**	**121**
I25 R/L 06-GX 09-1	2,00 - 2,75	3,8	15,5	24,9	6	32	GX 09-1 ..N	**026**	**026**
I25 R/L 06-GX 09-2	2,76 - 3,75	3,8	15,5	24,9	6	32	GX 09-2 ..N	**126**	**126**
I32 R/L 09-GX 16-1	2,00 - 2,75	5,9	20,0	32,2	9	40	GX 16-1 ..N	**033**	**033**
I32 R/L 09-GX 16-2	2,76 - 3,75	5,9	20,0	32,2	9	40	GX 16-2 ..N	**133**	**133**
I32 R/L 09-GX 16-3	3,76 - 5,00	5,9	20,0	32,2	9	40	GX 16-3 ..N	**233**	**233**
I32 R/L 09-GX 16-4	5,01 - 6,50	5,9	20,0	32,2	9	40	GX 16-4 ..N	**333**	**333**
I40 R/L 10-GX 16-1	2,00 - 2,75	5,9	24,5	39,6	10	50	GX 16-1 ..N	**041**	**041**
I40 R/L 10-GX 16-2	2,76 - 3,75	5,9	24,5	39,6	10	50	GX 16-2 ..N	**141**	**141**
I40 R/L 10-GX 16-3	3,76 - 5,00	5,9	24,5	39,6	10	50	GX 16-3 ..N	**241**	**241**
I40 R/L 10-GX 16-4	5,01 - 6,50	5,9	24,5	39,6	10	50	GX 16-4 ..N	**341**	**341**

→ 34–41

→ 83

MonoClamp – Radial Monoholder GX 09

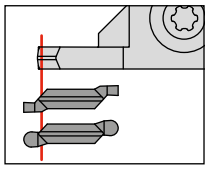
Scope of supply:
Mono holder incl. Torx key and clamping screw



Illustrations show right-hand versions

											Left-hand	Right-hand
											70 863 ...	**70 862 ...**
ISO designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	CODX mm	CDX mm	for grooving inserts		
E10 R/L 00-1010M-GX09	10	10	2,00 - 3,50	9,35	12	150	18	30	7	GX 09 ..	**010**	**010**

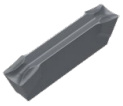
When using 'R' or 'L' tools the tool must be modified at the end face to ensure cutting clerance.



Key D

Clamping screw

Spare parts for grooving inserts				
		80 950 ...		**70 950 ...**
GX 09 ..	T15	**113**	M4x11	**442**

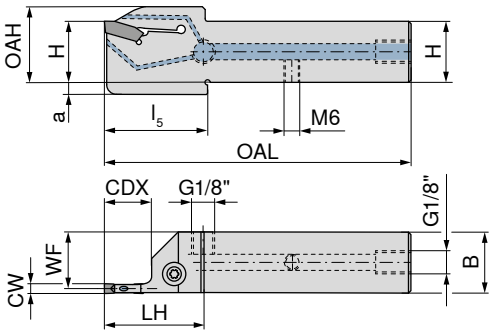


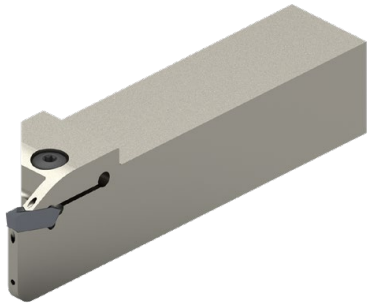
→ 34–40 → **Chapter 16**

MonoClamp – Radial Monoholder GX-DC 16

Scope of supply:
Mono holder incl. Torx key and clamping screw

Direct Cooling





Illustrations show right-hand versions

ISO designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l_5 mm	a mm	CDX mm	for grooving inserts	Left-hand 70 842 ...	Right-hand 70 842 ...
E16 R/L 0013S2-1616X-S-DC-GX16	16	16	2	15,20	21	90	35	36	4	13	GX 16-1 E2..	**21601**	**21600**
E16 R/L 0013S3-1616X-S-DC-GX16	16	16	3	14,85	21	90	35	36	4	13	GX 16-2 E3..	**31601**	**31600**
E16 R/L 0013S4-1616X-S-DC-GX16	16	16	4	14,40	21	90	35	36	4	13	GX 16-3 E4..	**41601**	**41600**
E16 R/L 0013S5-1616X-S-DC-GX16	16	16	5	14,00	21	90	35	36	4	13	GX 16-3 E5..	**51601**	**51600**
E20 R/L 0013S2-2020X-S-DC-GX16	20	20	2	19,20	25	104	35			13	GX 16-1 E2..	**22001**	**22000**
E20 R/L 0013S3-2020X-S-DC-GX16	20	20	3	18,85	25	104	35			13	GX 16-2 E3..	**32001**	**32000**
E20 R/L 0013S4-2020X-S-DC-GX16	20	20	4	18,40	25	104	35			13	GX 16-3 E4..	**42001**	**42000**
E20 R/L 0013S5-2020X-S-DC-GX16	20	20	5	18,00	25	104	35			13	GX 16-3 E5..	**52001**	**52000**
E25 R/L 0013S3-2525X-S-DC-GX16	25	25	3	23,85	30	119	35			13	GX 16-2 E3..	**32501**	**32500**
E25 R/L 0013S4-2525X-S-DC-GX16	25	25	4	23,40	30	119	35			13	GX 16-3 E4..	**42501**	**42500**
E25 R/L 0013S5-2525X-S-DC-GX16	25	25	5	23,00	30	119	35			13	GX 16-3 E5..	**52501**	**52500**

Key D

Clamping screw

Spare parts for grooving inserts		Key D 80 950 ...		Clamping screw 70 950 ...
GX 16-1 E2..	T15 - IP	**128**	M5x18 - 15IP	**865**
GX 16-2 E3..	T15 - IP	**128**	M5x18 - 15IP	**865**
GX 16-3 E4..	T15 - IP	**128**	M5x18 - 15IP	**865**
GX 16-3 E5..	T15 - IP	**128**	M5x18 - 15IP	**865**

→ 34–41

→ **Chapter 16**

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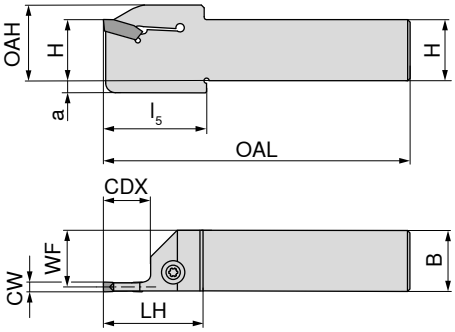
MonoClamp – Radial Monoholder GX 16

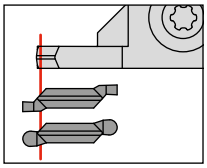
Scope of supply:
Mono holder incl. Torx key and clamping screw



Illustrations show right-hand versions

ISO designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l_5 mm	a mm	CDX mm	for grooving inserts	Left-hand 70 843 ...	Right-hand 70 843 ...
E12 R/L 0013S2-1212K-S-GX16	12	12	2	11,20	17	125	25	26	4	13	GX 16-1 E2..	**21201**	**21200**
E12 R/L 0013S3-1212K-S-GX16	12	12	3	10,85	17	125	25	26	4	13	GX 16-2 E3..	**31201**	**31200**
E16 R/L 0013S2-1616K-S-GX16	16	16	2	15,20	21	125	25	26	4	13	GX 16-1 E2..	**21601**	**21600**
E16 R/L 0013S3-1616K-S-GX16	16	16	3	14,85	21	125	25	26	4	13	GX 16-2 E3..	**31601**	**31600**
E16 R/L 0013S4-1616K-S-GX16	16	16	4	14,40	21	125	25	26	4	13	GX 16-3 E4..	**41601**	**41600**
E16 R/L 0013S5-1616K-S-GX16	16	16	5	14,00	21	125	25	26	4	13	GX 16-3 E5..	**51601**	**51600**
E20 R/L 0013S2-2020K-S-GX16	20	20	2	19,20	25	125	25			13	GX 16-1 E2..	**22001**	**22000**
E20 R/L 0013S3-2020K-S-GX16	20	20	3	18,85	25	125	25			13	GX 16-2 E3..	**32001**	**32000**
E20 R/L 0013S4-2020K-S-GX16	20	20	4	18,40	25	125	25			13	GX 16-3 E4..	**42001**	**42000**
E20 R/L 0013S5-2020K-S-GX16	20	20	5	18,00	25	125	25			13	GX 16-3 E5..	**52001**	**52000**
E25 R/L 0013S3-2525M-S-GX16	25	25	3	23,85	30	150	25			13	GX 16-2 E3..	**32501**	**32500**
E25 R/L 0013S4-2525M-S-GX16	25	25	4	23,40	30	150	25			13	GX 16-3 E4..	**42501**	**42500**
E25 R/L 0013S5-2525M-S-GX16	25	25	5	23,00	30	150	25			13	GX 16-3 E5..	**52501**	**52500**

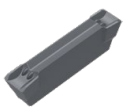
When using 'R' or 'L' tools the tool must be modified at the end face to ensure cutting clerance.



Key D

Clamping screw

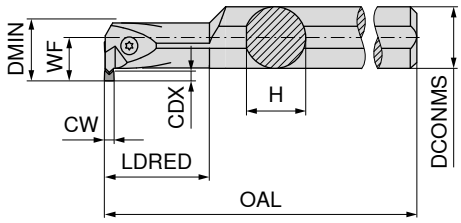
Spare parts for grooving inserts		80 950 ...		70 950 ...
GX 16-1 E2..	T15 - IP	**128**	M5x18 - 15IP	**865**
GX 16-2 E3..	T15 - IP	**128**	M5x18 - 15IP	**865**
GX 16-3 E4..	T15 - IP	**128**	M5x18 - 15IP	**865**
GX 16-3 E5..	T15 - IP	**128**	M5x18 - 15IP	**865**



→ 34–41 → **Chapter 16**

MonoClamp – Radial Mono-boring bars GX 09

Scope of supply:
Boring bar incl. key and clamping screw

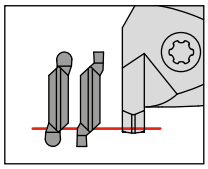


Illustrations show right-hand versions

ISO designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	Left-hand 70 859 ...	Right-hand 70 858 ...
I12 R/L 90-2,5D-GX09	15,25	16	16	2,00 - 3,75	3	11	150	30	GX 09 ..	**012**	**012**

Right hand boring bar → left hand insert only
Left hand boring bar → right hand insert only

When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.



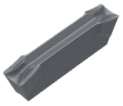
Key D

80 950 ...

Clamping screw

70 950 ...

Spare parts for grooving inserts				
GX 09 ..	T15	**113**	M3,5x12,5	**441**



→ 34–40 → **Chapter 16**

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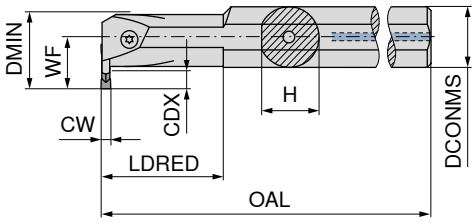
MonoClamp – Radial Mono-boring bars GX 16

Scope of supply:
Boring bar incl. key and clamping screw

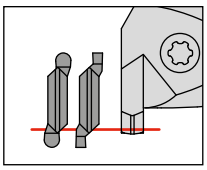


Illustrations show right-hand versions

										Left-hand	Right-hand
										70 893 ...	**70 892 ...**
ISO designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts		
I16 R/L 90-2.0D-GX16-1	15,25	16	20,5	2,00 - 2,75	5,0	13,5	150	32	GX 16-1	**516**	**516**
I16 R/L 90-2.0D-GX16-2	15,25	16	20,5	2,76 - 3,75	5,0	13,5	150	32	GX 16-2	**616**	**616**
I20 R/L 90-2.0D-GX16-2	19,00	20	25,0	2,76 - 3,75	5,5	15,5	180	40	GX 16-2	**620**	**620**
I25 R/L 90-2.0D-GX16-2	24,00	25	32,0	2,76 - 3,75	8,0	20,5	200	50	GX 16-2	**625**	**625**
I25 R/L 90-2.0D-GX16-3	24,00	25	32,0	3,76 - 5,00	10,0	22,5	200	50	GX 16-3	**725**	**725**
I32 R/L 90-2.0D-GX16-2	31,00	32	42,0	2,76 - 3,75	11,0	27,5	250	64	GX 16-2	**632**	**632**
I32 R/L 90-2.0D-GX16-3	31,00	32	42,0	3,76 - 5,00	11,0	27,5	250	64	GX 16-3	**732**	**732**

Right hand boring bar⟶ left hand insert only
Left hand boring bar⟶ right hand insert only

When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.



Key D

Clamping screw

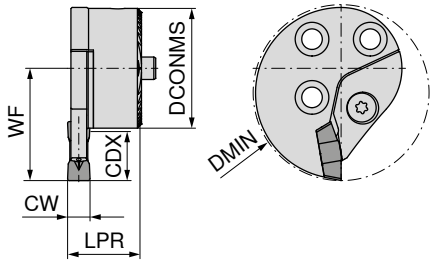
Spare parts for grooving inserts				
		80 950 ...		**70 950 ...**
GX 16-1	T15	**113**	M4x14	**403**
GX 16-2	T15	**113**	M4x14	**403**
GX 16-3	T15	**113**	M4x14	**403**

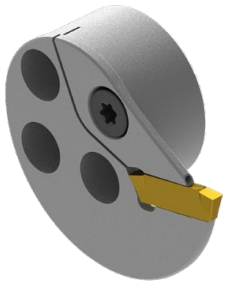
→ 34–41 → **Chapter 16**

MaxiChange-GX – GX-DC 16 exchangeable grooving head

▲ For grooving and turning

Scope of supply:
Exchangeable grooving head with clamping claw and clamping screw

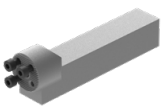




Illustrations show right-hand versions

ISO designation	DCONMS mm	CW mm	WF mm	LPR mm	DMIN mm	CDX mm	for grooving inserts	NEW Left-hand 84 188 ...	NEW Right-hand 84 189 ...
WK25 R/L 14-DC GX 16-S2	25	2	27	14,00	41	14	GX 16-1 ..N	**22500**	**22500**
WK25 R/L 14-DC GX 16-S3	25	3	27	14,75	41	14	GX 16-2 ..N	**32500**	**32500**
WK25 R/L 14-DC GX 16-S4/5	25	4/5	27	15,75	41	14	GX 16-3 ..N	**42500**	**42500**
WK32 R/L 13-DC GX 16-S4/5	32	4/5	30	17,75	47	13	GX 16-3 ..N	**43200**	**43200**
WK32 R/L 13-DC GX 16-S6	32	6	30	19,35	47	13	GX 16-3 ..N	**63200**	**63200**

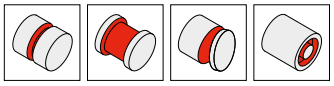
Spare parts for Article no.	Clamping claw 84 950 ...		O-Ring 84 950 ...		Clamping screw 84 950 ...		Guide pin 84 950 ...
84 189 22500	**50400**	2x1	**50300**	M4X4/T15	**50000**	D3H6X10	**53000**
84 188 22500	**50500**	2x1	**50300**	M4X4/T15	**50000**	D3H6X10	**53000**
84 189 32500	**50600**	2x1	**50300**	M4X4/T15	**50000**	D3H6X10	**53000**
84 188 32500	**50700**	2x1	**50300**	M4X4/T15	**50000**	D3H6X10	**53000**
84 189 42500	**50800**	2x1	**50300**	M4X4/T15	**50000**	D3H6X10	**53000**
84 188 42500	**50900**	2x1	**50300**	M4X4/T15	**50000**	D3H6X10	**53000**
84 189 43200	**51000**	2x1	**50300**	M5X5,5/T15	**50100**	D4H6X10	**53100**
84 188 43200	**51100**	2x1	**50300**	M5X5,5/T15	**50100**	D4H6X10	**53100**
84 189 63200	**51200**	2x1	**50300**	M5X5,5/T15	**50100**	D4H6X10	**53100**
84 188 63200	**51300**	2x1	**50300**	M5X5,5/T15	**50100**	D4H6X10	**53100**



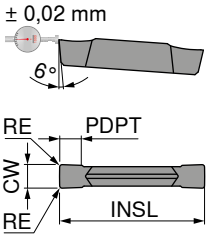
→ 34–41 → **Chapter 9**

Insert GX 24

▲ Insert with ground periphery
▲ Suitable also for parting off tubes and thin-walled workpieces



F	M	R



-F2 CTCP325	-F2 CTPP345	-F2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN

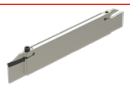
Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 350 ...	70 350 ...	70 350 ...
GX 24-2 E3.00 N 0.30	24	3,0	0,3	2,5	GX 24-2	**962**	**862**	**662**
GX 24-2 E3.50 N 0.30	24	3,5	0,3	2,5	GX 24-2		**864**	
GX 24-3 E4.00 N 0.40	24	4,0	0,4	3,0	GX 24-3	**966**	**866**	**666**
GX 24-3 E5.00 N 0.40	24	5,0	0,4	3,5	GX 24-3	**970**	**870**	**671**
GX 24-4 E6.00 N 0.50	24	6,0	0,5	4,0	GX 24-4		**872**	**672**
P						●	●	●
M						○	●	●
K						●		●
N								○
S						○	○	●
H								
O								○

→ v_c Page 88
→ Application recommendation on page 89

Internal machining

→ 63 | → 67+68

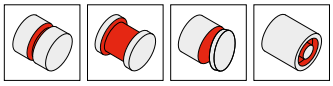
External machining



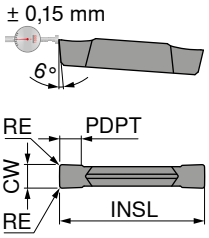
→ 60–62 | → 64 | → 65+66 | → 69 | → 70

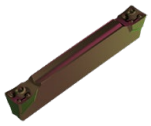
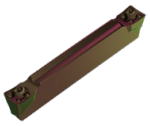
Insert GX 24

▲ Universal application
▲ First choice for axial grooving



F	M	R



-E CTCP325	-E CTCP335	-E CTPP345	-E CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
			

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 350 ...		70 350 ...		70 350 ...		70 350 ...	
GX 24-2 E3.00 N 0.30	24	3	0,3	2,5	GX 24-2	**932**		**532**		**832**		**632**	
GX 24-3 E4.00 N 0.40	24	4	0,4	3,0	GX 24-3	**936**		**536**		**836**		**636**	
GX 24-3 E5.00 N 0.40	24	5	0,4	3,0	GX 24-3	**940**		**540**		**840**		**640**	
GX 24-4 E6.00 N 0.50	24	6	0,5	3,5	GX 24-4	**944**		**544**		**844**		**644**	
P						●		●		●		●	
M						○		○		●		●	
K						●		●				●	
N												○	
S						○				○		●	
H													
O												○	

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→ Application recommendation on page 89

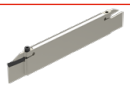
Internal machining

→ 63

→ 67+68

External machining

→ 60–62


→ 64

→ 65+66

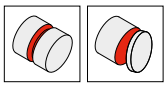
→ 69

→ 70

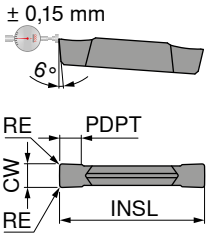
11

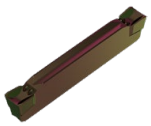
Insert GX 24

▲ Very good swarf control



F	M	R



-M1 CTCP325	-M1 CTPP345	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	for tool holder	70 363 ...	70 363 ...	70 363 ...
GX 24-1 E2.00 N 0.20	24	2	0,2	GX 24-1	**900**	**800**	**600**
GX 24-2 E3.00 N 0.20	24	3	0,2	GX 24-2	**902**	**802**	**602**
GX 24-3 E4.00 N 0.30	24	4	0,3	GX 24-3	**904**	**804**	**604**
P					●	●	●
M					○	●	●
K					●		●
N							○
S					○	○	●
H							
O							○

→ v_c Page 88
→ Application recommendation on page 90

Internal machining

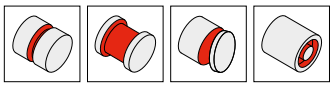
→ 63 | → 67+68

External machining

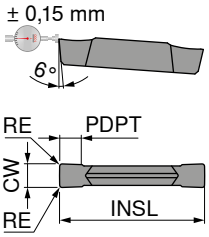
→ 60–63 | → 64 | → 65+66 | → 69

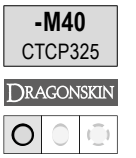
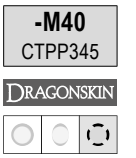
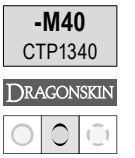
Insert GX 24

▲ Very good swarf control



F	M	R



-M40 CTCP325	-M40 CTPP345	-M40 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 364 ...		70 364 ...		70 364 ...	
GX 24-2 E3.00 N 0.30	24	3	0,3	3,5	GX 24-2	**900**		**800**		**600**	
GX 24-3 E4.00 N 0.40	24	4	0,4	4,0	GX 24-3	**902**		**802**		**602**	
GX 24-3 E5.00 N 0.40	24	5	0,4	4,0	GX 24-3	**904**		**804**		**604**	
GX 24-4 E6.00 N 0.50	24	6	0,5	4,0	GX 24-4	**906**		**806**		**606**	
P						●		●		●	
M						○		●		●	
K						●				●	
N										○	
S						○		○		●	
H											
O										○	

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→ Application recommendation on page 89

Internal machining

→ 63

→ 67+68

External machining

→ 60–63

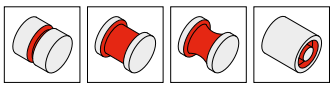
→ 64

→ 65+66

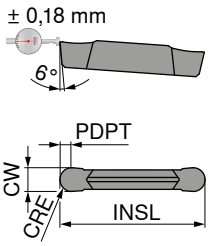
→ 69

→ 70

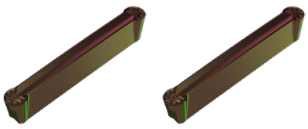
Radius groove insert GX 24



F	M	R



-M3 CTCP325	-M3 CTCP335
DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW +/-0,05 mm	CRE mm	PDPT mm	for tool holder	70 354 ...		70 354 ...	
GX 24-2 R1.50 N	24,4	3	1,5	1,5	GX 24-2	**952**		**552**	
GX 24-3 R2.00 N	24,4	4	2,0	2,5	GX 24-3	**954**		**554**	
GX 24-3 R2.50 N	24,4	5	2,5	3,0	GX 24-3	**956**		**556**	
GX 24-4 R3.00 N	24,4	6	3,0	4,0	GX 24-4	**958**		**558**	
P						●		●	
M						○		○	
K						●		●	
N									
S						○			
H									
O									

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→ Application recommendation on page 90

Internal machining

→ 63

→ 67+68

External machining

→ 60–63

→ 64

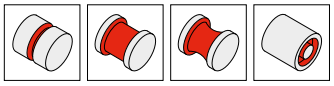
→ 65+66

→ 69

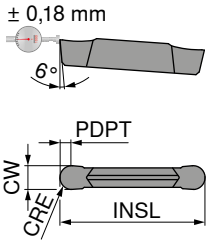
→ 70

Radius groove insert GX 24

▲ Suitable for the machining of tough and ductile materials

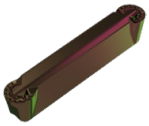


F	M	R



-M33
CTCP325

DRAGONSKIN



70 365 ...

Designation	INSL mm	CW +/-0,05 mm	CRE mm	PDPT mm	for tool holder	
GX 24-2 R1.50 N	24,4	3	1,5	1,5	GX 24-2	**95200**
GX 24-3 R2.00 N	24,4	4	2,0	2,5	GX 24-3	**95400**
GX 24-3 R2.50 N	24,4	5	2,5	3,0	GX 24-3	**95600**
GX 24-4 R3.00 N	24,4	6	3,0	4,0	GX 24-4	**95800**

P	●
M	○
K	●
N	
S	○
H	
O	

→ v_c Page 88
→ Application recommendation on page 90

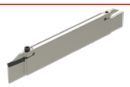
Internal machining

→ 63

→ 67+68

External machining

→ 60–63


→ 64

→ 65+66

→ 69

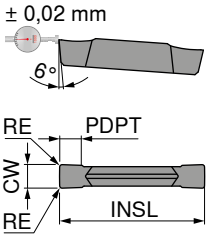
→ 70

11

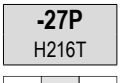
Insert GX 24

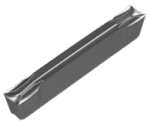
▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ ground periphery

F	M	R



-27P
H216T





70 350 ...

Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	
GX 24-2 E3.00 N 0.30	24	3	0,3	2,5	GX 24-2	**682**
GX 24-3 E4.00 N 0.40	24	4	0,4	3,0	GX 24-3	**684**
GX 24-3 E5.00 N 0.40	24	5	0,4	3,5	GX 24-3	**686**
GX 24-4 E6.00 N 0.50	24	6	0,5	4,0	GX 24-4	**688**

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 88
→ Application recommendation on page 89

Internal machining

→ 63

→ 67+68

External machining

→ 60–63

→ 64

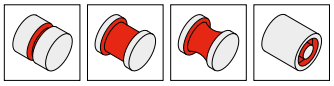
→ 65+66

→ 69

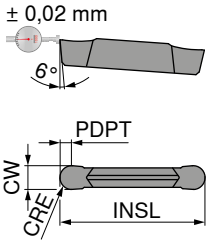
→ 70

Radius grooving insert GX 24

▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ ground periphery



F	M	R



-27PF
H216T

70 353 ...

Designation	INSL mm	CW +/-0,02 mm	CRE mm	PDPT mm	for tool holder	
GX 24-4 R3.00 N	25,4	6	3	4	GX 24-4	**500**
GX 24-5 R4.00 N	25,4	8	4	5	GX 24-5	**506**

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 88
→ Application recommendation on page 90

Internal machining

→ 63

→ 67+68

External machining

→ 60–63

→ 64

→ 65+66

→ 69

→ 70

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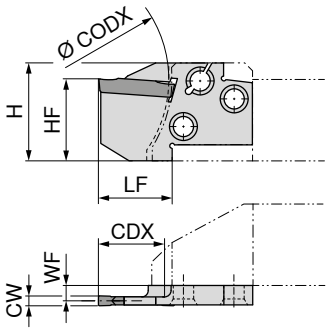
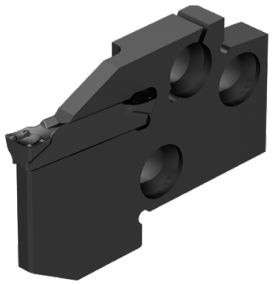
ModularClamp MSS – Radial grooving module GX 24

▲ For deep radial parting and grooving
▲ For turning

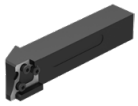
Scope of supply:
Grooving module only





Illustrations show right-hand versions

ISO designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 868 ...		Right-hand 70 867 ...	
E20 R/L 21-GX 24-1	2,00 - 2,75	3,60	22	20	24	60	21	GX 24-1	**020**		**020**	
E20 R/L 21-GX 24-2	3	3,40	22	20	24	60	21	GX 24-2	**120**		**120**	
E20 R/L 21-GX 24-3	4/5	2,93	22	20	24	30	21	GX 24-3	**22000**		**22000**	
E25 R/L 21-GX 24-1	2,00 - 2,75	5,10	22	25	30	75	21	GX 24-1	**025**		**025**	
E25 R/L 21-GX 24-2	3	4,90	22	25	30	75	21	GX 24-2	**125**		**125**	
E25 R/L 21-GX 24-3	4/5	4,43	22	25	30	75	21	GX 24-3	**225**		**225**	
E25 R/L 21-GX 24-4	6	3,80	22	25	30	75	21	GX 24-4	**325**		**325**	
E25 R/L 21-GX 24-5	8	2,95	23	25	30	75	21	GX 24-5	**425**		**425**	

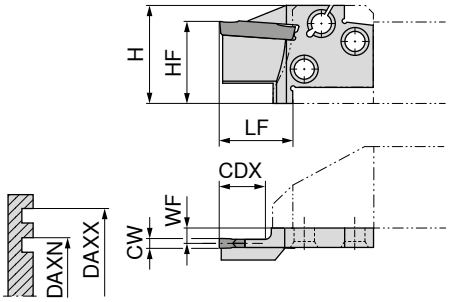


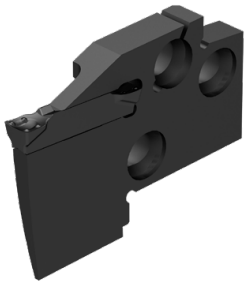
→ 52–59 → 80+81 → 82

ModularClamp MSS – Axial grooving module GX 24 short

▲ For axial grooving
▲ For face turning

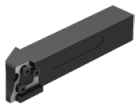
Scope of supply:
Grooving module only





Illustrations show right-hand versions

ISO designation	DAXN mm	DAXX mm	CW mm	WF mm	LF mm	HF mm	H mm	CDX mm	for grooving inserts	Left-hand 70 891 ...	Right-hand 70 890 ...
E20 R/L 14-GX 24-2 A	50	70	3	3,40	22	20	24	14	GX 24-2	**100**	**100**
E20 R/L 14-GX 24-2 A	70	100	3	3,40	22	20	24	14	GX 24-2	**102**	**102**
E20 R/L 14-GX 24-2 A	100	150	3	3,40	22	20	24	14	GX 24-2	**104**	**104**
E25 R/L 15-GX 24-2 A	50	70	3	4,90	22	25	30	15	GX 24-2	**200**	**200**
E25 R/L 15-GX 24-2 A	70	100	3	4,90	22	25	30	15	GX 24-2	**202**	**202**
E25 R/L 15-GX 24-2 A	100	150	3	4,90	22	25	30	15	GX 24-2	**204**	**204**
E25 R/L 15-GX 24-3 A	50	70	4/5	4,43	22	25	30	15	GX 24-3	**206**	**206**
E25 R/L 15-GX 24-3 A	70	100	4/5	4,43	22	25	30	15	GX 24-3	**208**	**208**
E25 R/L 15-GX 24-3 A	100	150	4/5	4,43	22	25	30	15	GX 24-3	**210**	**210**
E25 R/L 15-GX 24-3 A	150	300	4/5	4,43	22	25	30	15	GX 24-3	**212**	**212**
E25 R/L 15-GX 24-4 A	50	70	6	3,80	22	25	30	15	GX 24-4	**214**	**214**
E25 R/L 15-GX 24-4 A	70	100	6	3,80	22	25	30	15	GX 24-4	**216**	**216**
E25 R/L 15-GX 24-4 A	100	150	6	3,80	22	25	30	15	GX 24-4	**218**	**218**
E25 R/L 15-GX 24-4 A	150	300	6	3,80	22	25	30	15	GX 24-4	**220**	**220**

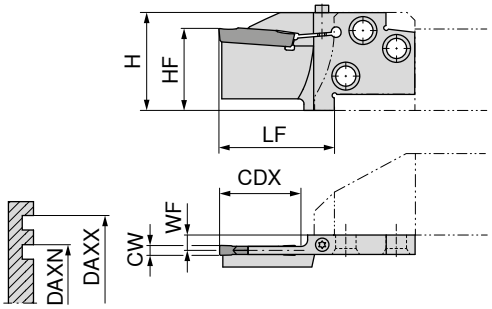


→ 52–59 → 80+81 → 82

ModularClamp MSS – Axial grooving module GX 24 long

▲ For axial grooving
▲ For face turning

Scope of supply:
Grooving module only



Illustrations show right-hand versions

ISO designation	DAXN mm	DAXX mm	CW mm	WF mm	LF mm	HF mm	H mm	CDX mm	for grooving inserts	Left-hand 70 895 ...	Right-hand 70 894 ...
E25 R/L 21-GX 24-3 AS	50	70	4/5	4,53	35	25	30	21	GX 24-3	**200**	**200**
E25 R/L 21-GX 24-3 AS	70	100	4/5	4,53	35	25	30	21	GX 24-3	**202**	**202**
E25 R/L 21-GX 24-3 AS	100	150	4/5	4,53	35	25	30	21	GX 24-3	**204**	**204**
E25 R/L 21-GX 24-3 AS	150	300	4/5	4,53	35	25	30	21	GX 24-3	**206**	**206**
E25 R/L 25-GX 24-4 AS	50	70	6	3,90	35	25	30	25	GX 24-4	**210**	**210**
E25 R/L 25-GX 24-4 AS	70	100	6	3,90	35	25	30	25	GX 24-4	**212**	**212**
E25 R/L 25-GX 24-4 AS	100	150	6	3,90	35	25	30	25	GX 24-4	**214**	**214**
E25 R/L 25-GX 24-4 AS	150	300	6	3,90	35	25	30	25	GX 24-4	**216**	**216**

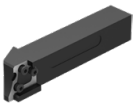
Axial modules version „GX 24 long“ can be clamped on both sides.

Key D

Clamping screw

Spare parts for grooving inserts		Key D 80 950 ...		Clamping screw 70 950 ...
GX 24-3	T15	**113**	M3,5x14	**160**
GX 24-4	T15	**113**	M3,5x14	**160**

→ 52–59



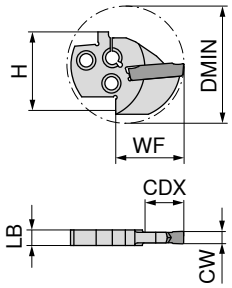
→ 80+81

→ 82

ModularClamp MSS – Radial Grooving module GX 24 for Internal machining

▲ for grooving and turning

Scope of supply:
Grooving module only



Neutral

70 880 ...

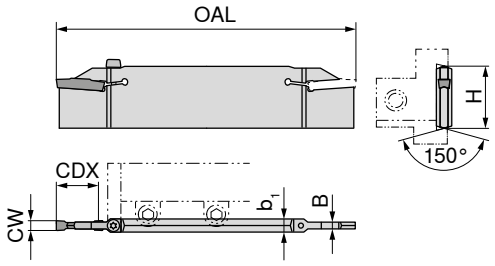
ISO designation	CW mm	LB mm	WF mm	H mm	CDX mm	DMIN mm	for grooving inserts	
I40 N 19-GX 24-2	2,76 - 3,75	6,2	33,5	40,7	19	60	GX 24-2 ..N	**340**
I40 N 19-GX 24-3	3,76 - 5,00	6,2	33,5	40,7	19	60	GX 24-3 ..N	**440**
I40 N 19-GX 24-4	5,01 - 6,50	6,2	33,5	40,7	19	60	GX 24-4 ..N	**540**

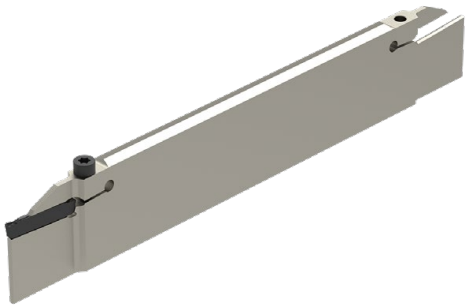
→ 52–59 → 83

11

MonoClamp – Radial Blade GX 24

Scope of supply:
Blade incl. key and clamping screw





ISO designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CDX mm	for grooving inserts	70 834 ...
XLCF N 3203-GX24-1S	2	32	1,05	6,2	180	21	GX 24-1	**102**
XLCF N 3203-GX24-2S	3	32	2,10	6,2	180	21	GX 24-2	**103**
XLCF N 3204-GX24-3S	4/5	32	3,05	6,2	180	21	GX 24-3	**104**
XLCF N 3206-GX24-4S	6	32	4,20	6,2	180	21	GX 24-4	**106**

Key D

80 950 ...

Clamping screw

70 950 ...

Spare parts for grooving inserts				
GX 24-1	T15	**113**	M3,5x14	**160**
GX 24-2	T15	**113**	M3,5x14	**160**
GX 24-3	T15	**113**	M3,5x14	**160**
GX 24-4	T15	**113**	M3,5x14	**160**

→ 52–59

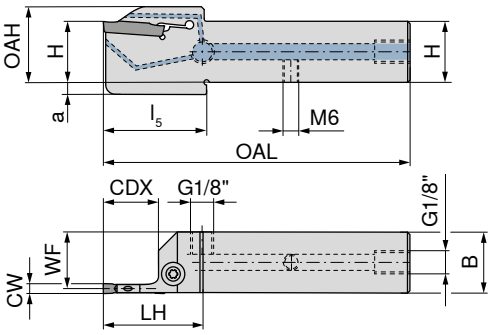
→ 85+86

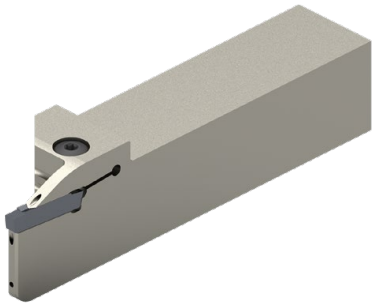
→ **Chapter 16**

MonoClamp – Radial Monoholder GX-DC 24

Scope of supply:
Mono holder incl. key and clamping screw

Direct Cooling





Illustrations show right-hand versions

ISO designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l_5 mm	CDX mm	a mm	for grooving inserts	Left-hand 70 844 ...	Right-hand 70 844 ...
E16 R/L 0021S2-1616X-S-DC-GX24	16	16	2	15,2	22	94	39	40	21	4	GX 24-1 E2..	**21601**	**21600**
E16 R/L 0021S3-1616X-S-DC-GX24	16	16	3	14,8	22	94	39	40	21	4	GX 24-2 E3..	**31601**	**31600**
E20 R/L 0021S2-2020X-S-DC-GX24	20	20	2	19,2	26	109	40		21		GX 24-1 E2..	**22001**	**22000**
E20 R/L 0021S3-2020X-S-DC-GX24	20	20	3	18,8	26	109	40		21		GX 24-2 E3..	**32001**	**32000**
E20 R/L 0021S4-2020X-S-DC-GX24	20	20	4	18,3	26	109	40		21		GX 24-3 E4..	**42001**	**42000**
E20 R/L 0021S5-2020X-S-DC-GX24	20	20	5	18,0	26	109	40		21		GX 24-3 E5..	**52001**	**52000**
E25 R/L 0021S3-2525X-S-DC-GX24	25	25	3	23,8	31	124	40		21		GX 24-2 E3..	**32501**	**32500**
E25 R/L 0021S4-2525X-S-DC-GX24	25	25	4	23,3	31	124	40		21		GX 24-3 E4..	**42501**	**42500**
E25 R/L 0021S5-2525X-S-DC-GX24	25	25	5	23,0	31	124	40		21		GX 24-3 E5..	**52501**	**52500**
E25 R/L 0021S6-2525X-S-DC-GX24	25	25	6	22,5	31	124	40		21		GX 24-4 E6..	**62501**	**62500**

Key D

Clamping screw

Spare parts for grooving inserts		80 950 ...		70 950 ...
GX 24-1 E2..	T15 - IP	**128**	M5x18 - 15IP	**865**
GX 24-2 E3..	T15 - IP	**128**	M5x18 - 15IP	**865**
GX 24-3 E4..	T15 - IP	**128**	M5x18 - 15IP	**865**
GX 24-3 E5..	T15 - IP	**128**	M5x18 - 15IP	**865**
GX 24-4 E6..	T15 - IP	**128**	M5x18 - 15IP	**865**

→ 52–59 → **Chapter 16**

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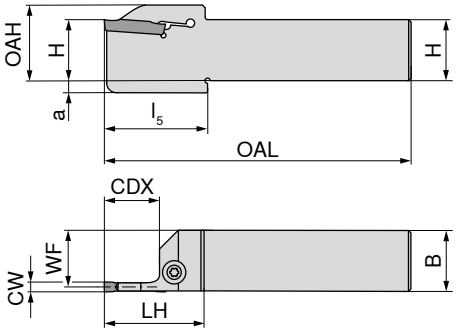
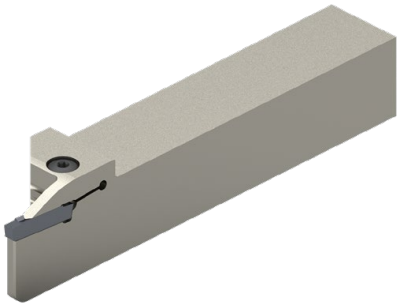
MonoClamp – Radial Monoholder GX 24

Scope of supply:
Mono holder incl. key and clamping screw





Illustrations show right-hand versions

ISO designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l_5 mm	CDX mm	a mm	for grooving inserts	Left-hand 70 845 ...	Right-hand 70 845 ...
E16 R/L 0021S2-1616K-S-GX24	16	16	2	15,2	22	125	39	40	21	4	GX 24-1 E2..	**21601**	**21600**
E16 R/L 0021S3-1616K-S-GX24	16	16	3	14,8	22	125	39	40	21	4	GX 24-2 E3..	**31601**	**31600**
E20 R/L 0021S2-2020K-S-GX24	20	20	2	19,2	26	125	40		21		GX 24-1 E2..	**22001**	**22000**
E20 R/L 0021S3-2020K-S-GX24	20	20	3	18,8	26	125	40		21		GX 24-2 E3..	**32001**	**32000**
E20 R/L 0021S4-2020K-S-GX24	20	20	4	18,3	26	125	40		21		GX 24-3 E4..	**42001**	**42000**
E20 R/L 0021S5-2020K-S-GX24	20	20	5	18,0	26	125	40		21		GX 24-3 E5..	**52001**	**52000**
E25 R/L 0021S3-2525M-S-GX24	25	25	3	23,8	31	150	40		21		GX 24-2 E3..	**32501**	**32500**
E25 R/L 0021S4-2525M-S-GX24	25	25	4	23,3	31	150	40		21		GX 24-3 E4..	**42501**	**42500**
E25 R/L 0021S5-2525M-S-GX24	25	25	5	23,0	31	150	40		21		GX 24-3 E5..	**52501**	**52500**
E25 R/L 0021S6-2525M-S-GX24	25	25	6	22,5	31	150	40		21		GX 24-4 E6..	**62501**	**62500**

Key D

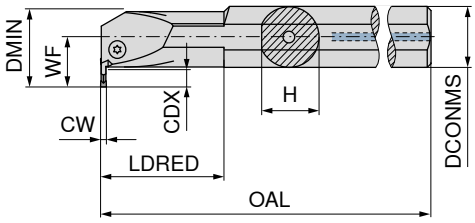
Clamping screw

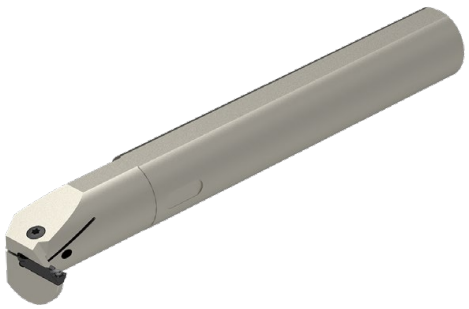
Spare parts for grooving inserts		Key D 80 950 ...		Clamping screw 70 950 ...
GX 24-1 E2..	T15 - IP	**128**	M5x18 - 15IP	**865**
GX 24-2 E3..	T15 - IP	**128**	M5x18 - 15IP	**865**
GX 24-3 E4..	T15 - IP	**128**	M5x18 - 15IP	**865**
GX 24-3 E5..	T15 - IP	**128**	M5x18 - 15IP	**865**
GX 24-4 E6..	T15 - IP	**128**	M5x18 - 15IP	**865**

→ 52–59 → **Chapter 16**

MonoClamp – Radial Mono-boring bars GX 24

Scope of supply:
Boring bar incl. key and clamping screw





Illustrations show right-hand versions

										Left-hand		Right-hand	
										70 895 ...		**70 894 ...**	
ISO designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts				
I32 R/L 90-2.0D-GX24-2	31,0	32	42	2,76 - 3,75	11	27,5	250	64	GX 24-2		**132**		**132**
I32 R/L 90-2.0D-GX24-3	31,0	32	42	3,76 - 5,00	11	27,5	250	64	GX 24-3		**232**		**232**
I40 R/L 90-2.0D-GX24-3	38,5	40	53	3,76 - 5,00	12	32,5	300	80	GX 24-3		**240**		**240**

Key D

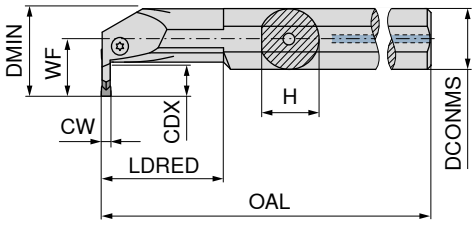
Clamping screw

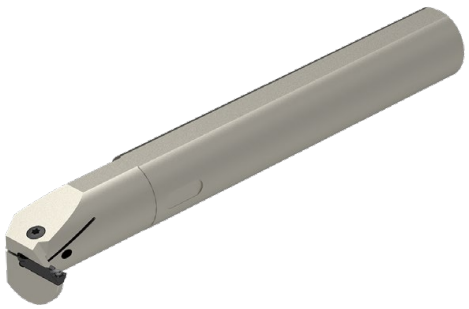
		80 950 ...		**70 950 ...**
Spare parts for grooving inserts				
GX 24-2	T20	**114**	M5x18	**404**
GX 24-3	T20	**114**	M5x18	**404**

→ 52–59 → **Chapter 16**

MonoClamp – Radial Mono-boring bars GX 24

Scope of supply:
Boring bar incl. key and clamping screw





Illustrations show right-hand versions

										Left-hand	Right-hand
										70 895 ...	**70 894 ...**
ISO designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts		
I32 R/L 90-2.0D-GX24-4	31,0	32	47	5,01 - 6,50	17,5	30,4	250	64	GX 24-4	**332**	**332**
I40 R/L 90-2.0D-GX24-4	38,5	40	57	5,01 - 6,50	17,5	30,4	300	80	GX 24-4	**340**	**340**

Key D

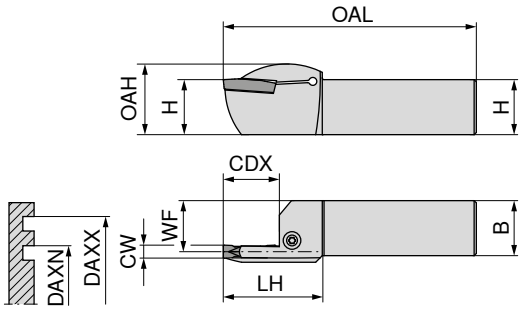
Clamping screw

			80 950 ...		**70 950 ...**
Spare parts for grooving inserts					
GX 24-4		T20	**114**	M5x18	**404**

→ 52–59 → **Chapter 16**

MonoClamp – Axial Monoholder GX 24

Scope of supply:
Mono holder incl. key and clamping screw



Illustrations show right-hand versions

												Left-hand	Right-hand
												70 904 ...	**70 903 ...**
ISO designation	H	B	CW	WF	DAXN	DAXX	OAH	OAL	LH	CDX	for grooving inserts		
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm			
E25 R/L 0012-2525X-GX24-2	25	25	3	24,7	45	50	32	115	45	12	GX 24-2	**202**	**202**
E25 R/L 0016-2525X-GX24-2	25	25	3	24,7	50	60	32	115	45	16	GX 24-2	**204**	**204**
E25 R/L 0019-2525X-GX24-2	25	25	3	24,7	60	75	32	115	45	19	GX 24-2	**206**	**206**
E25 R/L 0019-2525X-GX24-2	25	25	3	24,7	75	100	32	115	45	19	GX 24-2	**208**	**208**
E25 R/L 0022-2525X-GX24-2	25	25	3	24,7	100	130	32	115	45	22	GX 24-2	**210**	**210**
E25 R/L 0022-2525X-GX24-2	25	25	3	24,7	130	180	32	115	45	22	GX 24-2	**212**	**212**
E25 R/L 0022-2525X-GX24-2	25	25	3	24,7	180	300	32	115	45	22	GX 24-2	**214**	**214**
E25 R/L 0012-2525X-GX24-3	25	25	4+5	24,2	45	50	32	115	45	12	GX 24-3	**232**	**232**
E25 R/L 0020-2525X-GX24-3	25	25	4+5	24,2	50	60	32	115	45	20	GX 24-3	**234**	**234**
E25 R/L 0020-2525X-GX24-3	25	25	4+5	24,2	60	75	32	115	45	20	GX 24-3	**236**	**236**
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24,2	75	100	32	115	45	22	GX 24-3	**238**	**238**
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24,2	100	150	32	115	45	22	GX 24-3	**240**	**240**
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24,2	150	300	32	115	45	22	GX 24-3	**242**	**242**
E25 R/L 0022-2525X-GX24-4	25	25	6	23,2	50	70	32	115	45	22	GX 24-4	**262**	**262**
E25 R/L 0025-2525X-GX24-4	25	25	6	23,2	70	100	32	115	45	25	GX 24-4	**264**	**264**
E25 R/L 0025-2525X-GX24-4	25	25	6	23,2	100	150	32	115	45	25	GX 24-4	**266**	**266**
E25 R/L 0025-2525X-GX24-4	25	25	6	23,2	150	300	32	115	45	25	GX 24-4	**268**	**268**

Key D

Clamping screw

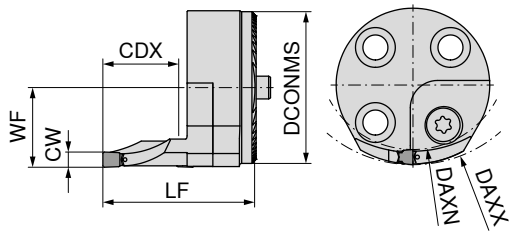
		80 950 ...		**70 950 ...**
Spare parts for grooving inserts				
GX 24-2	T15 - IP	**128**	M5x18 - 15IP	**865**
GX 24-3	T15 - IP	**128**	M5x18 - 15IP	**865**
GX 24-4	T15 - IP	**128**	M5x18 - 15IP	**865**

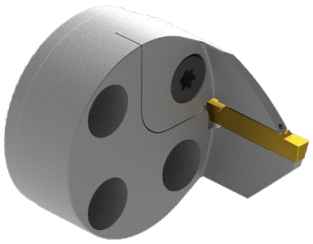
→ 52–59 → **Chapter 16**

MaxiChange-GX – GX-DC 24 axial exchangeable grooving head

▲ For axial grooving

Scope of supply:
Exchangeable grooving head with clamping claw and clamping screw

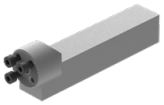




Illustrations show right-hand versions

ISO designation	DCONMS mm	DAXN mm	DAXX mm	CW mm	WF mm	LF mm	CDX mm	for grooving inserts	NEW Left-hand 84 186 ...	NEW Right-hand 84 187 ...
WK40 R/L 20-DC GX 24-S3 D50-70	40	50	70	3	21	40	20	GX 24-2 ..N	**34000**	**34000**
WK40 R/L 20-DC GX 24-S3 D70-100	40	70	100	3	21	40	20	GX 24-2 ..N	**34100**	**34100**
WK40 R/L 20-DC GX 24-S3 D100-150	40	100	150	3	21	40	20	GX 24-2 ..N	**34200**	**34200**
WK40 R/L 20-DC GX 24-S3 D150-300	40	150	300	3	21	40	20	GX 24-2 ..N	**34300**	**34300**
WK40 R/L 20-DC GX 24-S4 D50-70	40	50	70	4	21	40	20	GX 24-3 ..N	**44000**	**44000**
WK40 R/L 20-DC GX 24-S4 D70-100	40	70	100	4	21	40	20	GX 24-3 ..N	**44100**	**44100**
WK40 R/L 20-DC GX 24-S4 D100-150	40	100	150	4	21	40	20	GX 24-3 ..N	**44200**	**44200**
WK40 R/L 20-DC GX 24-S4 D150-300	40	150	300	4	21	40	20	GX 24-3 ..N	**44300**	**44300**

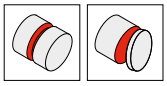
Spare parts for Article no.	Clamping claw 84 950 ...	O-Ring 84 950 ...		Clamping screw 84 950 ...		Guide pin 84 950 ...	
84 187 34000	**51400**	2x1	**50300**	M6x0,5X5/T25	**50200**	D4H6X12	**53200**
84 186 34000	**51800**	2x1	**50300**	M6x0,5X5/T25	**50200**	D4H6X12	**53200**
84 187 34100	**51500**	2x1	**50300**	M6x0,5X5/T25	**50200**	D4H6X12	**53200**
84 186 34100	**51900**	2x1	**50300**	M6x0,5X5/T25	**50200**	D4H6X12	**53200**
84 187 34200	**51600**	2x1	**50300**	M6x0,5X5/T25	**50200**	D4H6X12	**53200**
84 186 34200	**52000**	2x1	**50300**	M6x0,5X5/T25	**50200**	D4H6X12	**53200**
84 187 34300	**51700**	2x1	**50300**	M6x0,5X5/T25	**50200**	D4H6X12	**53200**
84 186 34300	**52100**	2x1	**50300**	M6x0,5X5/T25	**50200**	D4H6X12	**53200**
84 187 44000	**52200**	2x1	**50300**	M6x0,5X5/T25	**50200**	D4H6X12	**53200**
84 186 44000	**52600**	2x1	**50300**	M6x0,5X5/T25	**50200**	D4H6X12	**53200**
84 187 44100	**52300**	2x1	**50300**	M6x0,5X5/T25	**50200**	D4H6X12	**53200**
84 186 44100	**52700**	2x1	**50300**	M6x0,5X5/T25	**50200**	D4H6X12	**53200**
84 187 44200	**52400**	2x1	**50300**	M6x0,5X5/T25	**50200**	D4H6X12	**53200**
84 186 44200	**52800**	2x1	**50300**	M6x0,5X5/T25	**50200**	D4H6X12	**53200**
84 187 44300	**52500**	2x1	**50300**	M6x0,5X5/T25	**50200**	D4H6X12	**53200**
84 186 44300	**52900**	2x1	**50300**	M6x0,5X5/T25	**50200**	D4H6X12	**53200**



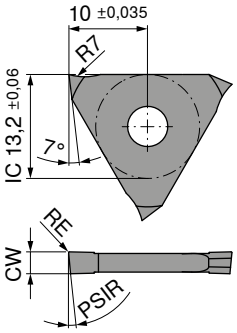
→ 52–59 → **Chapter 9**

TX grooving insert for grooving and parting off

▲ Cutting depth 5.0 mm
▲ Cutting width 1.99–2.79 mm

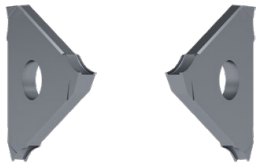


F	M	R



Illustrations show right-hand versions

CWX500 CWX500



ISO designation	CW -0,05 mm	RE mm	PSIR	for tool holder	Left-hand 73 302 ...	Right-hand 73 301 ...
TX R/L 0518.00.1	1,99	0,1	5°	R/L 207 .. . / 780 .. . 1	**204**	**204**
TX R/L 0521.00.2	2,29	0,1	5°	R/L 207 .. . / 780 .. . 2	**206**	**206**
TX R/L 0526.00.2	2,79	0,1	5°	R/L 207 .. . / 780 .. . 2	**208**	**208**

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

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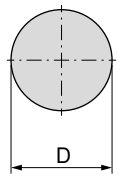
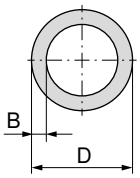
Grooving depth

Full material



max. 10 mm

Pipe



D ≤ 50 mm: Wall thickness B = approx. 5 mm
D ≥ 50 mm: Wall thickness B = approx. 4 mm

Internal machining

→ 79

External machining

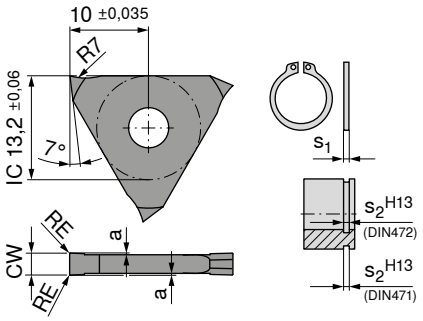
→ 76–78

TX insert for circlip grooves

▲ For circlip grooves according to DIN 471 / 472

CWX500

F	M	R



Neutral

73 300 ...

Designation	s_2 mm	CW $_{-0,05}$ mm	RE mm	a $_{+/-0,02}$ mm	for tool holder	
TX N 0050.00.1	0,50	0,57	0,05	0,07	R/L .. .1	**204**
TX N 0060.00.1	0,60	0,67	0,05	0,07	R/L .. .1	**206**
TX N 0070.00.1	0,70	0,77	0,05	0,08	R/L .. .1	**208**
TX N 0080.00.1	0,80	0,87	0,05	0,08	R/L .. .1	**210**
TX N 0090.00.1	0,90	0,97	0,05	0,08	R/L .. .1	**212**
TX N 0100.00.1	1,00	1,07	0,10	0,09	R/L .. .1	**214**
TX N 0110.00.1	1,10	1,24	0,10	0,15	R/L .. .1	**216**
TX N 0130.00.1	1,30	1,44	0,10	0,15	R/L .. .1	**218**
TX N 0160.00.1	1,60	1,74	0,10	0,20	R/L .. .1	**220**
TX N 0185.00.1	1,85	1,99	0,10	0,20	R/L .. .1	**222**
TX N 0215.00.2	2,15	2,29	0,10	0,20	R/L .. .2	**224**
TX N 0265.00.2	2,65	2,79	0,10	0,20	R/L .. .2	**226**
TX N 0315.00.3	3,15	3,29	0,10	0,20	R/L .. .3	**228**
TX N 0415.00.4	4,15	4,29	0,10	0,20	R/L .. .4	**230**
TX N 0515.00.4	5,15	5,29	0,10	0,20	R/L .. .4	**232**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

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Internal machining

→ 79

External machining

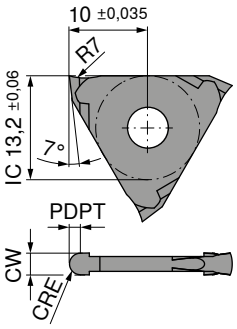
→ 76–78

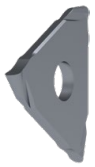
Radial TX insert for corner recessing

▲ Full radius for cutting width 0.5–5.0 mm

CWX500

F	M	R





Neutral

73 304 ...

Designation	CRE mm	CW +/-0,05 mm	PDPT mm	for tool holder	
TX N 0002.05.1	0,25	0,5	0,20	R/L .. .1	**212**
TX N 0005.10.1	0,50	1,0	0,35	R/L .. .1	**214**
TX N 0006.12.1	0,60	1,2	0,40	R/L .. .1	**216**
TX N 0008.16.1	0,80	1,6	0,55	R/L .. .1	**218**
TX N 0010.20.2	1,00	2,0	0,70	R/L .. .2	**204**
TX N 0012.25.2	1,25	2,5	0,85	R/L .. .2	**220**
TX N 0015.30.3	1,50	3,0	1,00	R/L .. .3	**206**
TX N 0020.40.4	2,00	4,0	1,20	R/L .. .4	**208**
TX N 0025.50.4	2,50	5,0	1,50	R/L .. .4	**210**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

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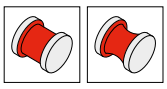
Internal machining

→ 79

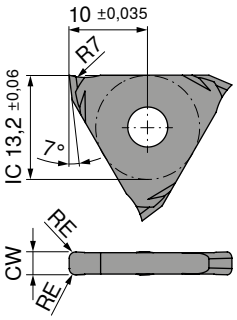
External machining

→ 76–78

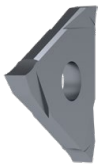
TX insert for fine and copy turning



F	M	R



CWX500



Neutral

73 303 ...

Designation	CW +0,03 mm	RE mm	for tool holder	
TX N 0150.02.1	1,5	0,2	R/L 207 .. . / 738 .. . / 660 .. . 1	**204**
TX N 0200.02.1	2,0	0,2	R/L 207 .. . / 738 .. . / 660 .. . 1	**206**
TX N 0200.04.1	2,0	0,4	R/L 207 .. . / 738 .. . / 660 .. . 1	**208**
TX N 0300.02.2	3,0	0,2	R/L 207 .. . / 738 .. . / 660 .. . 2	**210**
TX N 0300.06.2	3,0	0,6	R/L 207 .. . / 738 .. . / 660 .. . 2	**212**
TX N 0300.08.2	3,0	0,8	R/L 207 .. . / 738 .. . / 660 .. . 2	**214**
TX N 0400.02.3	4,0	0,2	R/L 207 .. . / 738 .. . / 660 .. . 3	**216**
TX N 0400.08.3	4,0	0,8	R/L 207 .. . / 738 .. . / 660 .. . 3	**218**
TX N 0400.12.3	4,0	1,2	R/L 207 .. . / 738 .. . / 660 .. . 3	**220**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

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Internal machining

→ 79

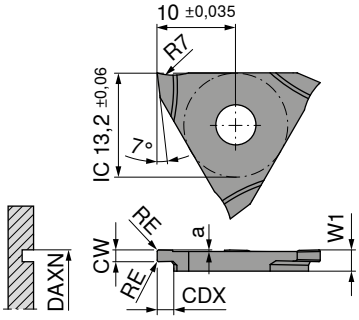
External machining

→ 76–78

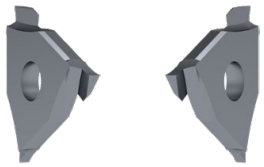
TX insert for axial grooving

▲ Up to cutting depth 3.5 mm
▲ Cutting width 1.5–5.0 mm
▲ Groove-Ø external D_a ≥ 20 mm

F	M	R



CWX500 CWX500



Illustrations show right-hand versions

ISO designation	CW mm	W1 mm	CDX mm	a mm	DAXN mm	RE mm	for tool holder	Left-hand 73 306 ...	Right-hand 73 305 ...
TX R/L 2015.2.2	1,5	2,7	2	0,2	20	0,2	R/L 207 .. . 2	**204**	**204**
TX R/L 3020.2.2	2,0	2,7	3	0,2	30	0,2	R/L 207 .. . 2	**206**	**206**
TX R/L 3030.2.3	3,0	3,7	3	0,2	30	0,2	R/L 207 .. . 3	**208**	**208**
P								●	●
M								●	●
K								●	●
N								●	●
S								●	●
H								○	○
O								●	●

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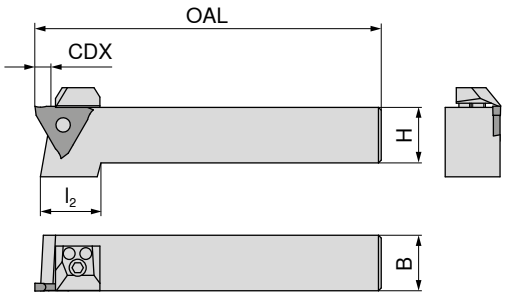
Internal machining *External machining*

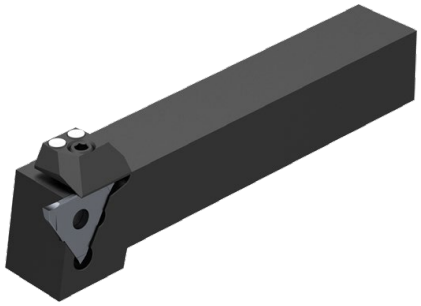
→ 76+77

MonoClamp – Radial/Axial TX Grooving Holder 0° 6 mm cutting depth

▲ For radial and axial grooving
▲ Cutting width 0.5–6.3 mm

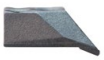
Scope of supply:
Grooving holder only

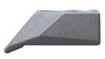




Illustrations show right-hand versions

ISO designation	H mm	B +/-0,1 mm	OAL mm	l_2 mm	CDX mm	for grooving inserts	Left-hand 73 501 ...	Right-hand 73 500 ...
R/L 207.1212.1	12	12	100	24	4	TX R/N/L ...1	**112**	**112**
R/L 207.1616.1	16	16	125	22	4	TX R/N/L ...1	**116**	**116**
R/L 207.2020.1	20	20	125	21	4	TX R/N/L ...1	**120**	**120**
R/L 207.2525.1	25	25	150		4	TX R/N/L ...1	**125**	**125**
R/L 207.1212.2	12	12	100	24	6	TX R/N/L ...2	**212**	**212**
R/L 207.1616.2	16	16	125	22	6	TX R/N/L ...2	**216**	**216**
R/L 207.2020.2	20	20	125	21	6	TX R/N/L ...2	**220**	**220**
R/L 207.2525.2	25	25	150		6	TX R/N/L ...2	**225**	**225**
R/L 207.1212.3	12	12	100	24	6	TX R/N/L ...3	**312**	**312**
R/L 207.1616.3	16	16	125	22	6	TX R/N/L ...3	**316**	**316**
R/L 207.2020.3	20	20	125	21	6	TX R/N/L ...3	**320**	**320**
R/L 207.2525.3	25	25	150		6	TX R/N/L ...3	**325**	**325**
R 207.3232.3	32	32	170		6	TX R/N/L ...3		**332**
R/L 207.1616.4	16	16	125	22	6	TX R/N/L ...4	**416**	**416**
R/L 207.2020.4	20	20	125	21	6	TX R/N/L ...4	**420**	**420**
R/L 207.2525.4	25	25	150		6	TX R/N/L ...4	**425**	**425**


right hand **73 950 ...**


left hand **73 950 ...**

Key I **70 950 ...**

Clamping screw **73 950 ...**

Guide pin **73 950 ...**

Spare parts for grooving inserts												
TX R/N/L ...1	**020**			SW3	**176**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...1			**024**	SW3	**176**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...2			**024**	SW3	**176**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...2	**020**			SW3	**176**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...3			**024**	SW3	**176**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...3	**020**			SW3	**176**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...4	**022**			SW3	**176**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...4			**026**	SW3	**176**	M6x20	**028**	Ø 4x18	**030**

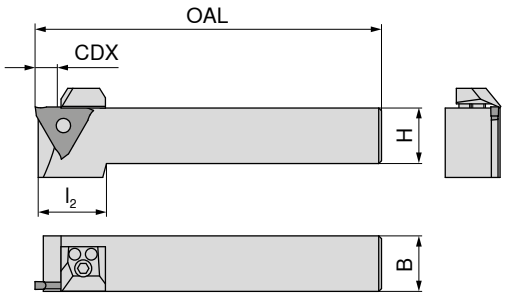
→ 71–75

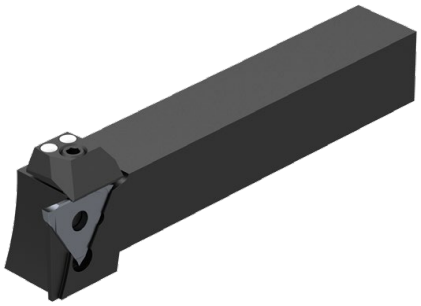
→ **Chapter 16**

MonoClamp – Radial TX Grooving holder 0° 8 mm cutting depth

▲ For radial parting and grooving
▲ Cutting width 1.9–6.3 mm

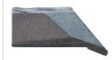
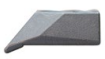
Scope of supply:
Grooving holder only





Illustrations show right-hand versions

ISO designation	H mm	B +/-0,1 mm	OAL mm	l_2 mm	CDX mm	for grooving inserts	Left-hand 73 503 ...	Right-hand 73 502 ...
R/L 780.2020.2	20	20	125	24	8	TX R/N/L ...2	**120**	**120**
R/L 780.2525.2	25	25	150		8	TX R/N/L ...2	**125**	**125**
R/L 780.2020.3	20	20	125	24	8	TX R/N/L ...3	**220**	**220**
R/L 780.2525.3	25	25	150		8	TX R/N/L ...3	**225**	**225**
R/L 780.2020.4	20	20	125	24	8	TX R/N/L ...4	**320**	**320**
R/L 780.2525.4	25	25	150		8	TX R/N/L ...4	**325**	**325**

Spare parts for grooving inserts	 right hand 73 950 ...	 left hand 73 950 ...	Key I 70 950 ...	Clamping screw 73 950 ...	Guide pin 73 950 ...
TX R/N/L ...2	**020**		SW3 **176**	M6x20 **028**	Ø 4x18 **030**
TX R/N/L ...2		**024**	SW3 **176**	M6x20 **028**	Ø 4x18 **030**
TX R/N/L ...3	**020**		SW3 **176**	M6x20 **028**	Ø 4x18 **030**
TX R/N/L ...3		**024**	SW3 **176**	M6x20 **028**	Ø 4x18 **030**
TX R/N/L ...4	**022**		SW3 **176**	M6x20 **028**	Ø 4x18 **030**
TX R/N/L ...4		**026**	SW3 **176**	M6x20 **028**	Ø 4x18 **030**

→ 71–75

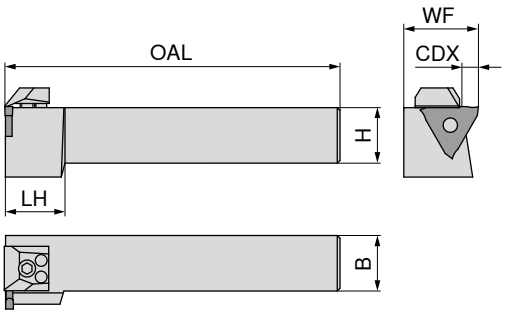
→ **Chapter 16**

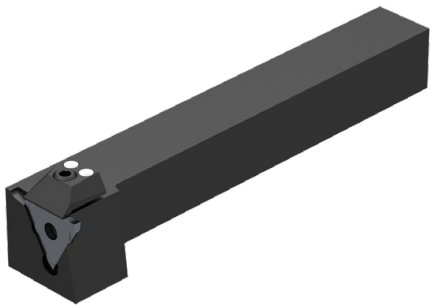
11

MonoClamp – Radial TX Grooving holder 90° 6 mm cutting depth

▲ For radial grooving
▲ Cutting width 0.5–6.3 mm

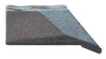
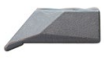
Scope of supply:
Grooving holder only





Illustrations show right-hand versions

								Left-hand		Right-hand	
								73 505 ...		**73 504 ...**	
ISO designation	H mm	B +/-0,1 mm	OAL mm	LH mm	WF +/-0,07 mm	CDX mm	for grooving inserts				
R/L 738.2020.1	20	20	150	20	27	4	TX R/N/L ...1	**120**		**120**	
R/L 738.2525.1	25	25	150		32	4	TX R/N/L ...1	**125**		**125**	
R/L 738.2020.2	20	20	150	20	27	6	TX R/N/L ...2	**220**		**220**	
R/L 738.2525.2	25	25	150		32	6	TX R/N/L ...2	**225**		**225**	
R/L 738.2020.3	20	20	150	20	27	6	TX R/N/L ...3	**320**		**320**	
R/L 738.2525.3	25	25	150		32	6	TX R/N/L ...3	**325**		**325**	
R/L 738.2020.4	20	20	150	20	27	6	TX R/N/L ...4	**420**		**420**	
R/L 738.2525.4	25	25	150		32	6	TX R/N/L ...4	**425**		**425**	

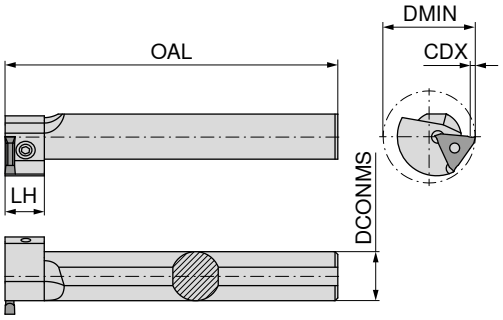
	 right hand		 left hand		Key I		Clamping screw		Guide pin	
	73 950 ...		**73 950 ...**		**70 950 ...**		**73 950 ...**		**73 950 ...**	
Spare parts for grooving inserts										
TX R/N/L ...1	**020**			SW3	**176**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...1		**024**		SW3	**176**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...2		**024**		SW3	**176**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...2	**020**			SW3	**176**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...3		**024**		SW3	**176**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...3	**020**			SW3	**176**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...4	**022**			SW3	**176**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...4		**026**		SW3	**176**	M6x20	**028**	Ø 4x18	**030**

→ 71–75 → **Chapter 16**

MonoClamp – Radial Boring bar TX

▲ For radial internal grooving
▲ Cutting width 0.5–6.3 mm

Scope of supply:
Boring bar only



Illustrations show right-hand versions

ISO designation	DCONMS $_{g7}$ mm	DMIN mm	OAL mm	LH mm	CDX mm	for grooving inserts	Left-hand 73 511 ...	Right-hand 73 510 ...
R/L 660.0025.1	25	46	170	20	2	TX R/N/L ...1	**125**	**125**
R/L 660.0032.1	32	46	200	20	2	TX R/N/L ...1	**132**	**132**
R/L 660.0040.1	40	46	250		2	TX R/N/L ...1	**140**	**140**
R/L 660.0025.2	25	46	170	20	2	TX R/N/L ...2	**225**	**225**
R/L 660.0032.2	32	46	200	20	2	TX R/N/L ...2	**232**	**232**
R/L 660.0040.2	40	46	250		2	TX R/N/L ...2	**240**	**240**
R/L 660.0025.3	25	46	170	20	2	TX R/N/L ...3	**325**	**325**
R/L 660.0032.3	32	46	200	20	2	TX R/N/L ...3	**332**	**332**
R/L 660.0040.3	40	46	250		2	TX R/N/L ...3	**340**	**340**

Bore-Ø$_{min.}$ in mm	46	50	60	80	100	for grooving insert
CDX$_{max.}$ (mm)	2	3	4	4,5	5	TX R/N/L ...1
	2	3	4	4,5	5	TX R/N/L ...2
	2	3	4	4,5	5	TX R/N/L ...3
	2	3	4	4,5	5	TX R/N/L ...4

Clamping element
73 950 ...

Key I
70 950 ...

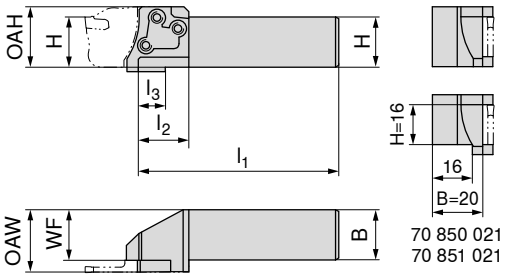
Clamping screw
73 950 ...

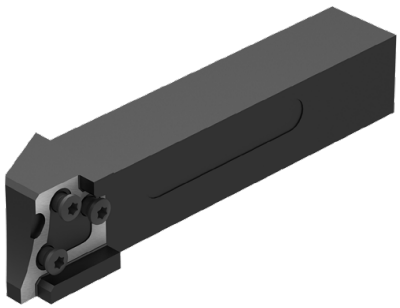
Spare parts for grooving inserts						
TX R/N/L ...1	**011**	SW3	**176**	M6x30	**009**
TX R/N/L ...2	**011**	SW3	**176**	M6x30	**009**
TX R/N/L ...3	**011**	SW3	**176**	M6x30	**009**

→ 71–74 → **Chapter 16**

ModularClamp MSS – Tool holder 0°

Scope of supply:
Base holder incl. clamping screw





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAW mm	OAH mm	WF mm	l_1 mm	l_2 mm	l_3 mm	for modules	Left-hand 70 851 ...	Right-hand 70 850 ...
E16 R/L 00-1616G	16	16	19,25	19,5	15,75	90	16		E16 R/L ...	**016**	**016**
E20 R/L 00-1620G	16	20	24,25	24,0	20,15	90	20		E20 R/L/N ...	**021** [1]	**021** [1]
E20 R/L 00-2020J	20	20	24,25	24,0	20,15	110	20		E20 R/L/N ...	**020**	**020**
E25 R/L 00-2525L	25	25	31,00	30,0	25,50	140	25		E25 R/L ...	**025**	**025**
E32 R/L 00-3225N	32	25	31,00	38,0	25,50	160	32		E32 R/L ...	**032**	**032**
E32 L 00-3232N	32	32	38,00	38,8	32,50	180	32	16	E32 R/L ...	**13200**	
E32 R 00-3232Q	32	32	38,00	38,8	32,50	180	32	16	E32 R/L ...		**13200**

1) see drawing

for right hand holder → use right hand (or neutral) module
for left hand holder → use left hand (or neutral) module

Key D

Clamping screw

Spare parts for Article no.		80 950 ...		70 950 ...
70 851 016 / 70 850 016	T15	**113**	M3,5x12,5	**441**
70 851 021 / 70 850 021	T15	**113**	M4x14	**403**
70 851 020 / 70 850 020	T15	**113**	M4x14	**403**
70 851 025 / 70 850 025	T20	**114**	M5x18	**404**
70 851 032 / 70 850 032	T25	**115**	M6x20	**405**

SX

→ 21

LX

→ 32

GX 09 / GX 16

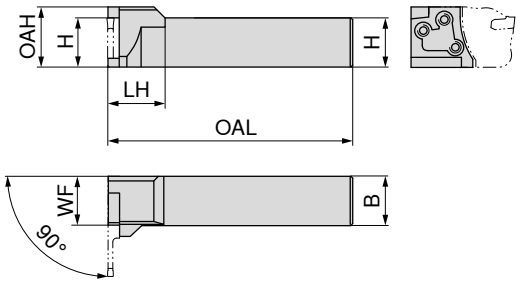
→ 42+43

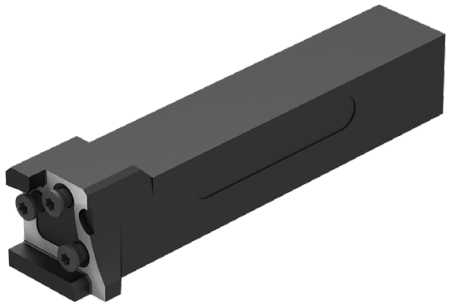
GX 24

→ 60–62

ModularClamp MSS – Tool holder 90°

Scope of supply:
Base holder incl. clamping screw





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAH mm	WF mm	OAL mm	LH mm	for modules	Left-hand 70 855 ...	Right-hand 70 854 ...
E20 R/L 90-2020J	20	20	24	20	110	20	E20 R/L/N ...	**020**	**020**
E25 R/L 90-2525L	25	25	30	25	140	28	E25 R/L ...	**025**	**025**
E32 R/L 90-3225N	32	25	38	32	160	34	E32 R/L ...	**032**	**032**

for right hand holder → use left hand (or neutral) module
for left hand holder → use right hand (or neutral) module

Spare parts for Article no.		Key D 80 950 ...		Clamping screw 70 950 ...	
70 855 020 / 70 854 020	T15	**113**	M4x14	**403**
70 855 025 / 70 854 025	T20	**114**	M5x18	**404**
70 855 032 / 70 854 032	T25	**115**	M6x20	**405**

SX → 21

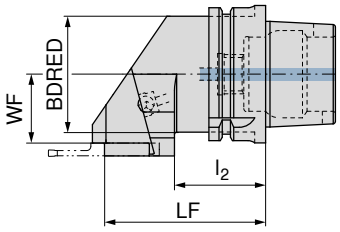
LX → 32

GX 09 / GX 16 → 42+43

GX 24 → 60–62

ModularClamp MSS – HSK-T Base Holder 0°

Scope of supply:
Base holder incl. clamping screw



Illustrations show right-hand versions

ISO designation	Adapter	LF mm	l_2 mm	BDRED mm	WF mm	for modules	Left-hand 74 581 ...	Right-hand 74 580 ...
HSK T63 E25 R/L 00	HSK-T 63	67	42	53	38,7	E25 R/L...	**525**	**525**

for right hand holder → use right hand module
for left hand holder → use left hand module

Spare parts for Article no.	Protection plugs 70 950 ...	Nozzle 70 950 ...	Key D 80 950 ...	Clamping screw 70 950 ...	Hollow key with nose 70 950 ...
74 580 525 / 74 581 525	**05600**	**05500**	**114**	**404**	**05700**

SX → 21

LX → 32

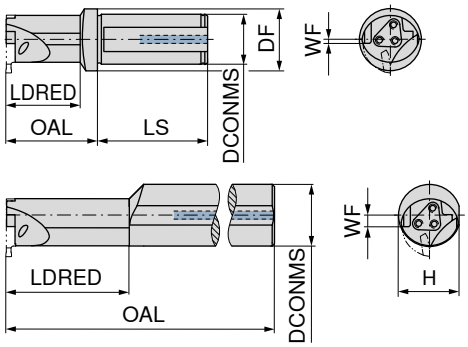
GX 09 / GX 16 → 42+43

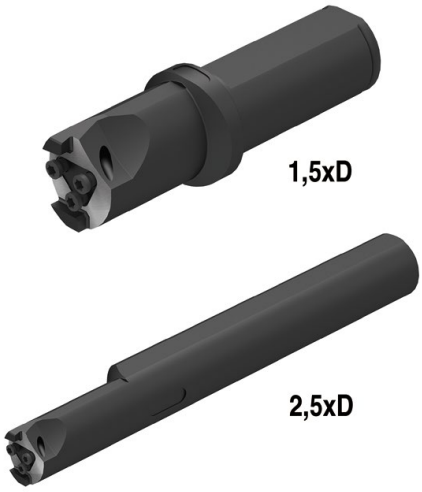
GX 24 → 60–62

ModularClamp MSS – Boring bars GX

▲ with thro' coolant

Scope of supply:
Boring bar incl. clamping screw





Illustrations show right-hand versions

	ISO designation	DCONMS mm	DF mm	WF mm	H mm	OAL mm	LDRED mm	LS mm	for modules	Left-hand 70 861 ...	Right-hand 70 860 ...
≤ 1,5xD	I16 R/L 90-1,5 D-N	20	25	1,0		32	24	50	I 16 R/L	017	017
	I20 R/L 90-1,5 D-N	20	25	1,0		37	30	50	I 20 R/L	021	021
	I25 R/L 90-1,5 D-N	25	32	1,5		46	38	56	I 25 R/L	026	026
	I32 R/L 90-1,5 D-N	32	40	2,0		59	48	60	I 32 R/L	033 1)	033 1)
	I40 R/L 90-1,5 D-N	40	50	2,5		72	60	70	I 40 R/L/N	041	041
≤ 2,5xD	I16 R/L 90-2,5 D-N	20		4,5	19,0	180	40		I 16 R/L	117	117
	I20 R/L 90-2,5 D-N	25		6,0	24,0	200	50		I 20 R/L	121	121
	I25 R/L 90-2,5 D-N	32		7,0	31,0	250	63		I 25 R/L	126	126
	I32 R/L 90-2,5 D-N	40		9,5	38,0	300	80		I 32 R/L	133 1)	133 1)
	I40 R/L 90-2,5 D-N	50		11,5	48,5	350	100		I 40 R/L/N	141	141

1) with 2 clamping surfaces

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for right hand holder → use right hand (or neutral) module
for left hand holder → use left hand (or neutral) module

Spare parts for modules	Key D	80 950 ...	Clamping screw	70 950 ...
I 16 R/L	T08	110	M2,5x10	440
I 20 R/L	T10	112	M3x11	444
I 25 R/L	T15	113	M3,5x12,5	441
I 32 R/L	T20	114	M4,5x17	445
I 40 R/L/N	T20	114	M5x18	404

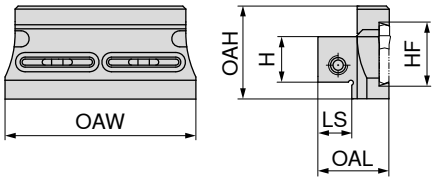
GX 09 / GX 16
→ 44+45

GX 24
→ 63

Split clamping block for blades DC

Scope of supply:
Complete clamping block, but without blade

Direct Cooling



Designation	H mm	HF mm	OAH mm	LS mm	OAL mm	OAW mm	for blades	70 829 ...
SBN 2020-26-DC	20	26	43,0	20	40,0	82	XLC.. 26..	**020**
SBN 2020-32-DC	20	32	43,0	20	40,0	95	XLC.. 32..	**120**
SBN 2525-32-DC	25	32	48,5	25	44,5	95	XLC.. 32..	**025**
SBN 3232-32-DC	32	32	52,0	32	51,0	95	XLC.. 32..	**032**

Coolant screw plug

Clamping rail

clamping screw

Spare parts for Article no.		70 950 ...		70 950 ...		70 950 ...
70 829 020	G 1/8"	**294**	CU70	**290**	M6x12	**861**
70 829 120	G 1/8"	**294**	CU85	**291**	M6x12	**861**
70 829 025	G 1/8"	**294**	CU85	**291**	M6x12	**861**
70 829 032	G 1/8"	**294**	CU85	**291**	M6x12	**861**

Key I

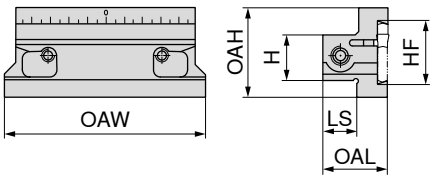
O-Ring

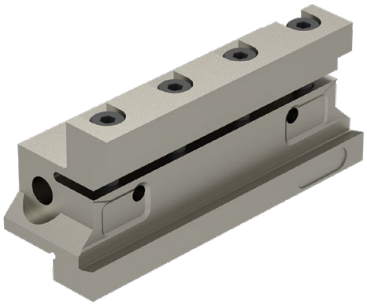
O-Ring

Spare parts for Article no.		70 950 ...		70 950 ...		70 950 ...
70 829 020	SW5	**265**	19x2,5	**293**		
70 829 120	SW5	**265**	19x2,5	**293**	23x2,5	**292**
70 829 025	SW5	**265**			23x2,5	**292**
70 829 032	SW5	**265**			23x2,5	**292**

Clamping block for blades

Scope of supply:
Clamping block complete, but without blade and coolant set





Designation	H mm	HF mm	OAH mm	LS mm	OAL mm	OAW mm	for blades	70 830 ...
SBN 2020-26-K	20	26	39	20	33,0	90	XLC.. 26..	**020**
SBN 2520-32-K	25	32	48	20	36,0	110	XLC.. 32..	**025**
SBN 3229-32-K	32	32	48	29	44,5	120	XLC.. 32..	**032**
SBN 3229-46-K	32	46	70	29	52,0	150	XLC.. 46..	**132**
SBN 4037-46-K	40	46	70	37	60,0	150	XLC.. 46..	**140**

Key I

Cooling agent set

clamping screw

Spare parts for blades		70 950 ...		70 950 ...		70 950 ...
XLC.. 26..	SW5	**265**		**278**	M6x25	**269**
XLC.. 32..	SW5	**265**		**278**	M6x25	**269**
XLC.. 46..	SW6	**266**		**279**	M8x35	**282**

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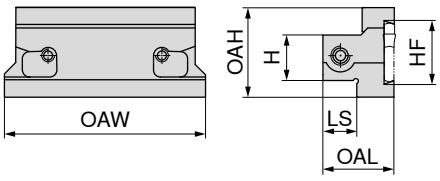
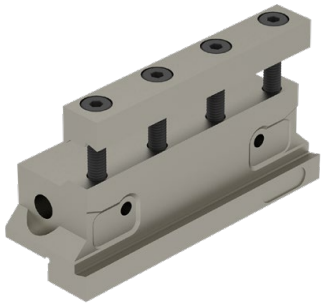
Split clamping block for blades

Scope of supply:
Clamping block complete, but without blade and coolant set





Designation	H mm	HF mm	OAH mm	LS mm	OAL mm	OAW mm	for blades	70 831 ...
SBN 2020-26-KS	20	26	39	20	35,0	90	XLC.. 26..	**020**
SBN 2520-32-KS	25	32	48	20	38,0	110	XLC.. 32..	**025**
SBN 3229-32-KS	32	32	48	29	46,5	120	XLC.. 32..	**032**

Key I

Cooling agent set

clamping screw

Spare parts for blades		70 950 ...		70 950 ...		70 950 ...
XLC.. 26..	SW5	**265**		**278**	M6x25	**269**
XLC.. 32..	SW5	**265**		**278**	M6x25	**269**

Material examples for cutting data tables

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

*** Tensile strength**

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Cutting data values for grooving inserts

Index	System SX, LX, GX							System TX		● 1st choice ○ suitable		
	CTCP325	CTCP335	CTPP345	CTPP520	CTPP535	CTP1340	H216T	CWX500				
	DRAGONSKIN											
	v_c (m/min.)							v_c (m/min.)	f (mm/rev)	Emulsion	Compressed air	MMS
P.1.1	220	185	135	235	180	180		160	0,03–0,10	●		
P.1.2	195	160	120	205	150	150		140	0,03–0,10	●		
P.1.3	170	140	105	175	125	125		110	0,03–0,10	●		
P.1.4	165	130	100	165	120	115		110	0,03–0,10	●		
P.1.5	150	120	95	150	105	100		90	0,03–0,10	●		
P.2.1	200	165	120	210	160	155		110	0,03–0,10	●		
P.2.2	160	130	100	160	115	110		90	0,03–0,10	●		
P.2.3	150	120	95	150	105	100		90	0,03–0,07	●		
P.2.4	120	90	75	115	75	70		80	0,03–0,06	●		
P.3.1	150	130	100	185	120	110		80	0,03–0,07	●		
P.3.2	95	90	80	130	90	75		60	0,03–0,07	●		
P.3.3	45	50	60	75	60	40		50	0,03–0,07	●		
P.4.1	150	130	100	185	120	110		100	0,03–0,06	●		
P.4.2	125	110	90	160	105	95		90	0,03–0,06	●		
M.1.1	150	130	100	185	120	110		110	0,02–0,06	●		
M.2.1	95	90	80	130	90	80		90	0,02–0,06	●		
M.3.1	135	115	95	170	110	100		70	0,02–0,06	●		
K.1.1	170	135		140	165	150	140	140	0,03–0,10	●		
K.1.2	150	115		115	150	125	115	100	0,03–0,10	●		
K.2.1	160	130		180	145	140	150	90	0,03–0,10	●		
K.2.2	145	105		115	155	120	110	80	0,03–0,10	●		
K.3.1	210	150		130	190	170	170	140	0,03–0,10	●		
K.3.2	140	115		110	145	120	140	120	0,03–0,10	●		
N.1.1						300	400	330	0,05–0,12	●		
N.1.2						200	400	310	0,05–0,12	●		
N.2.1						300	450	270	0,05–0,12	●		
N.2.2						200	450	230	0,05–0,12	●		
N.2.3						150	500	140	0,05–0,12	●		
N.3.1						300	425	240	0,05–0,12	●		
N.3.2						300	400	200	0,05–0,12	●		
N.3.3						200	275	180	0,05–0,12	●		
N.4.1						200	225	180	0,05–0,12	●		
S.1.1	35			40	30	35	40	60	0,02–0,07	●		
S.1.2	30		30	30	25	30	30	50	0,02–0,08	●		
S.2.1	20		25	20	15	20	30	60	0,02–0,09	●		
S.2.2	15			15	15	15	25	50	0,02–0,10	●		
S.2.3	15			20	15	15	20	40	0,02–0,11	●		
S.3.1				125	85	85	90	60	0,02–0,12	●		
S.3.2				50	35	40	55	40	0,02–0,13	●		
S.3.3				35	25	30	40	30	0,02–0,14	●		
H.1.1				15				50	0,01–0,07	●		
H.1.2				15								
H.1.3												
H.1.4												
H.2.1				15								
H.3.1				40								
O.1.1						130	130	180	0,05–0,12	●		
O.1.2								180	0,05–0,12	●		
O.2.1						105	105	150	0,05–0,12	●		
O.2.2								110	0,05–0,12	●		
O.3.1								170	0,03–0,10	●		

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

GX – Depths of cut and feed rates

GX Standard / GX-E

Groove width CW (mm)	Turning – Depth of cut a_p (mm) 0,5	1,0	1,5	2,0	2,5	3,0	3,5	Parting / Grooving	Axial grooving
	Feed rate f (mm/rev.)							f (mm/rev)	f (mm/rev)
2	0,10–0,15	0,05–0,15	0,05–0,12	0,05–0,10				0,05–0,20	When axial grooving reduce feed by 40%.
3	0,10–0,17	0,05–0,17	0,05–0,17	0,05–0,15	0,05–0,12			0,10–0,25	
4	0,10–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,17	0,07–0,15		0,10–0,25	
5	0,10–0,25	0,10–0,25	0,07–0,25	0,07–0,25	0,07–0,22	0,07–0,20		0,10–0,30	
6	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,25	0,15–0,22	0,15–0,35	

GX-M40

Groove width CW (mm)	Turning – Depth of cut a_p (mm) 0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	Parting / Grooving	Axial grooving
	Feed rate f (mm/rev.)								f (mm/rev)	f (mm/rev)
2	0,10–0,20	0,05–0,20	0,05–0,17	0,05–0,15					0,05–0,15	When axial grooving reduce feed by 40%.
3	0,10–0,22	0,10–0,22	0,10–0,21	0,10–0,20	0,10–0,17				0,075–0,20	
4	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,22	0,10–0,17			0,10–0,25	
5	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,27	0,10–0,23	0,10–0,20		0,10–0,30	
6	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,32	0,10–0,27	0,10–0,23	0,10–0,20	0,15–0,325	

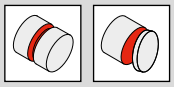
GX-F2

Groove width CW (mm)	Turning – Depth of cut a_p (mm) 0,50	0,75	1,00	1,25	1,50	1,75	2,00	2,25	2,50	Parting / Grooving	Axial grooving
	Feed rate f (mm/rev.)									f (mm/rev)	f (mm/rev)
2	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,10						0,05–0,15	When axial grooving reduce feed by 40%.
3	0,04–0,17	0,04–0,17	0,04–0,17	0,04–0,15	0,04–0,13	0,04–0,12				0,075–0,20	
4	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,17	0,05–0,15			0,10–0,25	
5	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,17	0,07–0,15		0,10–0,30	
6	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,19	0,10–0,15	0,15–0,325	

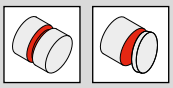
GX-27P

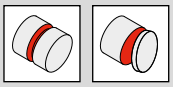
Groove width CW (mm)	Turning – Depth of cut a_p (mm) 0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	Parting / Grooving	Axial grooving
	Feed rate f (mm/rev.)								f (mm/rev)	f (mm/rev)
2	0,05–0,23	0,05–0,23	0,05–0,23	0,05–0,20					0,05–0,20	When axial grooving reduce feed by 40%.
3	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,20				0,05–0,25	
4	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,25			0,05–0,30	
5	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,32	0,10–0,30		0,10–0,35	
6	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,36	0,10–0,33	0,10–0,30	0,10–0,40	

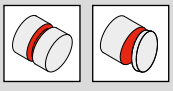
GX – Depths of cut and feed rates

GX-M1	
Groove width CW (mm)	 Parting / Grooving
	Feed rate f (mm/rev.)
2	0,05–0,15
3	0,10–0,20
4	0,10–0,25

GX circlip grooving	
Groove width CW (mm)	Grooving
	Feed rate f (mm/rev.)
0,60–1,70	0,02–0,09
1,95–2,25	0,05–0,10
2,75–3,25	0,05–0,12

GX Standard / GX-27P / GX-27PF									
	Turning								 Parting / Grooving
Radius CRE (mm)	Depth of cut a_p (mm) 0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	
	Feed rate f (mm/rev.)								f (mm/rev)
0,8									0,05–0,10
1,0									0,05–0,15
1,2									0,05–0,15
1,5	0,10–0,45	0,05–0,45	0,05–0,40						0,05–0,15
2,0	0,15–0,50	0,10–0,50	0,10–0,50	0,10–0,40					0,075–0,20
2,5	0,15–0,60	0,10–0,60	0,10–0,60	0,10–0,50	0,10–0,45				0,10–0,25
3,0	0,25–0,70	0,20–0,70	0,15–0,70	0,15–0,70	0,15–0,65	0,15–0,60	0,15–0,55		0,10–0,30
4,0	0,25–0,80	0,20–0,80	0,15–0,80	0,15–0,80	0,15–0,80	0,15–0,80	0,15–0,75	0,15–0,70	0,15–0,35

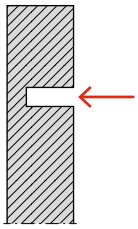
GX-M3							
	Turning						 Parting / Grooving
Radius CRE (mm)	Depth of cut a_p (mm) 0,5	1,0	1,5	2,0	2,5	3,0	
	Feed rate f (mm/rev.)						f (mm/rev)
1,5	0,15–0,35	0,15–0,35	0,15–0,30				0,05–0,20
2,0	0,15–0,40	0,15–0,40	0,15–0,40	0,15–0,30			0,10–0,25
2,5	0,15–0,50	0,15–0,50	0,15–0,50	0,15–0,40	0,15–0,35		0,10–0,25
3,0	0,20–0,70	0,20–0,70	0,20–0,70	0,20–0,60	0,20–0,50	0,20–0,40	0,10–0,35

GX-M33							
	Turning						 Parting / Grooving
Radius CRE (mm)	Depth of cut a_p (mm) 0,5	1,0	1,5	2,0	2,5	3,0	
	Feed rate f (mm/rev.)						f (mm/rev)
1,5	0,05–0,25	0,05–0,20	0,05–0,15				0,05–0,15
2,0	0,05–0,35	0,05–0,30	0,05–0,25	0,05–0,20			0,05–0,20
2,5	0,10–0,45	0,10–0,40	0,10–0,35	0,10–0,30	0,10–0,25		0,05–0,25
3,0	0,10–0,50	0,10–0,45	0,10–0,40	0,10–0,35	0,10–0,30	0,10–0,25	0,10–0,25

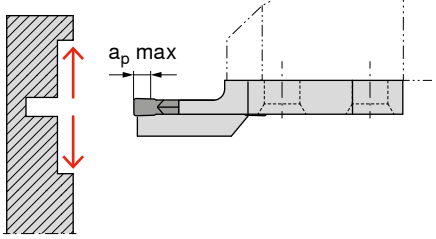
GX 24 – Axial grooving and face turning

Approximate feed rates

Axial grooving



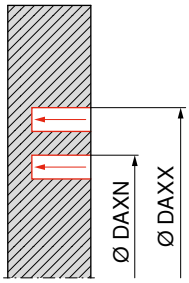
Face turning



Designation	Axial grooving	Face turning	
	Feed rate f (mm/rev.)	f (mm/rev)	a_p max. (mm)
GX 24-2 E 3.00 ..	0,05–0,15	0,05–0,20	2,5
GX 24-3 E 4.00 ..	0,05–0,15	0,05–0,25	3,0
GX 24-3 E 5.00 ..	0,05–0,15	0,10–0,25	3,0
GX 24-4 E 6.00 ..	0,05–0,20	0,10–0,30	3,5

Processing notes

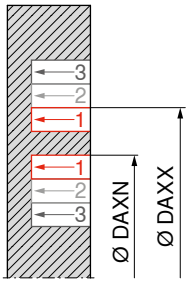
Axial grooving



It is only possible to plunge within the fixed diameter range of the axial grooving module or monoholder (e.g. 50 - 70 mm).

Important: The indicated diameter range is always valid for the external diameter of the groove!

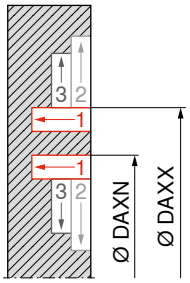
Axial grooving – Groove widening



In case of face turning it is possible to widen the groove above and below the diameter range indicated on the Axial grooving module or monoholder.

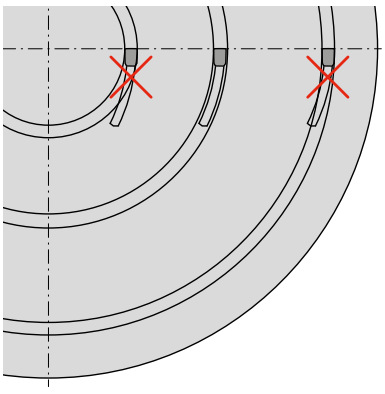
Important: Only the first groove must lie within the diameter range of the axial grooving module or axial monoholder. The depth of the widening groove must not be larger than the depth of the original groove.

Axial grooving and face turning



Groove widening by face turning in the diameter range above and below the values specified for the Axial grooving module and Axial monoholder are possible.

Important: Only the first groove must lie within the diameter range of the module.



Attention: The diameter of face grooves must lie within the diameter range indicated on the axial grooving module and axial monoholder. Not following this range will result in the tool being damaged or destroyed.

SX – Depths of cut and feed rates

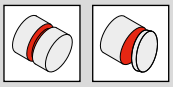
SX-F2								
Groove width CW (mm)	Turning Depth of cut a_p (mm)							Parting / Grooving
	0,50	0,75	1,00	1,25	1,50	1,75	2,00	
	Feed rate f (mm/rev.)							f (mm/rev)
2	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,10				0,05–0,15
3	0,04–0,17	0,04–0,17	0,04–0,17	0,04–0,15	0,04–0,13	0,04–0,12		0,075–0,20
4	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,17	0,05–0,15	0,10–0,25

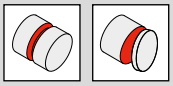
SX-27P							
Groove width CW (mm)	Turning Depth of cut a_p (mm)						Parting / Grooving
	0,5	1,0	1,5	2,0	2,5	3,0	
	Feed rate f (mm/rev.)						f (mm/rev)
2	0,05–0,23	0,05–0,23	0,05–0,23	0,05–0,20			0,05–0,20
3	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,20		0,05–0,25
4	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,25	0,05–0,30

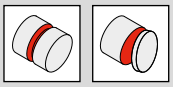
SX-M2							
Groove width CW (mm)	Turning Depth of cut a_p (mm)						Parting / Grooving
	0,5	1,0	1,5	2,0	2,5	3,0	
	Feed rate f (mm/rev.)						f (mm/rev)
2	0,05–0,17	0,05–0,13	0,05–0,10				0,05–0,15
3	0,07–0,20	0,07–0,20	0,07–0,18	0,07–0,15			0,075–0,20
4	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,22	0,10–0,18		0,10–0,25
5	0,12–0,27	0,12–0,27	0,12–0,27	0,12–0,25	0,12–0,22		0,10–0,30
6	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,25	0,15–0,20	0,15–0,35

SX-M1		SX-M7		SX-M8	
Groove width CW (mm)	Parting / Grooving	Groove width CW (mm)	Parting / Grooving	Groove width CW (mm)	Parting / Grooving
	f (mm/rev)		f (mm/rev)		f (mm/rev)
2	0,05–0,15	2	0,10–0,20	2	0,05–0,20
3	0,10–0,20	3	0,10–0,20	3	0,05–0,20
4	0,10–0,25	4	0,10–0,20	4	0,05–0,15
5	0,15–0,30	5	0,15–0,25	5	0,05–0,15
6	0,15–0,35	6	0,15–0,25	6	0,05–0,15

SX/LX – Depths of cut and feed rates

SX-M3							
	Turning						
Radius CRE (mm)	Depth of cut a_p (mm) 0,5	1,0	1,5	2,0	2,5	3,0	Parting / Grooving
	Feed rate f (mm/rev.)						f (mm/rev)
1,5	0,15–0,35	0,15–0,35	0,15–0,30				0,05–0,20
2	0,15–0,40	0,15–0,40	0,15–0,40	0,15–0,30			0,10–0,25
2,5	0,15–0,50	0,15–0,50	0,15–0,50	0,15–0,40	0,15–0,35		0,10–0,25
3	0,20–0,70	0,20–0,70	0,20–0,70	0,20–0,60	0,20–0,50	0,20–0,40	0,10–0,35

LX-M2									
	Turning								
Groove width CW (mm)	Depth of cut a_p (mm) 0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	Parting / Grooving
	Feed rate f (mm/rev.)								f (mm/rev)
8	0,17–0,45	0,17–0,45	0,17–0,45	0,17–0,45	0,17–0,40	0,17–0,37	0,17–0,35		0,20–0,50
10	0,20–0,50	0,20–0,50	0,20–0,50	0,20–0,50	0,20–0,46	0,20–0,42	0,20–0,38	0,20–0,35	0,20–0,50

LX-M3									
	Turning								
Radius CRE (mm)	Depth of cut a_p (mm) 0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	Parting / Grooving
	Feed rate f (mm/rev.)								f (mm/rev)
4	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,70	0,25–0,60	0,25–0,50	0,15–0,35

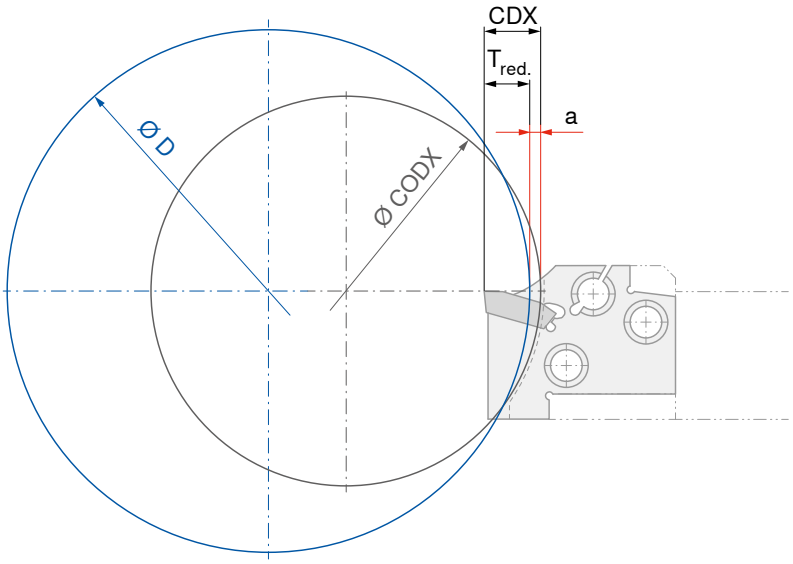
11

ModularClamp – Grooving depth reduction

The ModularClamp grooving modules are matched according to size on a particular workpiece diameter CODX. If the diameter of the workpiece is greater than CODX of the grooving Modules, this reduces the achievable penetration depth by the dimension „a“.
The extent of reduction can be determined with the following table.

			Reduction a (mm) of the maximum grooving depth (CDX)															
			0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0	6,5	7,0	7,5	8,0
Size	E12	35	40	45	60	75	115	> 250										
	E16	50	55	60	70	80	100	130	200	> 420								
	E20	60	65	70	75	85	95	110	130	165	220	> 330						
	E25	75	80	85	90	100	110	125	140	160	190	240	320	> 500				
	E32	95	100	105	110	120	125	135	145	160	180	200	225	270	320	400	530	> 800
			Workpiece diameter D (mm)															
		Maximum workpiece diameter (CODX) with full penetration depth (CDX) in mm																

Calculation example:



CDX =
maximum plunge depth (mm)

CODX =
maximum workpiece Ø with full penetration depth (mm)

a =
Reduction amount (mm)

$$T_{red.} = CDX - a$$

E25R**21**-GX24-3

CDX = 21 mm, Ø CODX = 75 mm

Size 25

Workpiece diameter
D = Ø 100 mm

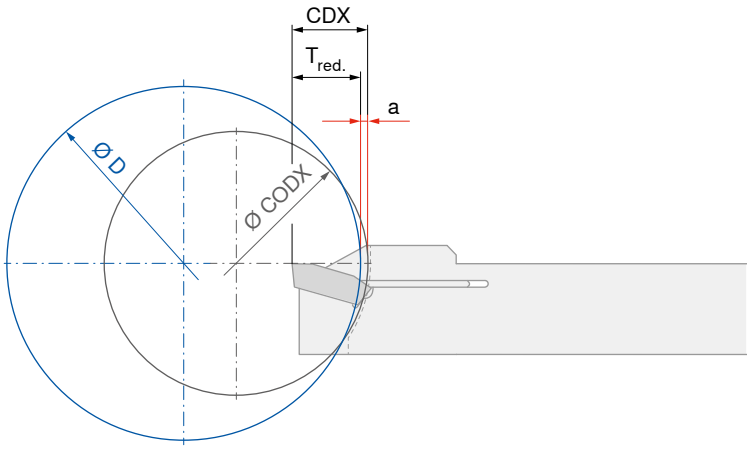
$T_{red.}$ = CDX – a = 21 – 2 = 19 mm

MonoClamp – Grooving depth reduction

Depending on the groove width and shank size, the MonoClamp tools are designed for use with a specific workpiece diameter CODX. If the workpiece diameter is larger than the CODX of the grooving module, the achievable groove depth is reduced by the dimension „a“. The extent of the reduction is determined using the following table.

Shank			Reduction a (mm) of the maximum grooving depth (CDX)								
			0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5
	E12R/L0022...	44	70	80	95	115	150	225	> 450		
	E16R/L0026...	52	90	105	125	155	210	305	> 600		
	E20R/L0026...	52	110	125	140	160	195	240	320	475	> 950
	E20R/L0033...	66	110	125	140	160	195	240	320	475	> 950
	E25R/L0026...	52	140	160	190	235	310	465	> 930		
	E25R/L0033...	66	155	175	200	230	275	340	450	675	> 1350
	E25R/L0040...	80	155	175	200	230	275	340	450	675	> 1350
			Workpiece diameter D (mm)								
		Maximum workpiece diameter (CODX) with full penetration depth (CDX) in mm									

Calculation example:



CDX =
maximum plunge depth (mm)

CODX =
maximum workpiece Ø with full penetration depth (mm)

a =
Reduction amount (mm)

$$T_{red.} = CDX - a$$

E25R0033...

CDX = 33 mm, Ø CODX = 66 mm

Workpiece diameter
D = Ø 200 mm

$T_{red.}$ = CDX – a = 33 – 1,5 = 31,5 mm

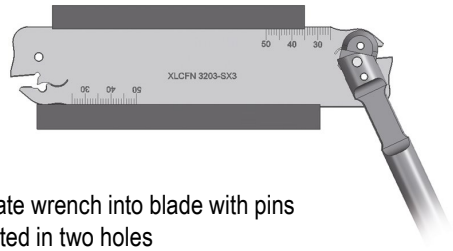
11

Clamping Method – SX-System

System function – inserting and removing the cutting inserts

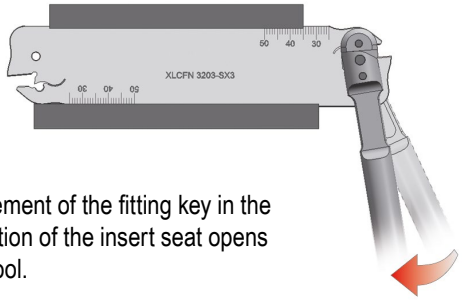
Precision system for internal and external grooving.
The key has been designed in such a way that it will not stress the material beyond its ‘elastic limit’.
With this alternate system the material always remains in its flexible range and provides a substantial increase in tool life.

1



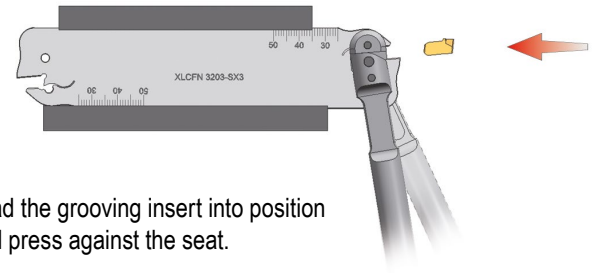
Locate wrench into blade with pins located in two holes

2



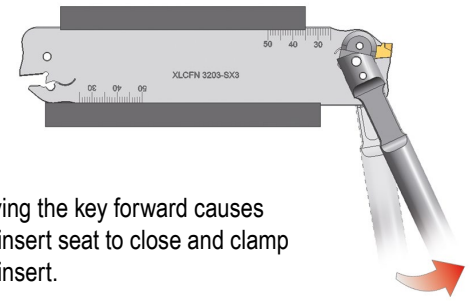
Movement of the fitting key in the direction of the insert seat opens the tool.

3



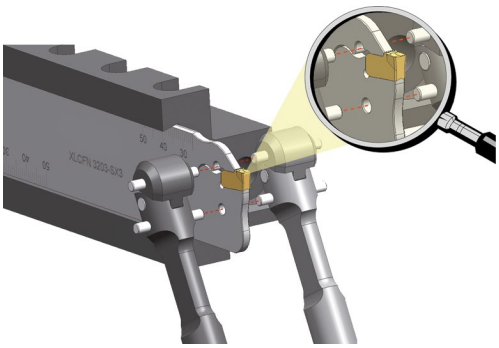
Load the grooving insert into position and press against the seat.

4



Moving the key forward causes the insert seat to close and clamp the insert.

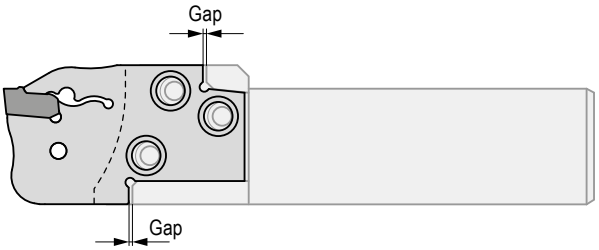
When changing the inserts, always maintain tension on the key!



The clamp is designed so that the wrench can be inserted from both sides of the blade according to the accessibility.

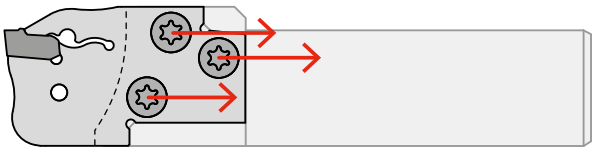
Maximum blade projection when turning	
Blade	max. overhang (mm)
SX 2 – SX 3	25
SX 4 – SX 5	30
SX 6	35

Clamping function – ModularClamp-Module



Module unclamped

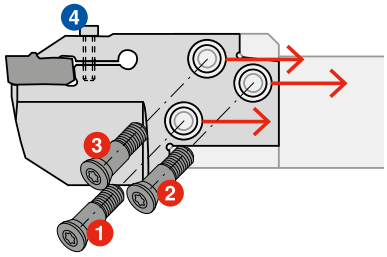
▲ Gap between module and support face for axial clamping



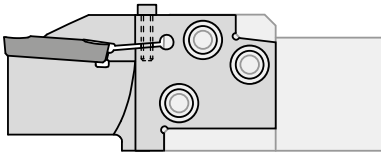
Module clamped

▲ Axial clamping with support face
▲ Connection free from play, therefore maximum stability

System
LX



GX 24

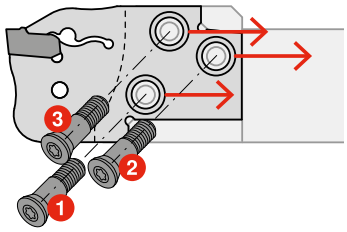


Active insert clamping

Clamping screws 1, 2 and 3 are used to clamp the modules.
The insert is clamped in the module via the additional screw 4.

11

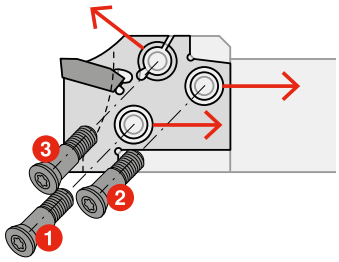
System
SX



Self clamping of the insert

Clamping screws 1, 2 and 3 are used for clamping the module.
The insert is self-clamping.

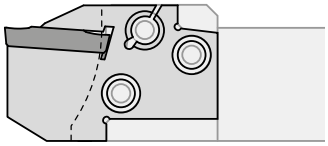
System
GX 09 / GX 16



Active insert clamping

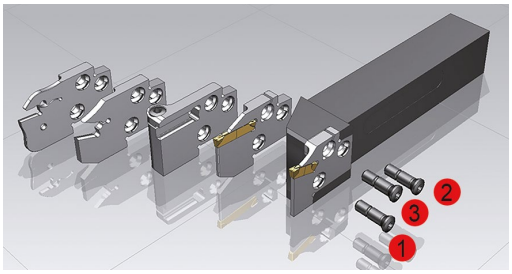
Clamping screws 1 and 2 are used for clamping the module.
Important: first tighten clamp screws 1 and 2.
Then clamp the insert with screw 3.

GX 24



Torque Moment ModularClamp Module Screws

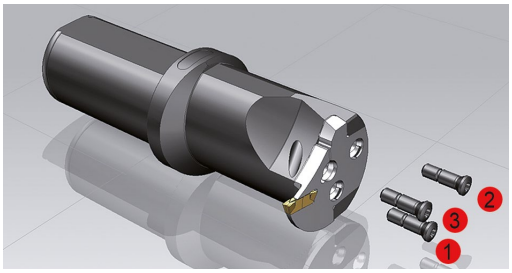
ModularClamp – Tool holder



ModularClamp – Tool holder	Screw	Torx	Torque moment	
			Nm	in.lbs
E12..	M2,5x10	T08	1,2	10,6
E16..	M3,5x12,5	T15	3,2	28,3
E20..	M4x14	T15	4,0	35,4
E25..	M5x18	T20	5,0	44,3
E32..	M6x20	T25	6,0	53,1

Tighten screws to the correct Torque moment in this order.

ModularClamp – Boring bar



ModularClamp – Boring bar	Screw	Torx	Torque moment	
			Nm	in.lbs
I16..	M2,5x10	T08	1,2	10,6
I20..	M3x11	T10	2,0	17,7
I25..	M3,5x12,5	T15	3,2	28,3
I32..	M4,5x17	T20	4,0	35,4
I40..	M5x18	T20	5,0	44,3

Tighten screws to the correct Torque moment in this order.

Tightening torque for the insert clamping

Recommended tightening torque

Grooving systems	Screw	Torx	Torque moment	
			Nm	in.lbs
GX / AX / LX	M3,5	T15	3,2	28,3
	M4,0	T15/T20	4,0	35,4
	M5,0	T20	5,0	44,3

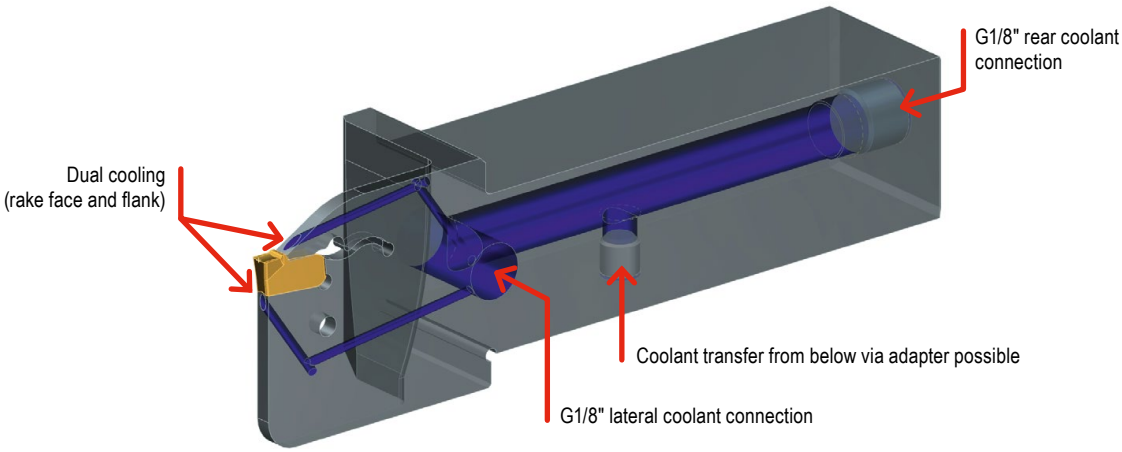
Advantages due to DirectCooling

Internal coolant supply with groove machining has a decisively positive effect on your turning process.
In our CERATIZIT grooving range, the following grooving systems have an internal coolant supply:

- **SX** Grooving holder (single tool)
- **GX** Grooving holder (single tool)

Advantages due to DirectCooling

- Improved chip control
- Longer service life of the indexable insert
- Greater process security
- Application of higher cutting data

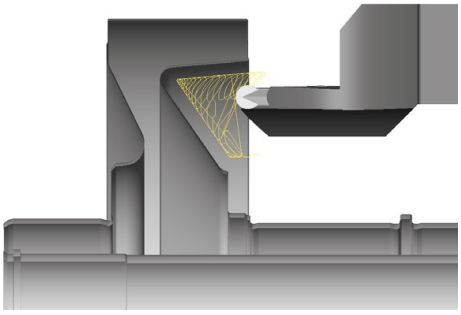


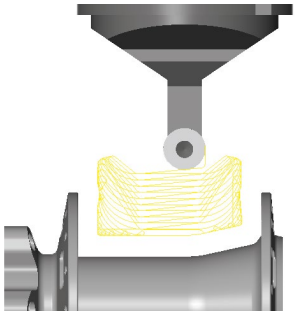
Advantages of the trochoidal turning strategy

- Less wear and longer tool life due to softer entry and exit
- Smaller angle of engagement = less vibration
- Up to 40% higher feed rate values possible
- Broad field of application in austenitic steels, heat-resistant steels, Inconel and nickel-base alloys as well as long-chipping ductile materials
- Savings on tools

Trochoidal turning with support of the following CAM systems:

- hyperMill – High-performance turning
- Esprit CAM – ProfitTurning
- SolidCAM – Turning
- EdgeCAM – Waveform turning
- MasterCAM – Dynamic turning



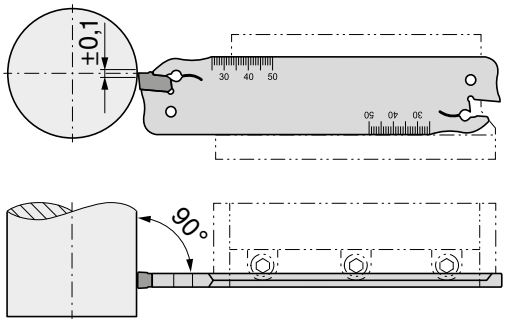


Possible applications

- Radial and axial recesses and grooves
- Rough machining – high-speed turning with button insert

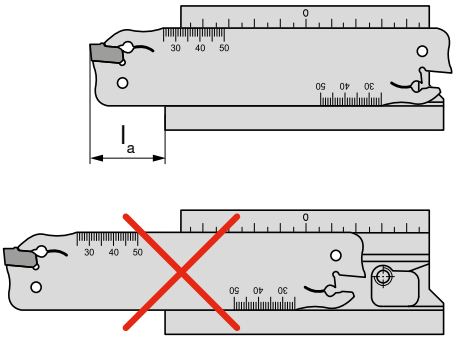
General references

Tool position

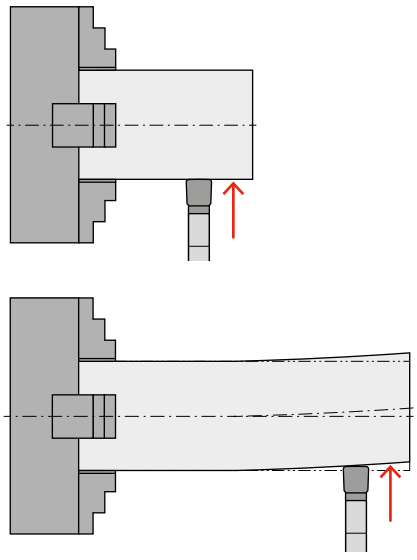


Tool overhang

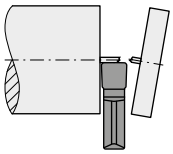
As a rule of thumb: Overhang l_a should not be greater than 8 x CW (Groove width).



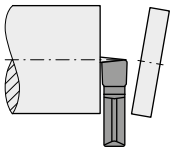
Workpiece overhang



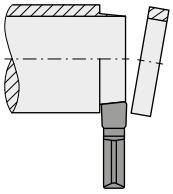
References for Parting off



From Ø 5 mm on, reduce feed “f“ by approx. 50 %. No parting across centre (risk of breakage).

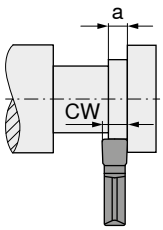


For parting pip-free, use R or L inserts. In order to minimize lateral deflection reduce feed by approx. 20–50 %.

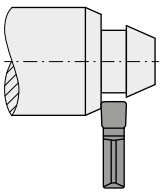


In order to prevent ring formation, use R or L inserts. Reduce feed “f“ because of lateral deflection by approx. 20–50 %.

References for grooving



When grooving with an axial displacement the width „a“ should amount to at least 70 % of the grooving width „CW“.



When grooving oblique surfaces the feed should be reduced by approx. 20–50 % until fully engaged.

Trouble shooting guide for grooving FX/SX/GX/LX

Type of problem											
Type of wear				Work piece problems				Swarf control			
Edge breakage	Built-up edge	Wear on clearance face	Plastic deformation	Vibration	Formation of pips and burrs	Chattered surface	Surface quality	Chip too long (snarl chip)	Chip too short (fragmented chip)		
	↑	↓	↓	↓			↑	↓		Cutting speed	Cutting data
↓			↓	↑		↓	↓	↑	↓	Feed rate	Cutting data
↓		↓	↓		↓	↓	↓			Feed rate at centre -R -F -M ↑ ↓	Cutting data
↑	↓		~	~	↓	↓	↓	↓	↑	Chip groove	Insert selection
					●					R/L execution	Insert selection
↑		↑	↑	↓	↓	↓	↑			Corner radius ↑ larger ↓ smaller	Insert selection
↓		↑	↑							Tool Material ↑ Wear resistance ↓ toughness	Insert selection
				↓		↑	↑			Groove width	Insert selection
~				~		~	~			Tool clamping	General criteria
~				~		~	~			Work piece clamping	General criteria
~				~			↓			Overhang	General criteria
~		~		~	~		~			Tip height	General criteria
	●	●	●		●		●	●		Cooling lubricant	General criteria

Remedy measures

↑ raise, increase large influence
↑ raise, increase small influence
↓ avoid, reduce large influence
↓ avoid, reduce small influence
~ check, optimise
● use

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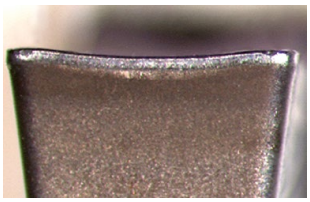
Wear causes

Wear on clearance face



Abrasion on the flank, normal wear after a given operation time

Cause

- ▲ cutting speed too high
- ▲ grade with too low wear resistance
- ▲ insufficient coolant

Remedy

- ▲ Reduce the cutting speed
- ▲ select a more wear resistant grade
- ▲ Improve/check coolant feed

Edge chipping

Excessive mechanical stress on the cutting edge causing carbide particles to break out.

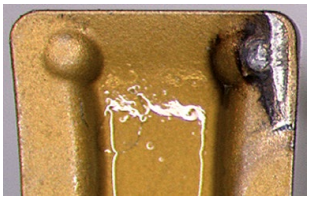
Cause

- ▲ too hard grade
- ▲ vibration
- ▲ too high feed and depth of cut
- ▲ chip impact

Remedy

- ▲ use tougher grade
- ▲ use negative geometry with chip breaker
- ▲ reduce overhang, check center height
- ▲ stabilize the cutting edge

Cratering



The outgoing hot chip causes cratering of the insert on the clamping surface.

Cause

- ▲ too high cutting speed, feed, or both
- ▲ too low rake angle
- ▲ grade with too low wear resistance
- ▲ incorrectly supplied cooling

Remedy

- ▲ Reduce cutting speed and / or feed
- ▲ Check coolant flow and / or increase pressure
- ▲ Use harder grade

Plastic deformation

Large mechanical load produces high temperature machining, this can lead to plastic deformation.

Cause

- ▲ too high operating temperature, thus softening the base material
- ▲ unsuitable grade
- ▲ inadequate coolant supply

Remedy

- ▲ Reduce the cutting speed
- ▲ select a more wear resistant grade
- ▲ use coolant

Built-up edge

Weld deposits of material on the cutting edge occurs when the chip does not flow caused by low average temperature.

Cause

- ▲ too low cutting speed
- ▲ too low rake angle
- ▲ Incorrect grade
- ▲ lack of cooling / lubrication

Remedy

- ▲ Increase the cutting speed
- ▲ Increase rake angle
- ▲ Use TiN coating
- ▲ increase coolant strength

Notch wear

Contraction at maximum cutting depth.

Cause

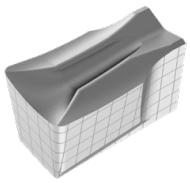
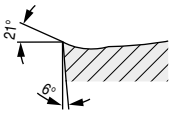
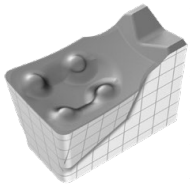
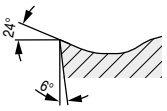
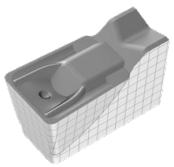
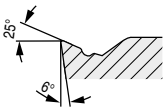
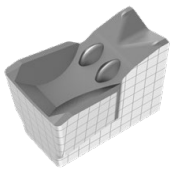
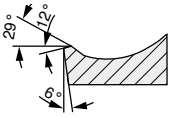
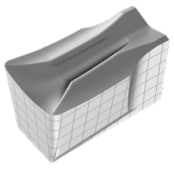
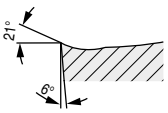
- ▲ Oxidation at the cutting edge
- ▲ Too high a temperature at the edge

Remedy

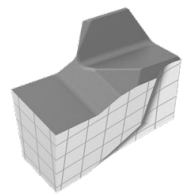
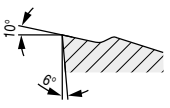
- ▲ Use different cutting depths
- ▲ Reduce cutting speed
- ▲ Improve/check coolant feed

Chip breakers / Applications

System GX

		Smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTP1340** **CTP1340/CTPP345** **CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTPP345 		0,05–0,15
-Standard / -E ▲ positive geometry ▲ low-medium feed rates ▲ low cutting forces ▲ universal application ▲ first choice for axial grooving		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP335/CTP1340** **CTP1340/CTPP345** **CTCP335/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		0,05–0,17
-M40 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		0,075–0,20
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for intterrupted cut ▲ for high tensile materials ▲ first choice for parting off		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		0,1–0,20
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		 **H216T** **H216T** H216T H216T	 **H216T** **H216T** H216T 	 **H216T** **H216T** 		0,05–0,25

Circlip grooving

Standard ▲ positive geometry ▲ honed cuttign edge ▲ low feed rates ▲ small corner radius ▲ Circlip grooves		**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	CTP1340 CTP1340 CTP1340 CTP1340 CTP1340 		0,05–0,30

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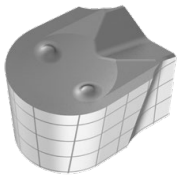
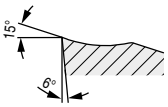
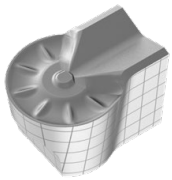
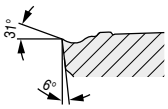
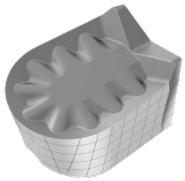
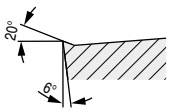
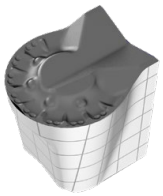
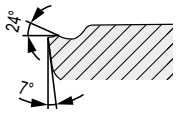
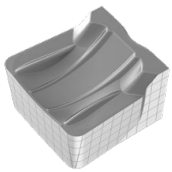
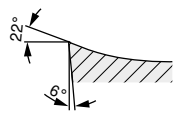
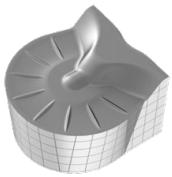
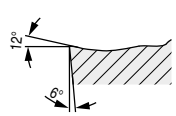
Chip breakers / Applications

System GX

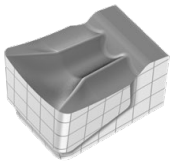
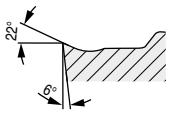
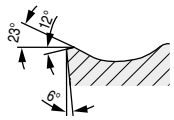
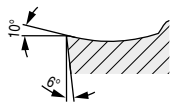
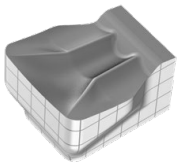
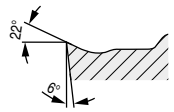
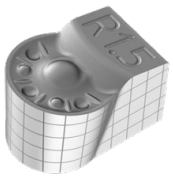
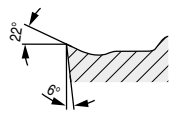
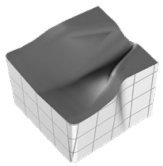
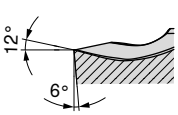
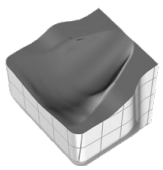
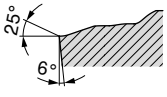
		Smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
Standard – Radius ▲ positive geometry ▲ honed cutting edge ▲ low-medium feed rates ▲ low cutting forces ▲ Radius grooving/copy turning		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP325/CTP1340** **CTP1340** **CTCP325/CTP1340** **CTP1340** CTP1340	CTP1340 CTP1340 CTP1340 		0,05–0,20
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving/copy turning		**CTCP325** CTCP335 **CTCP325** CTCP325 CTCP325	**CTCP325/CTCP335** CTCP335 **CTCP325/CTCP335** 	**CTCP335** **CTCP335** 		0,07–0,20
-27P – Radius ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		 **H216T** **H216T** H216T H216T	 **H216T** **H216T** H216T 	 **H216T** **H216T** 		0,05–0,30
-M33 ▲ Radius grooving & copy turning ▲ Finishing geometry ▲ Specially for tough and ductile steels ▲ Low - medium feed rates ▲ High surface quality		**CTCP325** CTCP325 **CTCP325** 	**CTCP325** CTCP325 **CTCP325** 	CTCP325 CTCP325 CTCP325 		0,05–0,20

System LX

		Smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
-M2 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		**CTCP325** CTCP335 **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP335/CTP1340** **CTP1340** **CTCP325** **CTP1340** CTP1340	**CTCP335** CTP1340 **CTCP335** CTP1340 		0,20–0,50
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving/copy turning		**CTCP325** CTCP335 **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP335/CTP1340** **CTP1340** **CTCP325/CTCP335** **CTP1340** CTP1340	**CTCP335** CTP1340 **CTCP335** CTP1340 		0,15–0,35

Chip breakers / Applications

System SX

		Smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP325/CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** **CTP1340** CTPP345 		0,05–0,15
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for intterrupted cut ▲ for high tensile materials ▲ first choice for parting off		CTCP325 **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	CTCP335/CTP1340 **CTP1340** **CTCP325/CTP1340** **CTP1340** CTP1340	CTPP345 **CTPP345** CTP1340 CTPP345 		0,10–0,20
-M2 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		CTCP325 **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	CTCP335/CTP1340 **CTP1340** **CTCP325/CTP1340** **CTP1340** CTP1340	CTPP345 **CTPP345** CTP1340 CTPP345 		0,075–0,20
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		 **H216T** **H216T** H216T H216T	 **H216T** **H216T** H216T 	 **H216T** **H216T** 		0,05–0,25
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving / Copy turning		**CTCP335** **CTP1340** **CTCP335** **CTP1340** CTP1340	**CTCP335/CTP1340** **CTP1340** **CTCP335/CTP1340** **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340 		0,05–0,20
-M7 ▲ Grooving & parting off ▲ First choice for steel ▲ Medium - high feed rates ▲ Good chip control ▲ Positive geometry		**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340 CTP1340 CTP1340	 		0,10–0,20
-M8 ▲ Grooving & parting off ▲ Ground cutting edge ▲ Good chip control ▲ First choice for stainless steel ▲ Low feeds		**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340 CTP1340 CTP1340	 		0,03–0,15

11

Example of Coding Grooving Tools

Grooving insert

GX	16	2	E	3.00	N	0.50
Grooving system (GX)	Insert length (16 mm)	Width class of the holder / module or support surface (2 mm)	Type of insert, application	Groove width (3.0 mm)	Insert seat N = Neutral L = Left R = Right	Corner radius size (0.5 mm)

Module

E	25	R	12	GX	16	2
Application E = External I = Internal	Size (25 mm)	Module version R = Right L = Left	Maximum groove depth (12 mm)	Grooving system (GX)	Insert size (16 mm)	Width class 2

Basic holder

E	25	R	00	2525	L
Application E = External I = Internal	Size (25 mm)	Holder version R = Right L = Left	Approach angle 0°	Shank type 25x25mm	Shank length L = (see ISO)

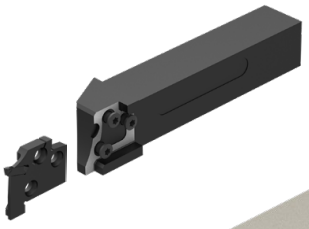
Monobloc tool holder

E	25	R	00	13	S3	2525	X	S	DC	GX16
Application E = External I = Internal	Size (25 mm)	Holder version R = Right L = Left	Approach angle 0°	Groove depth (13 mm)	Groove width (3.0 mm)	Shank type 25x25mm	Shank length X = (see ISO)	Insert clamping S = Key	Cooling system DC = DirectCooling	Grooving system/width (3 mm)

Summary

Grooving insert

GX 16-2 E3.00 N 0.50

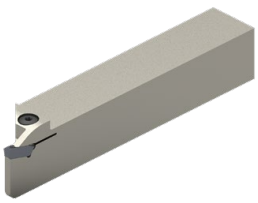


Module

E25 R 12- GX 16-2

Basic holder

E25 R 00 - 2525L

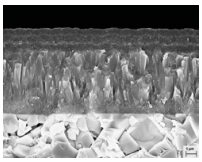


Monobloc tool holder

E25 R 0013S3-2525X-S-DC-GX16

Grade description

CTCP325

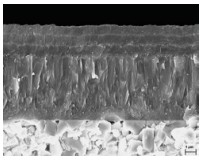


ISO | **P25** | M20 | **K30** | S25

Specifications:
Composition: Co 7.0%; mixed carbide 8.1%; WC balance | grain size: 1-2 µm | Hardness: HV_{30} 1470 |
Layer system: CVD TiCN-Al_2O_3 Multilayer

Recommended use:
The wear-resistant solution for steel and cast iron materials at high cutting speeds

CTCP335

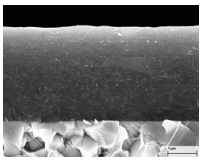


ISO | **P35** | M30 | **K35**

Specifications:
Composition: Co 10.5%; mixed carbide 1.9%; WC balance | grain size: 1 µm | Hardness: HV_{30} 1370 |
Layer system: CVD TiCN-Al_2O_3 Multilayer

Recommended use:
The reliable choice for machining steel and cast iron materials.

CTP1340

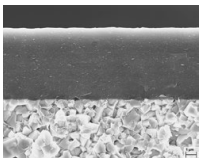


ISO | **P30** | **M35** | **K30** | N30 | **S30** | O30

Specifications:
Composition: Co 9.0%; mixed carbide 0.75%; WC balance | grain size: 0.7–1 µm | Hardness: HV_{30} 1590 | Layer system: PVD TiAlTaN

Recommended use:
The universal high-performance grade for steels, austenitic steel, cast iron materials and heat-resistant alloys

CTPP345

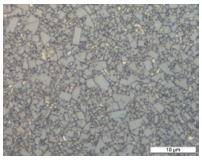


ISO | **P45** | **M40** | S40

Specifications:
Composition: Co 12.5%; mixed carbide 2.0%; WC balance | grain size: 1-1.5 µm | Hardness: HV_{30} 1350 | Layer system: PVD TiAlTaN

Recommended use:
The reliable solution for steel and austenitic steels in unstable conditions.

H216T

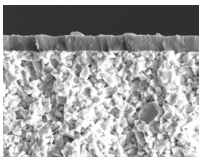


ISO | **K15** | **N15** | S15 | O10

Specification:
Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1630

Recommended application:
The uncoated carbide grade for the machining of aluminium and other non-ferrous metals

CWX500

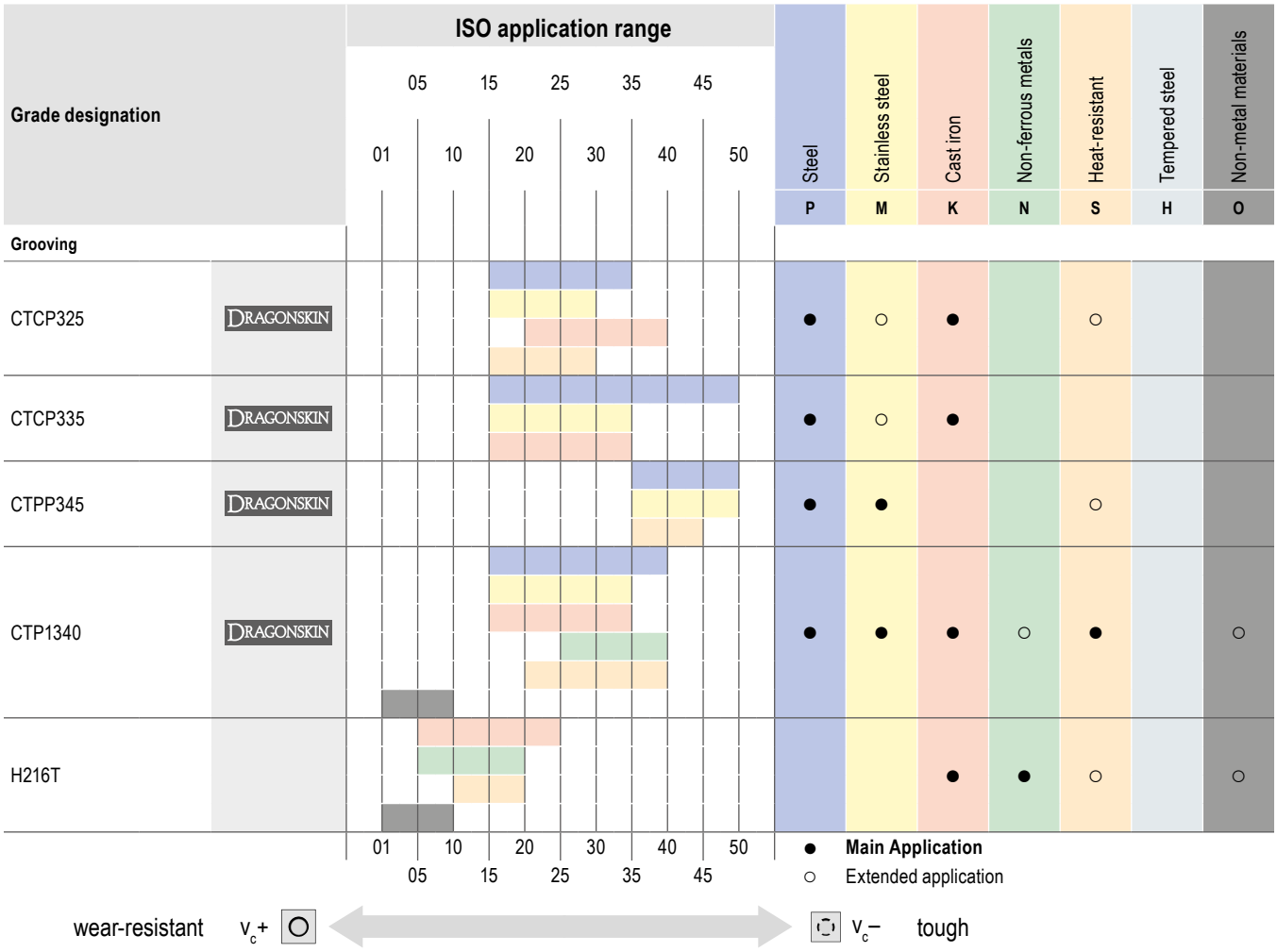


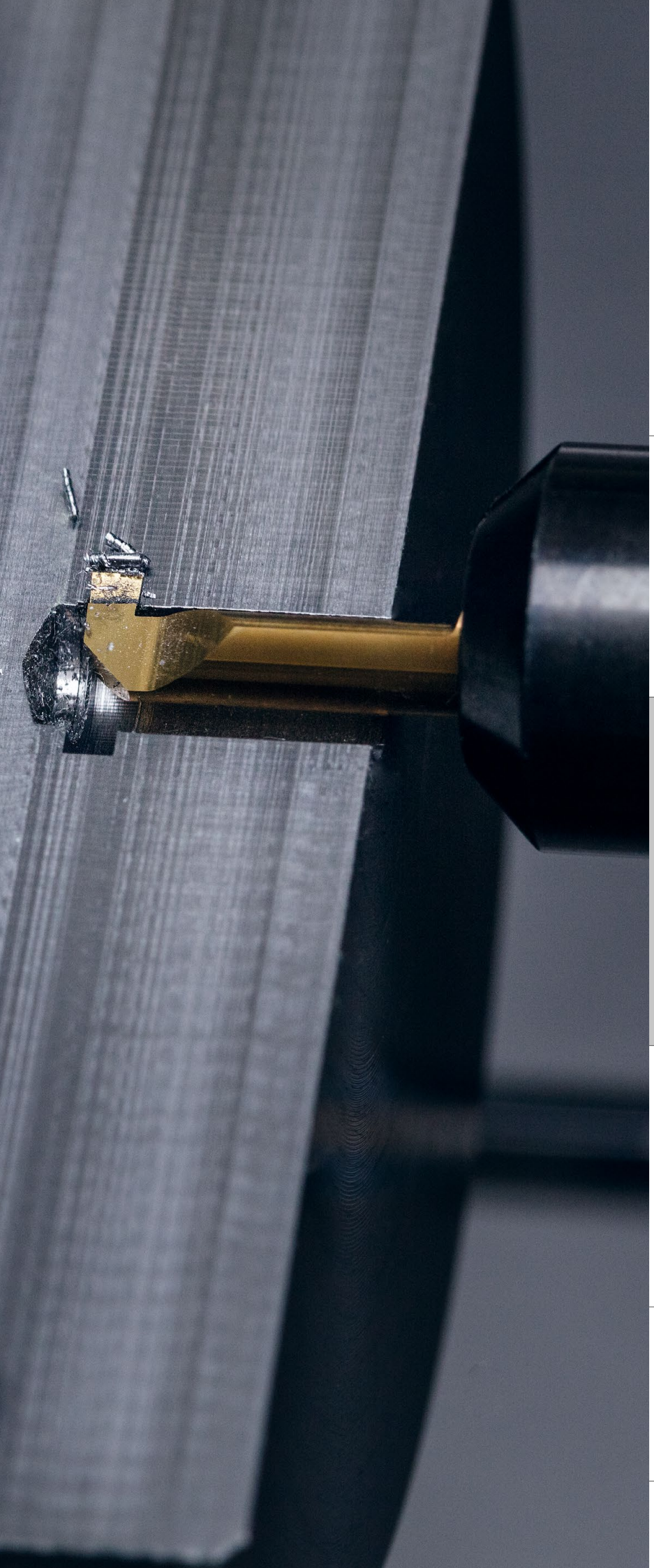
ISO | **P30** | **M30** | **K35** | **N35** | **S15** | H05 | **O10**

Specification:
Composition: Co 10.0%; Others 0.7 %, WC balance | Grain size: 1 µm | Hardness: HV_{30} 1660

Recommended application:
The universal carbide grade for almost all materials

Application





Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools **12**

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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Toolfinder	4+5
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MiniCut	35–53
UltraMini + MiniCut Hard Turning	10+36
SlotCut – Broaching	54–57
Technical Information	
Cutting Data	58–61
Broaching – Recommendations for Correct Use	62
Symbol explanation, coatings and thread types	63

WNT \ Performance

Premium quality tools for high performance.

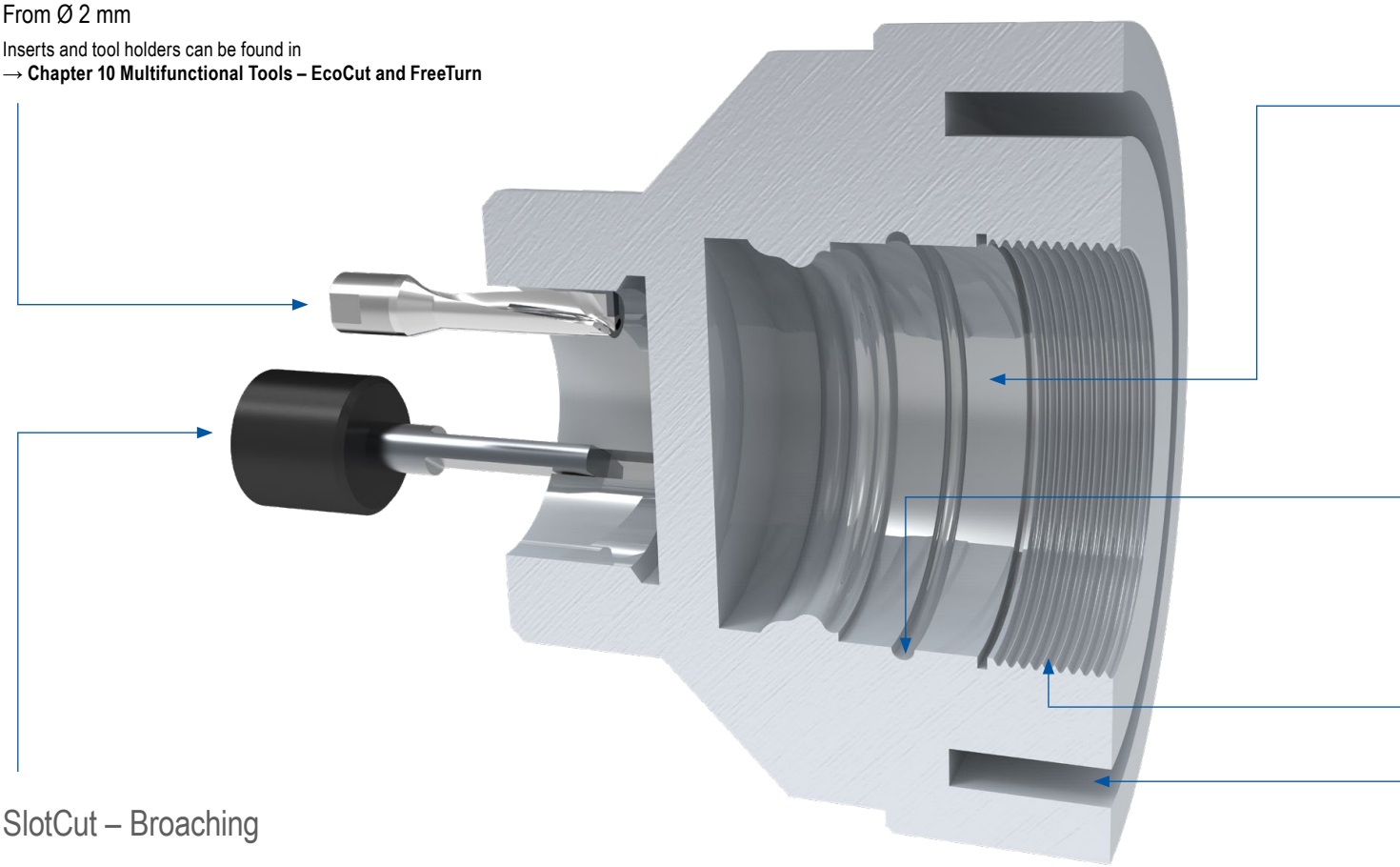
The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools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

Toolfinder

EcoCut Mini

From Ø 2 mm

Inserts and tool holders can be found in
→ **Chapter 10 Multifunctional Tools – EcoCut and FreeTurn**



SlotCut – Broaching

Inserts + Holder DIN138 54–57

Symbol explanation

Internal machining

Internal grooving

Internal thread turning

Axial machining

System overview

UltraMini

- ▲ from Ø 0.5 mm
- ▲ flexible system
- ▲ ground inserts
- ▲ high repeatability
- ▲ coolant supply to the cutting edge

MiniCut

- ▲ from Ø 7.8 mm
- ▲ stable three-rib interface
- ▲ easy handling
- ▲ coolant supply to the cutting edge
- ▲ precise cutting edge position

SlotCut

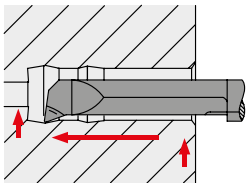
- ▲ broaching directly on the machine
- ▲ usable from Ø 6 mm
- ▲ low machine load
- ▲ variety of tolerance classes

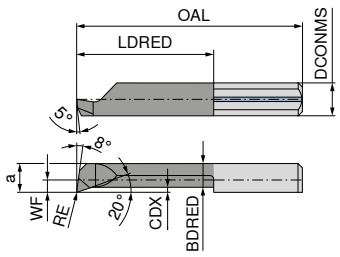
		UltraMini									MiniCut				
Hole diameter (mm)		**≥ 0,5**	**≥ 2**	**≥ 2,4**	**≥ 2,8**	**≥ 3**	**≥ 4**	**≥ 5**	**≥ 6**	**≥ 8**	**≥ 16**	**≥ 8**	**≥ 9**	**≥ 11**	**≥ 14**	**≥ 16**
Internal turning and profiling		6–9	6–9	6–9	6–9		6–9	6–9	6–9			35	35	35	35	35
Internal turning and profiling – hard turning			10		10		10	10	10			36		36	36	36
High-feed turning			11			11	11	11	11							
Internal turning					12		12	12				37	37	37	37	37
Back boring						13	13	13	13			38	38	38	38	
Turning and chamfering								14	14			38	38	38	38	
Pre-parting and chamfering							14	14	14			39	39	39	39	39
Internal Undercuts			18		18		18	18	18			42	42	42	42	42
Groove turning			15–17			15–17	15–17	15–17	15–17			40+41	40+41	40+41	40+41	40+41
Groove and profile turning							19	19	19			43	43	43	43	43
Internal thread turning				20–22			20–22	20–22	20–22			44–47	44–47	44–47	44–47	44–47
Axial grooving								23–28	23–28	23–28	23–28	48+49	48+49	48+49	48+49	48+49
suitable holder		31–34										50–53				
Sets		29+30														

12

UltraMini – Inserts for internal turning and profiling

▲ CDX = Maximum depth of cut when turning outwards





Illustrations show right-hand versions

TiN	TiN	TiAlN	TiAlN
Left-hand	Right-hand	Left-hand	Right-hand
73 005 ...	**73 004 ...**	**73 005 ...**	**73 004 ...**

ISO designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE				
	mm	mm	mm	mm	mm	mm	mm	mm	mm				
R/L 050.05-2	4		0,5	0,4	20	2	0,03	0,32	0,02	**500**	**500**		
R/L 050.06-2	4		0,6	0,5	20	2	0,05	0,40	0,04	**510**	**510**		
R/L 050.06-3	4		0,6	0,5	20	3	0,05	0,40	0,04	**511**	**511**		
R/L 050.08-4	4		0,8	0,7	20	4	0,05	0,60	0,04			**812**	**812**
R/L 050.1-8	4		1,0	0,9	22	8	0,10	0,75	0,05			**813**	**813**
R/L 050.15-5	4		1,5	1,3	19	5	0,10	1,15	0,05	**515**	**515**		
R/L 050.15-10	4		1,5	1,3	24	10	0,10	1,15	0,05	**516**	**516**		
R/L 050.15-12	4		1,5	1,3	26	12	0,10	1,15	0,05			**818**	**818**
R/L 050.2-5	4		2,0	1,7	19	5	0,10	1,50	0,05	**520**	**520**		
R/L 050.2-10	4		2,0	1,7	24	10	0,10	1,50	0,05	**521**	**521**		
R/L 050.2-15	4		2,0	1,7	29	15	0,10	1,50	0,05	**522**	**522**		
R/L 050.3-10	4	0,6	2,8	2,6	24	10	0,20	2,30	0,10	**531**	**531**		
R/L 050.3-16	4	0,6	2,8	2,6	30	16	0,20	2,30	0,10	**530**	**530**		
R/L 050.3-20	4	0,6	2,8	2,6	34	20	0,20	2,30	0,10	**532**	**532**		
R/L 050.35-10	4	1,1	3,5	3,1	24	10	0,25	2,80	0,10			**835**	**835**
R/L 050.35-16	4	1,1	3,5	3,1	30	16	0,25	2,80	0,10			**836**	**836**
R/L 050.35-20	4	1,1	3,5	3,1	34	20	0,25	2,80	0,10			**837**	**837**
R/L 050.35-24	4	1,1	3,5	3,1	38	24	0,25	2,80	0,10			**838**	**838**
R/L 050.4-10	4	1,5	4,0	3,5	24	10	0,30	3,00	0,10	**541**	**541**	**841**	**841**
R/L 050.4-16	4	1,5	4,0	3,5	30	16	0,30	3,00	0,10	**540**	**540**	**840**	**840**
R/L 050.4-20	4	1,5	4,0	3,5	34	20	0,30	3,00	0,10	**542**	**542**	**842**	**842**
R/L 050.4-24	4	1,5	4,0	3,5	38	24	0,30	3,00	0,10	**545**	**545**	**845**	**845**
R/L 050.4-28	4	1,5	4,0	3,5	42	28	0,30	3,00	0,10	**546**	**546**	**846**	**846**
R/L 050.5-10	5	1,9	5,0	4,4	25	10	0,50	3,80	0,15	**551**	**551**	**851**	**851**
R/L 050.5-15	5	1,9	5,0	4,4	30	15	0,50	3,80	0,15	**552**	**552**	**852**	**852**
R/L 050.5-20	5	1,9	5,0	4,4	35	20	0,50	3,80	0,15	**550**	**550**	**850**	**850**
R/L 050.5-25	5	1,9	5,0	4,4	40	25	0,50	3,80	0,15	**553**	**553**	**853**	**853**
R/L 050.5-30	5	1,9	5,0	4,4	45	30	0,50	3,80	0,15	**554**	**554**	**854**	**854**
R/L 050.5-35	5	1,9	5,0	4,4	50	35	0,50	3,80	0,15	**556**	**556**	**856**	**856**
R/L 050.5-40	5	1,9	5,0	4,4	55	40	0,50	3,80	0,15			**857**	**857**
R/L 050.6-15	6	2,3	6,0	5,3	30	15	0,50	4,50	0,15	**561**	**561**	**861**	**861**
R/L 050.6-22	6	2,3	6,0	5,3	37	22	0,50	4,50	0,15	**560**	**560**	**860**	**860**
R/L 050.6-25	6	2,3	6,0	5,3	40	25	0,50	4,50	0,15	**562**	**562**	**862**	**862**
R/L 050.6-30	6	2,3	6,0	5,3	45	30	0,50	4,50	0,15	**563**	**563**	**863**	**863**
R/L 050.6-35	6	2,3	6,0	5,3	50	35	0,50	4,50	0,15	**564**	**564**	**864**	**864**
R/L 050.6-42	6	2,3	6,0	5,3	57	42	0,50	4,50	0,15	**565**	**565**	**865**	**865**
R/L 050.7-20	7	2,8	6,8	6,3	35	20	0,60	5,50	0,15	**572**	**572**	**872**	**872**
R/L 050.7-25	7	2,8	6,8	6,3	40	25	0,60	5,50	0,15	**573**	**573**	**873**	**873**
R/L 050.7-30	7	2,8	6,8	6,3	45	30	0,60	5,50	0,15	**574**	**574**	**874**	**874**
R/L 050.7-35	7	2,8	7,0	6,3	50	35	0,60	5,50	0,15	**575**	**575**	**875**	**875**
R/L 050.7-40	7	2,8	7,0	6,3	55	40	0,60	5,50	0,15	**576**	**576**	**876**	**876**
R/L 050.7-45	7	2,8	7,0	6,3	60	45	0,60	5,50	0,15	**577**	**577**	**877**	**877**
R/L 050.7-50	7	2,8	7,0	6,3	65	50	0,60	5,50	0,15	**578**	**578**	**878**	**878**

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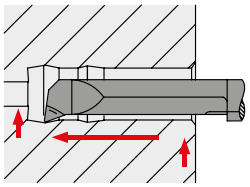
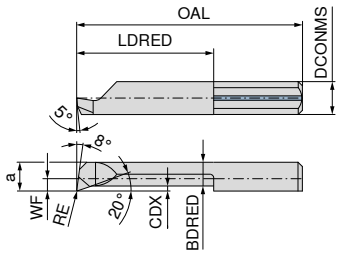
→ v_c Page 59

UltraMini – Inserts for internal turning and profiling

▲ CDX = Maximum depth of cut when turning outwards





	K10F	K10F
	Left-hand	Right-hand
	73 005 ...	**73 004 ...**

ISO designation	DCONMS $_{h6}$	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE		
	mm	mm	mm	mm	mm	mm	mm	mm	mm		
R/L 050.2-5	4		2,0	1,7	19	5	0,1	1,5	0,05	**020**	**020**
R/L 050.2-10	4		2,0	1,7	24	10	0,1	1,5	0,05	**021**	**021**
R/L 050.2-15	4		2,0	1,7	29	15	0,1	1,5	0,05	**022**	**022**
R/L 050.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,10	**031**	**031**
R/L 050.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,10	**030**	**030**
R/L 050.3-20	4	0,6	2,8	2,6	34	20	0,2	2,3	0,10	**032**	**032**
R/L 050.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,10	**041**	**041**
R/L 050.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,10	**040**	**040**
R/L 050.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	0,10	**042**	**042**
R/L 050.5-10	5	1,9	5,0	4,4	25	10	0,5	3,8	0,15	**051**	**051**
R/L 050.5-15	5	1,9	5,0	4,4	30	15	0,5	3,8	0,15	**052**	**052**
R/L 050.5-20	5	1,9	5,0	4,4	35	20	0,5	3,8	0,15	**050**	**050**
R/L 050.5-25	5	1,9	5,0	4,4	40	25	0,5	3,8	0,15	**053**	**053**
R 050.5-30	5	1,9	5,0	4,4	45	30	0,5	3,8	0,05		**054**
L 050.5-30	5	1,9	5,0	4,4	45	30	0,5	3,8	0,15	**054**	
R/L 050.6-15	6	2,3	6,0	5,3	30	15	0,5	4,5	0,15	**061**	**061**
R/L 050.6-22	6	2,3	6,0	5,3	37	22	0,5	4,5	0,15	**060**	**060**
R/L 050.6-25	6	2,3	6,0	5,3	40	25	0,5	4,5	0,15	**062**	**062**
R/L 050.6-30	6	2,3	6,0	5,3	45	30	0,5	4,5	0,15	**063**	**063**
R/L 050.7-20	7	2,8	6,8	6,3	35	20	0,6	5,5	0,15	**072**	**072**
R/L 050.7-25	7	2,8	6,8	6,3	40	25	0,6	5,5	0,15	**073**	**073**
R/L 050.7-30	7	2,8	6,8	6,3	45	30	0,6	5,5	0,15	**074**	**074**

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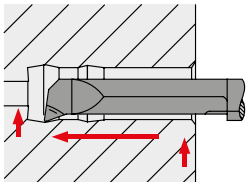
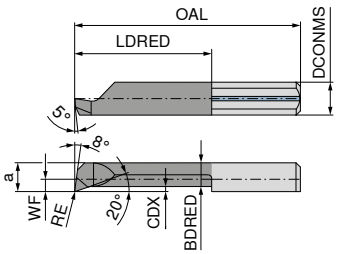
UltraMini – Inserts for internal turning and profiling

▲ with corner radius ≤ 0.05 mm
▲ CDX = Maximum depth of cut when turning outwards





Illustrations show right-hand versions

										Left-hand	Right-hand	Left-hand	Right-hand
										73 021 ...	**73 020 ...**	**73 023 ...**	**73 022 ...**
ISO designation	DCONMS $_{h6}$	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE				
	mm	mm	mm	mm	mm	mm	mm	mm	mm				
R/L 053.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,03	**310**	**310**		
R/L 053.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,03	**316**	**316**		
R/L 053.3-20	4	0,6	2,8	2,6	34	20	0,2	2,3	0,03	**320**	**320**		
R/L 053.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,03	**410**	**410**		
R/L 053.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,03	**416**	**416**		
R/L 053.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	0,03	**420**	**420**		
R/L 053.4-24	4	1,5	4,0	3,5	38	24	0,3	3,0	0,03	**424**	**424**		
R/L 053.4-28	4	1,5	4,0	3,5	42	28	0,3	3,0	0,03	**428**	**428**		
R/L 055.2-10	4		2,0	1,7	24	10	0,1	1,5	0,05			**210**	**210**
R/L 055.2-15	4		2,0	1,7	29	15	0,1	1,5	0,05			**215**	**215**
R/L 055.2-5	4		2,0	1,7	19	5	0,1	1,5	0,05			**205**	**205**
R/L 055.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,05			**310**	**310**
R/L 055.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,05			**316**	**316**
R/L 055.3-20	4	0,6	2,8	2,6	34	20	0,2	2,3	0,05			**320**	**320**
R/L 055.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,05			**410**	**410**
R/L 055.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,05			**416**	**416**
R/L 055.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	0,05			**420**	**420**
R/L 055.4-24	4	1,5	4,0	3,5	38	24	0,3	3,0	0,05			**424**	**424**
R/L 055.4-28	4	1,5	4,0	3,5	42	28	0,3	3,0	0,05			**428**	**428**
R/L 055.5-10	5	1,9	5,0	4,4	25	10	0,5	3,8	0,05			**510**	**510**
R/L 055.5-15	5	1,9	5,0	4,4	30	15	0,5	3,8	0,05			**515**	**515**
R/L 055.5-20	5	1,9	5,0	4,4	35	20	0,5	3,8	0,05			**520**	**520**
R/L 055.5-25	5	1,9	5,0	4,4	40	25	0,5	3,8	0,05			**525**	**525**
R/L 055.5-30	5	1,9	5,0	4,4	45	30	0,5	3,8	0,05			**530**	**530**
R/L 055.5-35	5	1,9	5,0	4,4	50	35	0,5	3,8	0,05			**535**	**535**
R/L 055.6-15	6	2,3	6,0	5,3	30	15	0,5	4,5	0,05			**615**	**615**
R/L 055.6-22	6	2,3	6,0	5,3	37	22	0,5	4,5	0,05			**622**	**622**
R/L 055.6-25	6	2,3	6,0	5,3	40	25	0,5	4,5	0,05			**625**	**625**
R/L 055.6-30	6	2,3	6,0	5,3	45	30	0,5	4,5	0,05			**630**	**630**
R/L 055.6-35	6	2,3	6,0	5,3	50	35	0,5	4,5	0,05			**635**	**635**
R/L 055.6-42	6	2,3	6,0	5,3	57	42	0,5	4,5	0,05			**642**	**642**
P										●	●	●	●
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S										●	●	●	●
H										●	●	●	●
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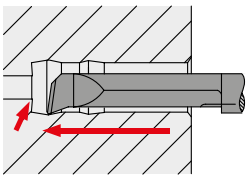
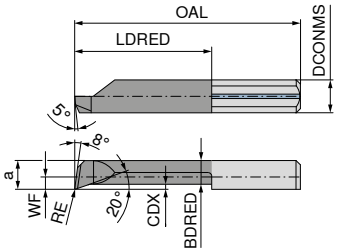
→ v_c Page 59

UltraMini – Inserts for internal turning and profiling

▲ with chip former
▲ CDX = Maximum depth of cut when turning outwards





Illustrations show right-hand versions

TiAlN

TiAlN

ISO designation	DCONMS $_{h6}$	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Left-hand	Right-hand
	mm	mm	mm	mm	mm	mm	mm	mm	mm	**73 017 ...**	**73 016 ...**
R/L 050.4-10C	4	1,5	4	3,5	24	10	0,3	3,0	0,2	**410**	**410**
R/L 050.4-16C	4	1,5	4	3,5	30	16	0,3	3,0	0,2	**416**	**416**
R/L 050.4-20C	4	1,5	4	3,5	34	20	0,3	3,0	0,2	**420**	**420**
R/L 050.4-24C	4	1,5	4	3,5	38	24	0,3	3,0	0,2	**424**	**424**
R/L 050.4-28C	4	1,5	4	3,5	42	28	0,3	3,0	0,2	**428**	**428**
R/L 050.5-10C	5	1,9	5	4,4	25	10	0,5	3,8	0,2	**510**	**510**
R/L 050.5-15C	5	1,9	5	4,4	30	15	0,5	3,8	0,2	**515**	**515**
R/L 050.5-20C	5	1,9	5	4,4	35	20	0,5	3,8	0,2	**520**	**520**
R/L 050.5-25C	5	1,9	5	4,4	40	25	0,5	3,8	0,2	**525**	**525**
R/L 050.5-30C	5	1,9	5	4,4	45	30	0,5	3,8	0,2	**530**	**530**
R/L 050.5-35C	5	1,9	5	4,4	50	35	0,5	3,8	0,2	**535**	**535**
R/L 050.6-15C	6	2,3	6	5,3	30	15	0,5	4,5	0,2	**615**	**615**
R/L 050.6-22C	6	2,3	6	5,3	37	22	0,5	4,5	0,2	**622**	**622**
R/L 050.6-25C	6	2,3	6	5,3	40	25	0,5	4,5	0,2	**625**	**625**
R/L 050.6-30C	6	2,3	6	5,3	45	30	0,5	4,5	0,2	**630**	**630**
R/L 050.6-35C	6	2,3	6	5,3	50	35	0,5	4,5	0,2	**635**	**635**
R/L 050.6-42C	6	2,3	6	5,3	57	42	0,5	4,5	0,2	**642**	**642**
R/L 050.7-20C	7	2,8	7	6,3	35	20	0,6	5,5	0,2	**720**	**720**
R/L 050.7-25C	7	2,8	7	6,3	40	25	0,6	5,5	0,2	**725**	**725**
R/L 050.7-30C	7	2,8	7	6,3	45	30	0,6	5,5	0,2	**730**	**730**
R/L 050.7-35C	7	2,8	7	6,3	50	35	0,6	5,5	0,2	**735**	**735**
R/L 050.7-40C	7	2,8	7	6,3	55	40	0,6	5,5	0,2	**740**	**740**
R/L 050.7-45C	7	2,8	7	6,3	60	45	0,6	5,5	0,2	**745**	**745**
R/L 050.7-50C	7	2,8	7	6,3	65	50	0,6	5,5	0,2	**750**	**750**

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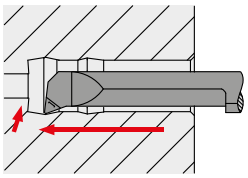
N	●	●
S	●	●
H	●	●
O	●	●

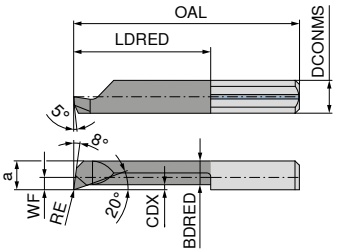
12

→ v_c Page 59

UltraMini – Inserts for internal turning and profiling – hard turning

▲ 46 to 65 HRC
▲ CDX = Maximum depth of cut when turning outwards





Illustrations show right-hand versions

TiAlN+

Left-hand

TiAlN+

Right-hand

ISO designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	73 025 ...	73 024 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm		
R/L 050.2-5	4		2,0	1,7	19	5	0,1	1,5	0,05	920	920
R/L 050.2-10	4		2,0	1,7	24	10	0,1	1,5	0,05	921	921
R/L 050.2-15	4		2,0	1,7	29	15	0,1	1,5	0,05	922	922
R/L 050.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,10	931	931
R/L 050.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,10	930	930
R/L 050.3-20	4	0,6	2,8	2,6	34	20	0,2	2,3	0,10	932	932
R/L 050.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,10	941	941
R/L 050.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,10	940	940
R/L 050.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	0,10	942	942
R/L 050.4-24	4	1,5	4,0	3,5	38	24	0,3	3,0	0,10	945	945
R/L 050.4-28	4	1,5	4,0	3,5	42	28	0,3	3,0	0,10	946	946
R/L 050.5-10	5	1,9	5,0	4,4	25	10	0,5	3,8	0,15	951	951
R/L 050.5-15	5	1,9	5,0	4,4	30	15	0,5	3,8	0,15	952	952
R/L 050.5-20	5	1,9	5,0	4,4	35	20	0,5	3,8	0,15	950	950
R/L 050.5-25	5	1,9	5,0	4,4	40	25	0,5	3,8	0,15	953	953
R/L 050.5-30	5	1,9	5,0	4,4	45	30	0,5	3,8	0,15	954	954
R/L 050.5-35	5	1,9	5,0	4,4	50	35	0,5	3,8	0,15	956	956
R/L 050.6-15	6	2,3	6,0	5,3	30	15	0,5	4,5	0,15	961	961
R/L 050.6-22	6	2,3	6,0	5,3	37	22	0,5	4,5	0,15	960	960
R/L 050.6-25	6	2,3	6,0	5,3	40	25	0,5	4,5	0,15	962	962
R/L 050.6-30	6	2,3	6,0	5,3	45	30	0,5	4,5	0,15	963	963
R/L 050.6-35	6	2,3	6,0	5,3	50	35	0,5	4,5	0,15	964	964
R/L 050.6-42	6	2,3	6,0	5,3	57	42	0,5	4,5	0,15	965	965
R/L 050.7-20	7	2,8	6,8	6,3	35	20	0,6	5,5	0,15	972	972
R/L 050.7-25	7	2,8	6,8	6,3	40	25	0,6	5,5	0,15	973	973
R/L 050.7-30	7	2,8	6,8	6,3	45	30	0,6	5,5	0,15	974	974
R/L 050.7-35	7	2,8	6,8	6,3	50	35	0,6	5,5	0,15	975	975
R/L 050.7-40	7	2,8	6,8	6,3	55	40	0,6	5,5	0,15	976	976
R/L 050.7-45	7	2,8	6,8	6,3	60	45	0,6	5,5	0,15	977	977
R/L 050.7-50	7	2,8	6,8	6,3	65	50	0,6	5,5	0,15	978	978
P										○	○
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K										○	○
N										○	○
S										○	○
H										●	●
O										○	○

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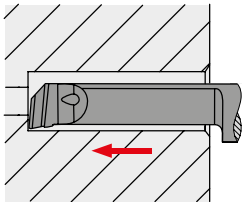
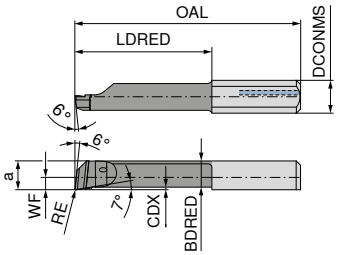
Machining with cooling is recommended.

UltraMini – Inserts for internal turning

▲ with chip former
▲ High-feed internal turning
▲ CDX = Maximum depth of cut when turning outwards





Illustrations show right-hand versions

DPX77S
DRAGONSKIN

Left-hand

DPX77S
DRAGONSKIN

Right-hand

ISO designation	DCONMS $_{h6}$	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	73 001 ...	73 000 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm		
R/L X050.1-5	4		1,0	0,90	20	5	0,03	0,85	0,05	121	121
R/L X050.15-7	4		1,5	1,35	22	7	0,05	1,25	0,10	233	233
R/L X050.2-5	4		2,0	1,80	19	5	0,10	1,60	0,15	245	245
R/L X050.2-10	4		2,0	1,80	24	10	0,10	1,60	0,05	215	215
R/L X050.2-10	4		2,0	1,80	24	10	0,10	1,60	0,15	241	241
R/L X050.3-10	4	0,7	3,0	2,70	24	10	0,15	2,55	0,05	341	341
R/L X050.3-10	4	0,7	3,0	2,70	24	10	0,15	2,55	0,20	347	347
R/L X050.3-16	4	0,7	3,0	2,70	30	16	0,15	2,55	0,05	371	371
R/L X050.3-16	4	0,7	3,0	2,70	30	16	0,15	2,55	0,10	373	373
R/L X050.3-16	4	0,7	3,0	2,70	30	16	0,15	2,55	0,20	377	377
R/L X050.4-10	4	1,6	4,0	3,60	24	10	0,20	3,20	0,10	403	403
R/L X050.4-10	4	1,6	4,0	3,60	24	10	0,20	3,20	0,20	407	407
R/L X050.4-16	4	1,6	4,0	3,60	30	16	0,20	3,20	0,05	431	431
R/L X050.4-16	4	1,6	4,0	3,60	30	16	0,20	3,20	0,10	433	433
R/L X050.4-16	4	1,6	4,0	3,60	30	16	0,20	3,20	0,20	437	437
R/L X050.4-24	4	1,6	4,0	3,60	38	24	0,20	3,20	0,10	463	463
R/L X050.4-24	4	1,6	4,0	3,60	38	24	0,20	3,20	0,20	467	467
R/L X050.5-15	5	2,1	5,0	4,60	30	15	0,30	4,05	0,05	511	511
R/L X050.5-15	5	2,1	5,0	4,60	30	15	0,30	4,05	0,10	513	513
R/L X050.5-15	5	2,1	5,0	4,60	30	15	0,30	4,05	0,20	517	517
R/L X050.5-25	5	2,1	5,0	4,60	40	25	0,30	4,05	0,10	543	543
R/L X050.5-25	5	2,1	5,0	4,60	40	25	0,30	4,05	0,20	547	547
R/L X050.5-30	5	2,1	5,0	4,60	45	30	0,30	4,05	0,10	553	553
R/L X050.5-30	5	2,1	5,0	4,60	45	30	0,30	4,05	0,20	557	557
R/L X050.6-15	6	2,5	6,0	5,50	30	15	0,40	4,90	0,05	611	611
R/L X050.6-15	6	2,5	6,0	5,50	30	15	0,40	4,90	0,10	613	613
R/L X050.6-15	6	2,5	6,0	5,50	30	15	0,40	4,90	0,20	617	617
R/L X050.6-22	6	2,5	6,0	5,50	37	22	0,40	4,90	0,20	637	637
R/L X050.6-30	6	2,5	6,0	5,50	45	30	0,40	4,90	0,20	657	657
R/L X050.6-35	6	2,5	6,0	5,50	50	35	0,40	4,90	0,20	667	667
R/L X050.6-50	6	2,5	6,0	5,50	65	50	0,40	4,90	0,20	697	697
R/L X050.7-25	7	3,0	7,0	6,50	40	25	0,50	5,90	0,20	747	747
R/L X050.7-30	7	3,0	7,0	6,50	45	30	0,50	5,90	0,20	757	757

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

→ v_c Page 60+61

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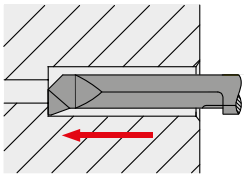
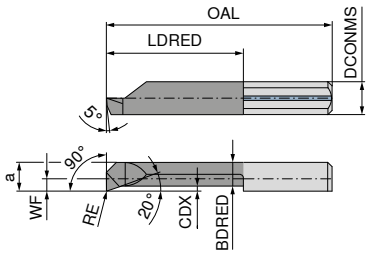
UltraMini – Inserts for internal turning

▲ CDX = Maximum depth of cut when turning outwards





Illustrations show right-hand versions

TiN

Left-hand

TiN

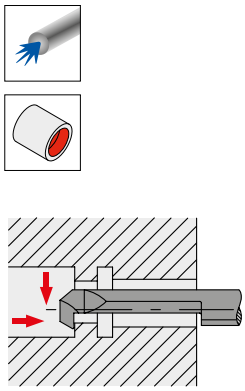
Right-hand

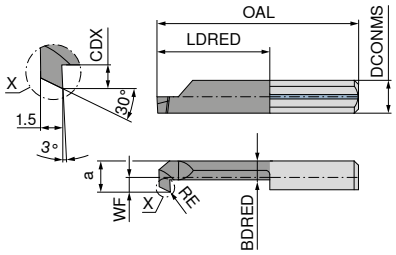
ISO designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	73 015 ...	73 014 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm		
R/L 090.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,2	**541**	**541**
R/L 090.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,2	**542**	**542**
R/L 090.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,2	**545**	**545**
R/L 090.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,2	**546**	**546**
R/L 090.5-10	5	1,9	5,0	4,4	25	10	0,5	3,8	0,2	**550**	**550**
R/L 090.5-15	5	1,9	5,0	4,4	30	15	0,5	3,8	0,2	**551**	**551**
R/L 090.5-20	5	1,9	5,0	4,4	35	20	0,5	3,8	0,2	**552**	**552**
P										●	●
M										●	●
K										●	●
N										●	●
S										○	○
H										○	○
O										●	●

→ v_c Page 59

UltraMini – Inserts for back boring

▲ CDX = Maximum depth of cut when turning outwards





Illustrations show right-hand versions

TiN

Left-hand

TiN

Right-hand

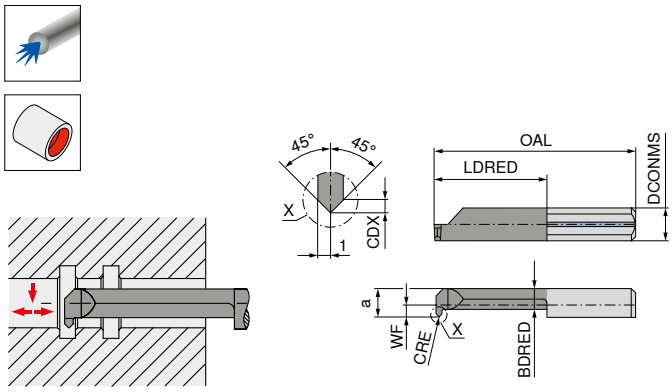
ISO designation	DCONMS $_{h6}$ mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	73 013 ...	73 012 ...
R/L 080.0003-15	4	0,6	3	2,6	29	15	0,5	2,0	0,10	542	542
R/L 080.0003-20	4	0,6	3	2,6	34	20	0,5	2,0	0,10	544	544
R/L 080.0004-15	4	1,5	4	3,5	29	15	0,8	2,4	0,15	546	546
R/L 080.0004-25	4	1,5	4	3,5	39	25	0,8	2,4	0,15	548	548
R/L 080.0005-20	5	1,9	5	4,4	35	20	1,0	3,3	0,20	554	554
R/L 080.0005-30	5	1,9	5	4,4	45	30	1,0	3,3	0,20	558	558
R/L 080.0006-20	6	2,3	6	5,3	35	20	1,8	3,4	0,20	564	564
R/L 080.0006-30	6	2,3	6	5,3	45	30	1,8	3,4	0,20	568	568
R/L 080.0007-20	7	2,7	7	6,3	35	20	2,5	3,8	0,20	574	574
R/L 080.0007-30	7	2,7	7	6,3	45	30	2,5	3,8	0,20	578	578
P										●	●
M										●	●
K										●	●
N										●	●
S										○	○
H										○	○
O										●	●

→ v_c Page 59

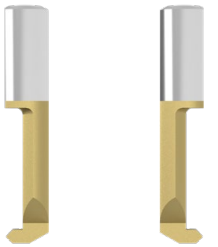
12

UltraMini – Inserts for internal turning and chamfering

▲ CDX = Maximum depth of cut when turning outwards



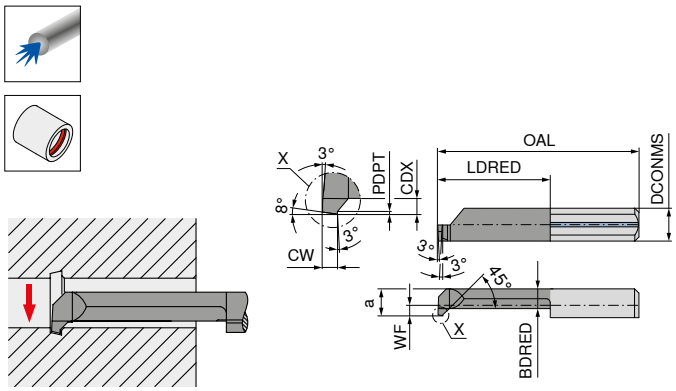
Illustrations show right-hand versions



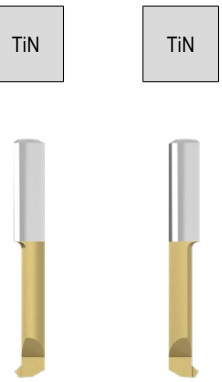
ISO designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CRE	Left-hand	Right-hand
	mm	mm	mm	mm	mm	mm	mm	mm	mm	73 007 ...	73 006 ...
R/L 060.5-15	5	1,9	5,0	4,4	30	15	0,7	3,3	0,2	551	551
R/L 060.5-20	5	1,9	5,0	4,4	35	20	0,7	3,3	0,2	550	550
R/L 060.7-20	7	2,7	6,8	6,3	35	20	0,7	3,8	0,2	570	570
P										●	●
M										●	●
K										●	●
N										●	●
S										○	○
H										○	○
O										●	●

→ v_c Page 59

UltraMini – Inserts for internal chamfering for subsequent parting off



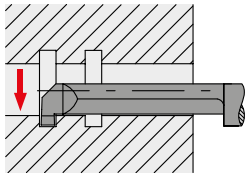
Illustrations show right-hand versions

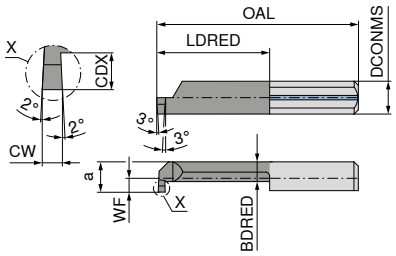


ISO designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CW	PDPT	Left-hand	Right-hand
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	73 009 ...	73 008 ...
R/L 070.4-10	4	1,5	4	3,5	25	10	0,8	2,4	1	0,2	410	410
R/L 070.4-16	4	1,5	4	3,5	30	16	0,8	2,4	1	0,2	416	416
R/L 070.5-15	5	1,9	5	4,4	30	15	1,0	3,3	1	0,2	551	551
R/L 070.5-20	5	1,9	5	4,4	35	20	1,0	3,3	1	0,2	550	550
R/L 070.5-30	5	1,9	5	4,4	45	30	1,0	3,3	1	0,2	530	530
R/L 070.6-30	6	2,3	6	5,3	45	30	1,0	4,2	1	0,2	630	630
R/L 070.6-42	6	2,3	6	5,3	57	42	1,0	4,2	1	0,2	642	642
P											●	●
M											●	●
K											●	●
N											●	●
S											○	○
H											○	○
O											●	●

→ v_c Page 59

UltraMini – Inserts for Internal Grooving





Illustrations show right-hand versions

ISO designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CW	Left-hand 73 003 ...	Right-hand 73 002 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm		
R/L 004.0100-10	4	1,5	4,0	3,5	24	10	0,8	2,4	1,0	540	540
R/L 004.0100-16	4	1,5	4,0	3,5	30	16	0,8	2,4	1,0	541	541
R/L 004.0100-20	4	1,5	4,0	3,5	34	20	0,8	2,4	1,0	542	542
R/L 005.0100-10	5	1,9	5,0	4,4	25	10	1,0	3,3	1,0	650	650
R/L 005.0150-10	5	1,9	5,0	4,4	25	10	1,0	3,3	1,5	654	654
R/L 005.0200-10	5	1,9	5,0	4,4	25	10	1,0	3,3	2,0	658	658
R/L 005.0100-15	5	1,9	5,0	4,4	30	15	1,0	3,3	1,0	651	651
R/L 005.0150-15	5	1,9	5,0	4,4	30	15	1,0	3,3	1,5	655	655
R/L 005.0200-15	5	1,9	5,0	4,4	30	15	1,0	3,3	2,0	659	659
R/L 005.0100-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,0	551	551
R/L 005.0150-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,5	552	552
R/L 005.0200-20	5	1,9	5,0	4,4	35	20	1,0	3,3	2,0	553	553
R/L 005.0100-25	5	1,9	5,0	4,4	40	25	1,0	3,3	1,0	652	652
R/L 005.0150-25	5	1,9	5,0	4,4	40	25	1,0	3,3	1,5	656	656
R/L 005.0200-25	5	1,9	5,0	4,4	40	25	1,0	3,3	2,0	750	750
R/L 005.0100-30	5	1,9	5,0	4,4	45	30	1,0	3,3	1,0	653	653
R/L 005.0150-30	5	1,9	5,0	4,4	45	30	1,0	3,3	1,5	657	657
R/L 005.0200-30	5	1,9	5,0	4,4	45	30	1,0	3,3	2,0	751	751
R/L 005.0100-35	5	1,9	5,0	4,4	50	35	1,0	3,3	1,0	680	680
R/L 006.0100-10	6	2,3	6,0	5,3	25	10	1,8	3,4	1,0	660	660
R/L 006.0150-10	6	2,3	6,0	5,3	25	10	1,8	3,4	1,5	664	664
R/L 006.0200-10	6	2,3	6,0	5,3	25	10	1,8	3,4	2,0	668	668
R/L 006.0100-15	6	2,3	6,0	5,3	30	15	1,8	3,4	1,0	661	661
R/L 006.0150-15	6	2,3	6,0	5,3	30	15	1,8	3,4	1,5	665	665
R/L 006.0200-15	6	2,3	6,0	5,3	30	15	1,8	3,4	2,0	669	669
R/L 006.0100-22	6	2,3	6,0	5,3	37	22	1,8	3,4	1,0	561	561
R/L 006.0150-22	6	2,3	6,0	5,3	37	22	1,8	3,4	1,5	562	562
R/L 006.0200-22	6	2,3	6,0	5,3	37	22	1,8	3,4	2,0	563	563
R/L 006.0100-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,0	662	662
R/L 006.0150-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,5	666	666
R/L 006.0200-25	6	2,3	6,0	5,3	40	25	1,8	3,4	2,0	760	760
R/L 006.0100-30	6	2,3	6,0	5,3	45	30	1,8	3,4	1,0	663	663
R/L 006.0150-30	6	2,3	6,0	5,3	45	30	1,8	3,4	1,5	667	667
R/L 006.0200-30	6	2,3	6,0	5,3	45	30	1,8	3,4	2,0	761	761
R/L 006.0100-35	6	2,3	6,0	5,3	50	35	1,8	3,4	1,0	682	682
R/L 006.0150-35	6	2,3	6,0	5,3	50	35	1,8	3,4	1,5	684	684
R/L 006.0100-42	6	2,3	6,0	5,3	57	42	1,8	3,4	1,0	685	685
R/L 007.0100-10	7	2,7	6,8	6,3	25	10	2,5	3,8	1,0	570	570
R/L 007.0150-10	7	2,7	6,8	6,3	25	10	2,5	3,8	1,5	575	575
R/L 007.0200-10	7	2,7	6,8	6,3	25	10	2,5	3,8	2,0	670	670
R/L 007.0100-15	7	2,7	6,8	6,3	30	15	2,5	3,8	1,0	571	571
R/L 007.0150-15	7	2,7	6,8	6,3	30	15	2,5	3,8	1,5	576	576
R/L 007.0200-15	7	2,7	6,8	6,3	30	15	2,5	3,8	2,0	671	671
R/L 007.0100-22	7	2,7	6,8	6,3	37	22	2,5	3,8	1,0	572	572
R/L 007.0150-22	7	2,7	6,8	6,3	37	22	2,5	3,8	1,5	577	577
R/L 007.0200-22	7	2,7	6,8	6,3	37	22	2,5	3,8	2,0	672	672
R/L 007.0100-25	7	2,7	6,8	6,3	40	25	2,5	3,8	1,0	573	573
R/L 007.0150-25	7	2,7	6,8	6,3	40	25	2,5	3,8	1,5	578	578
R/L 007.0200-25	7	2,7	6,8	6,3	40	25	2,5	3,8	2,0	673	673
R/L 007.0100-30	7	2,7	6,8	6,3	45	30	2,5	3,8	1,0	574	574
R/L 007.0150-30	7	2,7	6,8	6,3	45	30	2,5	3,8	1,5	579	579
R/L 007.0200-30	7	2,7	6,8	6,3	45	30	2,5	3,8	2,0	674	674
R/L 007.0100-35	7	2,7	7,0	6,3	50	35	2,5	3,8	1,0	688	688
R/L 007.0150-35	7	2,7	7,0	6,3	50	35	2,5	3,8	1,5	690	690
R/L 007.0200-35	7	2,7	7,0	6,3	50	35	2,5	3,8	2,0	692	692
R/L 007.0100-40	7	2,7	7,0	6,3	55	40	2,5	3,8	1,0	700	700
R/L 007.0150-40	7	2,7	7,0	6,3	55	40	2,5	3,8	1,5	702	702
R/L 007.0100-45	7	2,7	7,0	6,3	60	45	2,5	3,8	1,0	712	712
R/L 007.0100-50	7	2,7	7,0	6,3	65	50	2,5	3,8	1,0	714	714

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H	○	○
O	●	●

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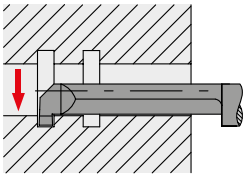
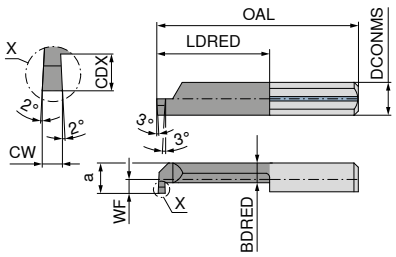
UltraMini – Inserts for Internal Grooving





Illustrations show right-hand versions

TiAlN

Left-hand

TiAlN

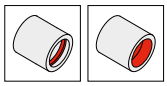
Right-hand

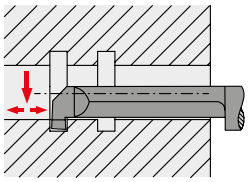
ISO designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	CW mm	73 003 ...	73 002 ...
R/L 002.0050-5	4		2	1,8	19	5	0,4	1,2	0,5	**820**	**820**
R/L 002.0050-10	4		2	1,8	24	10	0,4	1,2	0,5	**821**	**821**
R/L 002.0050-15	4		2	1,8	29	15	0,4	1,2	0,5	**822**	**822**
R/L 003.0070-5	4	0,7	3	2,7	19	5	0,6	1,9	0,7	**830**	**830**
R/L 003.0070-10	4	0,7	3	2,7	24	10	0,6	1,9	0,7	**831**	**831**
R/L 003.0070-16	4	0,7	3	2,7	30	16	0,6	1,9	0,7	**832**	**832**
P										●	●
M										●	●
K										●	●
N										●	●
S										●	●
H										●	●
O										●	●

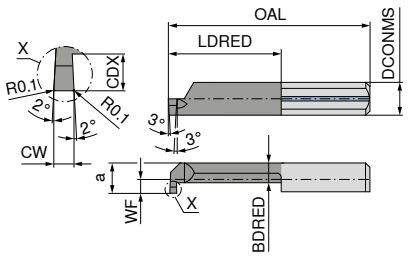
→ v_c Page 59

UltraMini – Inserts for Internal Grooving

▲ with corner radius
▲ CDX = Maximum depth of cut when turning outwards







Illustrations show right-hand versions

TiAlN

Left-hand

TiAlN

Right-hand

ISO designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CW	73 203 ...	73 202 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm		
R/L 004M0100-10	4	1,5	4,0	3,5	24	10	0,8	2,4	1,0	800	800
R/L 004M0100-16	4	1,5	4,0	3,5	30	16	0,8	2,4	1,0	802	802
R/L 004M0100-20	4	1,5	4,0	3,5	34	20	0,8	2,4	1,0	804	804
R/L 005M0100-10	5	1,9	5,0	4,4	25	10	1,0	3,3	1,0	806	806
R/L 005M0150-10	5	1,9	5,0	4,4	25	10	1,0	3,3	1,5	816	816
R/L 005M0200-10	5	1,9	5,0	4,4	25	10	1,0	3,3	2,0	826	826
R/L 005M0100-15	5	1,9	5,0	4,4	30	15	1,0	3,3	1,0	808	808
R/L 005M0150-15	5	1,9	5,0	4,4	30	15	1,0	3,3	1,5	818	818
R/L 005M0200-15	5	1,9	5,0	4,4	30	15	1,0	3,3	2,0	828	828
R/L 005M0100-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,0	810	810
R/L 005M0150-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,5	820	820
R/L 005M0200-20	5	1,9	5,0	4,4	35	20	1,0	3,3	2,0	830	830
R/L 005M0100-25	5	1,9	5,0	4,4	40	25	1,0	3,3	1,0	812	812
R/L 005M0150-25	5	1,9	5,0	4,4	40	25	1,0	3,3	1,5	822	822
R/L 005M0200-25	5	1,9	5,0	4,4	40	25	1,0	3,3	2,0	832	832
R/L 005M0100-30	5	1,9	5,0	4,4	45	30	1,0	3,3	1,0	814	814
R/L 005M0150-30	5	1,9	5,0	4,4	45	30	1,0	3,3	1,5	824	824
R/L 005M0200-30	5	1,9	5,0	4,4	45	30	1,0	3,3	2,0	834	834
R/L 006M0100-10	6	2,3	6,0	5,3	25	10	1,8	3,4	1,0	836	836
R/L 006M0150-10	6	2,3	6,0	5,3	25	10	1,8	3,4	1,5	846	846
R/L 006M0200-10	6	2,3	6,0	5,3	25	10	1,8	3,4	2,0	856	856
R/L 006M0100-15	6	2,3	6,0	5,3	30	15	1,8	3,4	1,0	838	838
R/L 006M0150-15	6	2,3	6,0	5,3	30	15	1,8	3,4	1,5	848	848
R/L 006M0200-15	6	2,3	6,0	5,3	30	15	1,8	3,4	2,0	858	858
R/L 006M0100-20	6	2,3	6,0	5,3	35	22	1,8	3,4	1,0	840	840
R/L 006M0150-20	6	2,3	6,0	5,3	37	22	1,8	3,4	1,5	850	850
R/L 006M0200-20	6	2,3	6,0	5,3	37	22	1,8	3,4	2,0	860	860
R/L 006M0100-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,0	842	842
R/L 006M0150-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,5	852	852
R/L 006M0200-25	6	2,3	6,0	5,3	40	25	1,8	3,4	2,0	862	862
R/L 006M0100-30	6	2,3	6,0	5,3	45	30	1,8	3,4	1,0	844	844
R/L 006M0150-30	6	2,3	6,0	5,3	45	30	1,8	3,4	1,5	854	854
R/L 006M0200-30	6	2,3	6,0	5,3	45	30	1,8	3,4	2,0	864	864
R/L 007M0100-10	7	2,7	6,8	6,3	25	10	2,5	3,7	1,0	866	866
R/L 007M0150-10	7	2,7	6,8	6,3	25	10	2,5	3,7	1,5	876	876
R/L 007M0200-10	7	2,7	6,8	6,3	25	10	2,5	3,7	2,0	886	886
R/L 007M0100-15	7	2,7	6,8	6,3	30	15	2,5	3,7	1,0	868	868
R/L 007M0150-15	7	2,7	6,8	6,3	30	15	2,5	3,7	1,5	878	878
R/L 007M0200-15	7	2,7	6,8	6,3	30	15	2,5	3,7	2,0	888	888
R/L 007M0100-22	7	2,7	6,8	6,3	37	22	2,5	3,7	1,0	870	870
R/L 007M0150-22	7	2,7	6,8	6,3	37	22	2,5	3,7	1,5	880	880
R/L 007M0200-22	7	2,7	6,8	6,3	37	22	2,5	3,7	2,0	890	890
R/L 007M0100-25	7	2,7	6,8	6,3	40	25	2,5	3,7	1,0	872	872
R/L 007M0150-25	7	2,7	6,8	6,3	40	25	2,5	3,7	1,5	882	882
R/L 007M0200-25	7	2,7	6,8	6,3	40	25	2,5	3,7	2,0	892	892
R/L 007M0100-30	7	2,7	6,8	6,3	45	30	2,5	3,7	1,0	874	874
R/L 007M0150-30	7	2,7	6,8	6,3	45	30	2,5	3,7	1,5	884	884
R/L 007M0200-30	7	2,7	6,8	6,3	45	30	2,5	3,7	2,0	894	894
P										●	●
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O										●	●

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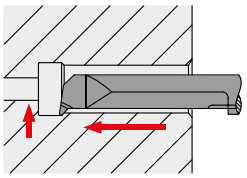
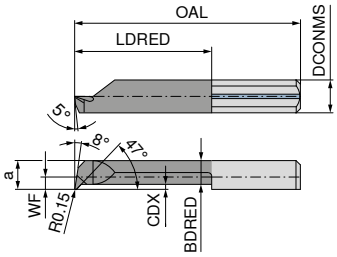
UltraMini – Inserts for internal undercuts

▲ CDX = Maximum depth of cut when turning outwards





Illustrations show right-hand versions

TiN	TiN	TiAlN	TiAlN
Left-hand	Right-hand	Left-hand	Right-hand
73 011 ...	**73 010 ...**	**73 011 ...**	**73 010 ...**

ISO designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED				
	mm	mm	mm	mm	mm	mm	mm	mm				
R/L 047.2-10	4		2,0	1,7	24	10	0,4	1,2			**221**	**221**
R/L 047.3-15	4	0,6	2,8	2,6	29	15	0,6	1,9			**231**	**231**
R/L 047.4-10	4	1,5	4,0	3,5	24	10	0,6	2,8			**241**	**241**
R/L 047.T4-20	4	1,5	4,0	3,5	34	20	0,6	2,8			**242**	**242**
R/L 047.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	**542**	**542**		
R/L 047.5-15	5	1,9	5,0	4,4	30	15	0,8	3,5			**251**	**251**
R/L 047.T5-25	5	1,9	5,0	4,4	40	25	0,8	3,5			**252**	**252**
R/L 047.5-25	5	1,9	5,0	4,4	40	25	0,5	3,8	**552**	**552**		
R/L 047.T6-22	6	2,3	6,0	5,3	37	22	1,8	3,4			**262**	**262**
R/L 047.T6-30	6	2,3	6,0	5,3	45	30	1,8	3,4			**263**	**263**
R/L 047.6-30	6	2,3	6,0	5,3	45	30	0,5	4,5	**562**	**562**		

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

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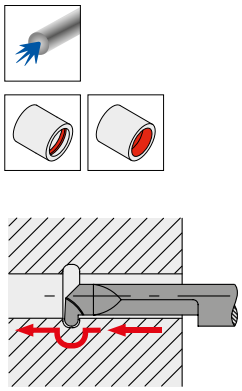
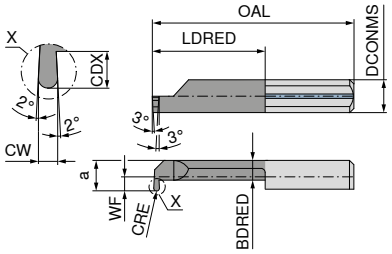
UltraMini – Inserts for internal grooving and turning

▲ CDX = Maximum depth of cut when turning outwards





Illustrations show right-hand versions

TiN

Left-hand

TiN

Right-hand

ISO designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	CW mm	CRE mm	73 019 ...	73 018 ...
R/L 006-0.75-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,5	0,75	**564**	**564**
R/L 004-0.50-16	4	1,5	4,0	3,5	30	16	0,8	2,4	1,0	0,50	**541**	**541**
R/L 005-0.50-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,0	0,50	**552**	**552**
R/L 005-0.75-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,5	0,75	**554**	**554**
R/L 005-1.00-20	5	1,9	5,0	4,4	35	20	1,0	3,3	2,0	1,00	**556**	**556**
R/L 006-0.50-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,0	0,50	**562**	**562**
R/L 006-1.00-25	6	2,3	6,0	5,3	40	25	1,8	3,4	2,0	1,00	**566**	**566**
R/L 007-0.50-30	7	2,7	6,8	6,3	45	30	2,5	3,8	1,0	0,50	**572**	**572**
R/L 007-0.75-30	7	2,7	6,8	6,3	45	30	2,5	3,8	1,5	0,75	**574**	**574**
R/L 007-1.00-30	7	2,7	6,8	6,3	45	30	2,5	3,8	2,0	1,00	**576**	**576**

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

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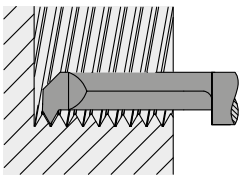
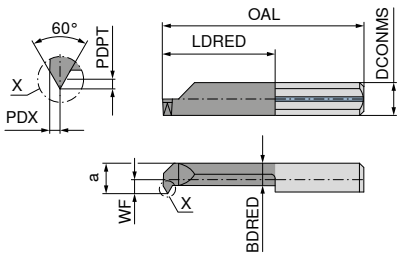
UltraMini – Inserts for internal threading (Partial profile)





Illustrations show right-hand versions

	TiN	TiN	TiAlN	TiAlN
	Left-hand	Right-hand	Left-hand	Right-hand
	73 101 ...	73 100 ...	73 101 ...	73 100 ...

ISO designation	DCONMS	TP	WF	DMIN	a	OAL	LDRED	BDRED	PDPT	PDX				
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm				
R/L 003.0105-8	4	0,5 - 0,7	0,30	2,4	2,3	22	8	1,8	0,27	0,33			551	551
R/L 004.0408-15	4	0,8 - 1,0	1,75	4,0	3,5	30	15	2,4	0,43	0,45			552	552
R/L 005.0510-20	5	1,0 - 1,25	1,90	4,8	4,4	35	20	3,3	0,55	0,55	544	544		
R/L 005.0510-15	5	1,0 - 1,25	1,90	4,8	4,4	30	15	3,3	0,55	0,55	545	545		
R/L 006.0612-22	6	1,25 - 1,5	2,30	6,0	5,3	37	22	3,4	0,68	0,65	546	546		
R/L 006.0612-15	6	1,25 - 1,5	2,30	6,0	5,3	30	15	3,4	0,68	0,65	547	547		
R/L 006.0815-15	6	1,5 - 1,75	2,30	6,0	5,3	30	15	3,4	0,81	0,75	549	549		
R/L 006.0815-22	6	1,5 - 1,75	2,30	6,0	5,3	37	22	3,4	0,81	0,75	548	548		
R/L 007.0815-15	7	1,5 - 1,75	2,70	7,0	6,3	30	15	3,8	0,81	0,75	550	550		
P											●	●	●	●
M											●	●	●	●
K											●	●	●	●
N											●	●	●	●
S											○	○	●	●
H											○	○	●	●
O											●	●	●	●

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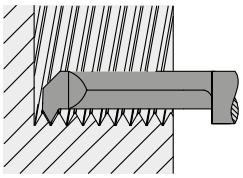
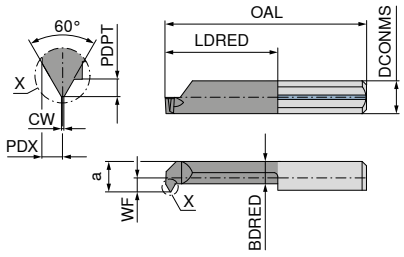
UltraMini – Inserts for Internal thread turning (Full profile)





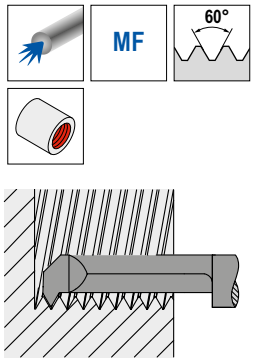
Illustrations show right-hand versions

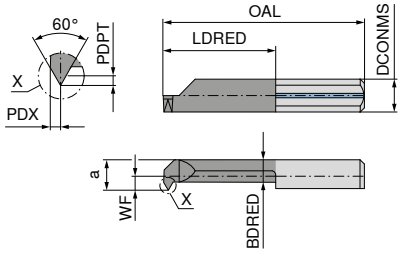
	TiAlN	TiAlN
	Left-hand	Right-hand
	73 209 ...	73 208 ...

ISO designation	DCONMS	TP	WF	DMIN	a	OAL	LDRED	BDRED	PDPT	PDX	CW		
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		
R/L 105.0408-15	5	0,80	1,9	4,8	4,4	30	15	3,3	0,43	0,50	0,10	799	799
R/L 105.510-15	5	1,00	1,9	4,8	4,4	30	15	3,3	0,54	0,55	0,12	800	800
R/L 106.612-15	6	1,25	2,3	6,0	5,3	30	15	3,4	0,67	0,65	0,15	802	802
R/L 106.815-15	6	1,50	2,3	6,0	5,3	30	15	3,4	0,81	0,75	0,18	804	804
R/L 106.815-15	7	1,50	2,7	7,0	6,3	30	15	3,8	0,81	0,75	0,18	806	806
P												●	●
M												●	●
K												●	●
N												●	●
S												●	●
H												●	●
O												●	●

→ v_c Page 59

UltraMini – Inserts for internal thread turning (Partial profile)



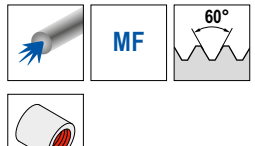


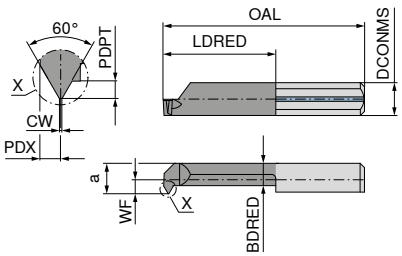
Illustrations show right-hand versions

ISO designation	DCONMS mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	Left-hand 73 103 ...	Right-hand 73 102 ...	Left-hand 73 103 ...	Right-hand 73 102 ...
R/L 004.0205-15	4	0,5 - 0,75	1,5	4,0	3,5	30	15	2,4	0,27	0,35	510	510		
R/L 004.0105-10	4	0,5 - 0,75	1,0	3,2	3,0	24	10	2,3	0,27	0,44			509	509
R/L 005.0205-15	5	0,5 - 0,75	1,9	5,0	4,4	30	15	3,3	0,27	0,35	539	539		
R/L 005.0205-20	5	0,5 - 0,75	1,9	5,0	4,4	35	20	3,3	0,27	0,35	540	540		
L 005.0407-15	5	0,75 - 1,0	1,9	5,0	4,4	30	15	3,3	0,40	0,45	541			
R 005.0407-15	5	0,75 - 1,0	1,9	5,0	4,4	30	15	3,3	0,40	0,45		541		
R/L 005.0407-20	5	0,75 - 1,0	1,9	5,0	4,4	35	20	3,3	0,40	0,45	542	542		
R/L 006.0510-22	6	1,0 - 1,25	2,3	6,0	5,3	37	22	3,4	0,55	0,55	544	544		
R/L 006.0510-15	6	1,0 - 1,25	2,3	6,0	5,3	30	15	3,4	0,55	0,55	543	543		
P											●	●	●	●
M											●	●	●	●
K											●	●	●	●
N											●	●	●	●
S											○	○	●	●
H											○	○	●	●
O											●	●	●	●

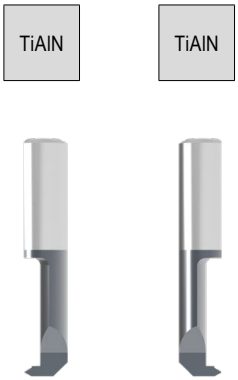
→ v_c Page 59

UltraMini – Inserts for Internal thread turning (Full profile)





Illustrations show right-hand versions



ISO designation	DCONMS h6 mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	CW mm	Left-hand 73 207 ...	Right-hand 73 206 ...
R/L 104.0205-15	5	0,50	1,5	4	3,5	30	15	2,4	0,27	0,35	0,06	800	800
R/L 105.0205-15	5	0,50	1,9	5	4,4	30	15	3,3	0,27	0,35	0,06	802	802
R/L 105.0407-15	5	0,75	1,9	5	4,4	30	15	3,3	0,40	0,45	0,09	804	804
R/L 106.0510-15	6	1,00	2,3	6	5,3	30	15	3,4	0,54	0,55	0,12	806	806
P												●	●
M												●	●
K												●	●
N												●	●
S												●	●
H												●	●
O												●	●

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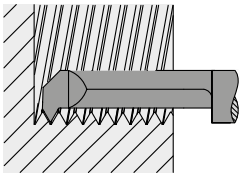
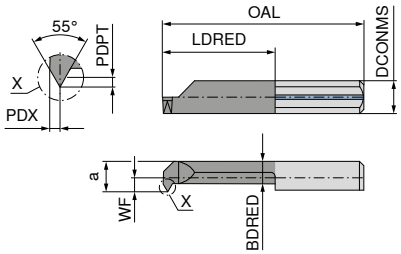
UltraMini – Inserts for internal thread turning (Partial profile)





Illustrations show right-hand versions

TiN

Left-hand

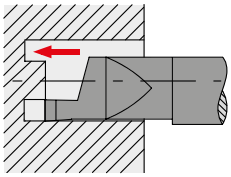
TiN

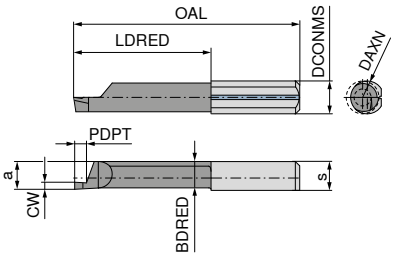
Right-hand

ISO designation	DCONMS $_{h6}$ mm	TPI 1/"	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	**73 105 ...**	**73 104 ...**
R/L 005.5548-15	5	48 - 24	1,9	4,8	4,4	30	15	3,3	0,40	0,45	**552**	**552**
R/L 006.5548-15	6	48 - 24	2,3	6,0	5,3	30	15	3,4	0,40	0,45	**562**	**562**
R/L 006.5524-15	6	24 - 16	2,3	6,0	5,3	30	15	3,4	0,81	0,75	**563**	**563**
R/L 007.5524-15	7	24 - 16	2,7	7,0	6,3	30	15	3,8	0,81	0,75	**572**	**572**
P											●	●
M											●	●
K											●	●
N											●	●
S											○	○
H											○	○
O											●	●

→ v_c Page 59

UltraMini – Inserts for axial grooving





Illustrations show right-hand versions

TiAlN

TiAlN

										Left-hand		Right-hand	
										73 053 ...		**73 052 ...**	
ISO designation	DCONMS $_{h6}$	a	DAXN	s	OAL	LDRED	PDPT	BDRED	CW				
	mm	mm	mm	mm	mm	mm	mm	mm	mm				
R/L 010.1006-10	6	5,2	6	5,3	26	11	1,5	4,9	1,0	**561**		**561**	
R/L 010.1506-10	6	5,2	6	5,3	26	11	2,0	4,9	1,5	**563**		**563**	
R/L 010.1008-10	7	5,9	8	6,3	26	11	1,5	5,6	1,0	**571**		**571**	
R/L 010.1008-20	7	5,9	8	6,3	35	20	1,5	5,6	1,0	**671**		**671**	
R/L 010.1008-30	7	5,9	8	6,3	45	30	1,5	5,6	1,0	**771**		**771**	
R/L 010.1508-10	7	5,9	8	6,3	26	11	2,5	5,6	1,5	**573**		**573**	
R/L 010.1508-20	7	5,9	8	6,3	35	20	2,5	5,6	1,5	**673**		**673**	
R/L 010.1508-30	7	5,9	8	6,3	45	30	2,5	5,6	1,5	**773**		**773**	
R/L 010.2008-10	7	5,9	8	6,3	26	11	3,0	5,6	2,0	**575**		**575**	
R/L 010.2008-20	7	5,9	8	6,3	35	20	3,0	5,6	2,0	**675**		**675**	
R/L 010.2008-30	7	5,9	8	6,3	45	30	3,0	5,6	2,0	**775**		**775**	
R/L 010.2508-10	7	5,9	8	6,3	26	11	3,5	5,6	2,5	**577**		**577**	
R/L 010.2508-20	7	5,9	8	6,3	35	20	3,5	5,6	2,5	**677**		**677**	
R/L 010.2508-30	7	5,9	8	6,3	45	30	3,5	5,6	2,5	**777**		**777**	
R/L 010.3008-10	7	5,9	8	6,3	26	11	3,5	5,6	3,0	**579**		**579**	
R/L 010.3008-20	7	5,9	8	6,3	35	20	3,5	5,6	3,0	**679**		**679**	
R/L 010.3008-30	7	5,9	8	6,3	45	30	3,5	5,6	3,0	**779**		**779**	
P										●		●	
M										●		●	
K										●		●	
N										●		●	
S										●		●	
H										●		●	
O										●		●	

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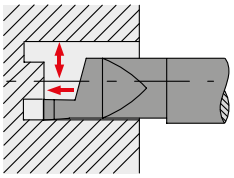
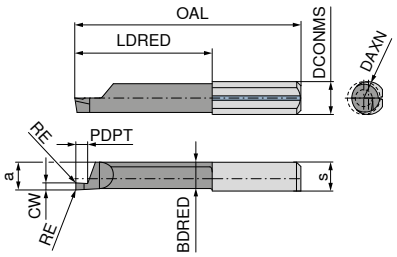
UltraMini – Inserts for axial grooving

▲ with corner radius





Illustrations show right-hand versions

TiAlN

Left-hand

TiAlN

Right-hand

ISO designation	DCONMS $_{h6}$	a	DAXN	s	OAL	LDRED	PDPT	BDRED	CW	RE	73 253 ...	73 252 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		
R/L 510M1008-10	5	4,3	5	6,3	26	11	2	4,0	1,0	0,05	**510**	**510**
R/L 510M1008-20	5	4,3	5	6,3	35	20	2	4,0	1,0	0,05	**610**	**610**
R/L 510M1508-10	5	4,3	5	6,3	26	11	3	4,0	1,5	0,05	**515**	**515**
R/L 510M1508-20	5	4,3	5	6,3	35	20	3	4,0	1,5	0,05	**615**	**615**
R/L 510M2008-10	5	4,3	5	6,3	26	11	4	4,0	2,0	0,05	**520**	**520**
R/L 510M2008-20	5	4,3	5	6,3	35	20	4	4,0	2,0	0,05	**620**	**620**
R/L 010M1008-10	7	5,9	8	6,3	26	11	2	5,6	1,0	0,10	**800**	**800**
R/L 010M1008-20	7	5,9	8	6,3	35	20	2	5,6	1,0	0,10	**810**	**810**
R/L 010M1008-30	7	5,9	8	6,3	45	30	2	5,6	1,0	0,10	**820**	**820**
R/L 010M1508-10	7	5,9	8	6,3	26	11	3	5,6	1,5	0,10	**802**	**802**
R/L 010M1508-20	7	5,9	8	6,3	35	20	3	5,6	1,5	0,10	**812**	**812**
R/L 010M1508-30	7	5,9	8	6,3	45	30	3	5,6	1,5	0,10	**822**	**822**
R/L 010M2008-10	7	5,9	8	6,3	26	11	4	5,6	2,0	0,10	**804**	**804**
R/L 010M2008-20	7	5,9	8	6,3	35	20	4	5,6	2,0	0,10	**814**	**814**
R/L 010M2008-30	7	5,9	8	6,3	45	30	4	5,6	2,0	0,10	**824**	**824**
R/L 010M2508-10	7	5,9	8	6,3	26	11	5	5,6	2,5	0,10	**806**	**806**
R/L 010M2508-20	7	5,9	8	6,3	35	20	5	5,6	2,5	0,10	**816**	**816**
R/L 010M2508-30	7	5,9	8	6,3	45	30	5	5,6	2,5	0,10	**826**	**826**
R/L 010M3008-10	7	5,9	8	6,3	26	11	6	5,6	3,0	0,10	**808**	**808**
R/L 010M3008-20	7	5,9	8	6,3	35	20	6	5,6	3,0	0,10	**818**	**818**
R/L 010M3008-30	7	5,9	8	6,3	45	30	6	5,6	3,0	0,10	**828**	**828**

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

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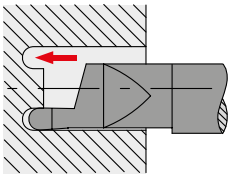
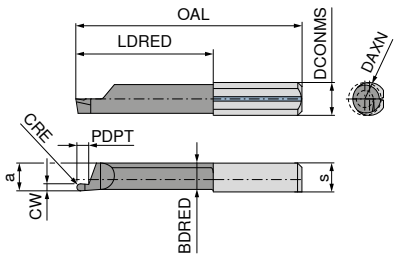
UltraMini – Inserts for axial grooving (Full radius)





Illustrations show right-hand versions

TiAlN

TiAlN

Left-hand

Right-hand

ISO designation	DCONMS $_{h6}$	a	DAXN	s	OAL	LDRED	PDPT	BDRED	CW	CRE	73 059 ...	73 058 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		
R/L 610.1005-10	6	5,2	6	5,3	26	11	2	4,9	1,0	0,50	071	071
R/L 610.1005-20	6	5,2	6	5,3	35	20	2	4,9	1,0	0,50	171	171
R/L 610.1608-10	6	5,2	6	5,3	26	11	3	4,9	1,6	0,80	073	073
R/L 610.1608-20	6	5,2	6	5,3	35	20	3	4,9	1,6	0,80	173	173
R/L 610.2010-10	6	5,2	6	5,3	26	11	4	4,9	2,0	1,00	075	075
R/L 610.2010-20	6	5,2	6	5,3	35	20	4	4,9	2,0	1,00	175	175
R/L 610.2512-10	6	5,2	6	5,3	26	11	5	4,9	2,5	1,25	077	077
R/L 610.2512-20	6	5,2	6	5,3	35	20	5	4,9	2,5	1,25	177	177
R/L 610.3015-10	6	5,2	6	5,3	26	11	6	4,9	3,0	1,50	079	079
R/L 610.3015-20	6	5,2	6	5,3	35	20	6	4,9	3,0	1,50	179	179
R/L 010.1005-10	7	5,9	8	6,3	26	11	2	5,6	1,0	0,50	571	571
R/L 010.1005-20	7	5,9	8	6,3	35	20	2	5,6	1,0	0,50	671	671
R/L 010.1608-10	7	5,9	8	6,3	26	11	3	5,6	1,6	0,80	573	573
R/L 010.1608-20	7	5,9	8	6,3	35	20	3	5,6	1,6	0,80	673	673
R/L 010.2010-10	7	5,9	8	6,3	26	11	4	5,6	2,0	1,00	575	575
R/L 010.2010-20	7	5,9	8	6,3	35	20	4	5,6	2,0	1,00	675	675
R/L 010.2512-10	7	5,9	8	6,3	26	11	5	5,6	2,5	1,25	577	577
R/L 010.2512-20	7	5,9	8	6,3	35	20	5	5,6	2,5	1,25	677	677
R/L 010.3015-10	7	5,9	8	6,3	26	11	6	5,6	3,0	1,50	579	579
R/L 010.3015-20	7	5,9	8	6,3	35	20	6	5,6	3,0	1,50	679	679
P											●	●
M											●	●
K											●	●
N											●	●
S											●	●
H											●	●
O											●	●

→ v_c Page 59

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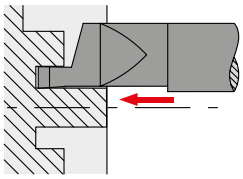
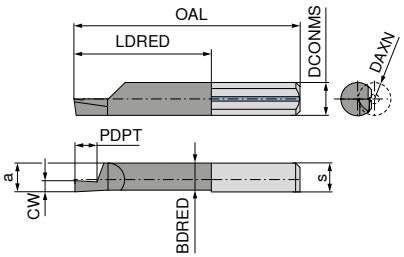
UltraMini – Inserts for axial grooving over a spigot

Illustrations show right-hand versions

TiAlN

Left-hand

73 061 ...

TiAlN

Right-hand

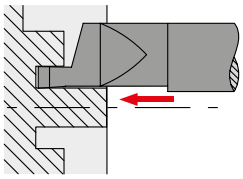
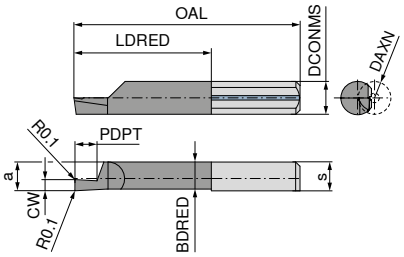
73 060 ...

ISO designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm		
R/L 620.1006-20	6	5,2	6	5,3	35	20	2	4,9	1,0	**561**	**561**
R/L 620.1506-20	6	5,2	6	5,3	35	20	3	4,9	1,5	**563**	**563**
R/L 620.2006-20	6	5,2	6	5,3	35	20	4	4,9	2,0	**565**	**565**
R/L 620.2506-20	6	5,2	6	5,3	35	20	5	4,9	2,5	**567**	**567**
R/L 620.3006-20	6	5,2	6	5,3	35	20	6	4,9	3,0	**569**	**569**
P										●	●
M										●	●
K										●	●
N										●	●
S										●	●
H										●	●
O										●	●

→ v_c Page 59

UltraMini – Inserts for axial grooving over a spigot

▲ with corner radius

Illustrations show right-hand versions

TiAlN

Left-hand

73 261 ...

TiAlN

Right-hand

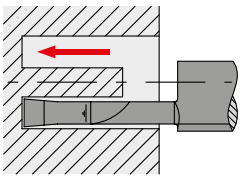
73 260 ...

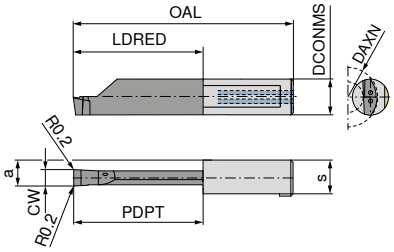
ISO designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm		
R/L 620M1006-20	6	5,2	6	5,3	35	20	2	4,9	1,0	**800**	**800**
R/L 620M1506-20	6	5,2	6	5,3	35	20	3	4,9	1,5	**802**	**802**
R/L 620M2006-20	6	5,2	6	5,3	35	20	4	4,9	2,0	**804**	**804**
R/L 620M2506-20	6	5,2	6	5,3	35	20	5	4,9	2,5	**806**	**806**
R/L 620M3006-20	6	5,2	6	5,3	35	20	6	4,9	3,0	**808**	**808**
P										●	●
M										●	●
K										●	●
N										●	●
S										●	●
H										●	●
O										●	●

→ v_c Page 59

UltraMini – Inserts for axial grooving

▲ up to 70 bar
▲ dual cooling channel





Illustrations show right-hand versions

TiAlN

Left-hand

TiAlN

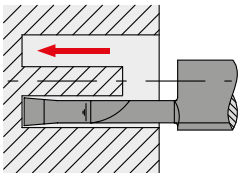
Right-hand

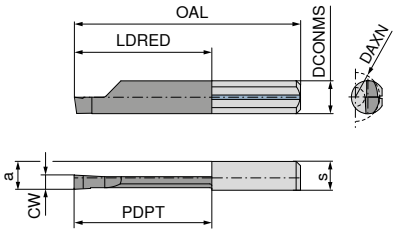
ISO designation	DCONMS h6	a	DAXN	s	OAL	LDRED	PDPT	CW	73 263 ...	73 262 ...
	mm	mm	mm	mm	mm	mm	mm	mm		
R/L 012.0200-10	8	5,00	12	7,3	30	10	10	2,0	**700**	**700**
R/L 012.0200-15	8	5,00	12	7,3	35	15	15	2,0	**702**	**702**
R/L 012.0250-10	8	5,25	12	7,3	30	10	10	2,5	**704**	**704**
R/L 012.0250-20	8	5,25	12	7,3	40	20	20	2,5	**706**	**706**
R/L 016.0300-10	8	5,50	16	7,3	30	10	10	3,0	**800**	**800**
R/L 016.0300-20	8	5,50	16	7,3	40	20	20	3,0	**802**	**802**
R/L 020.0300-25	8	5,50	20	7,3	45	25	25	3,0	**804**	**804**
R/L 020.0300-30	8	5,50	20	7,3	50	30	30	3,0	**806**	**806**
R/L 020.0300-35	8	5,50	20	7,3	55	35	35	3,0	**808**	**808**
R/L 020.0300-40	8	5,50	20	7,3	60	40	40	3,0	**810**	**810**
R/L 016.0400-10	8	6,00	16	7,3	30	10	10	4,0	**812**	**812**
R/L 016.0400-20	8	6,00	16	7,3	40	20	20	4,0	**814**	**814**
R/L 020.0400-25	8	6,00	20	7,3	45	25	25	4,0	**816**	**816**
R/L 020.0400-30	8	6,00	20	7,3	50	30	30	4,0	**818**	**818**
R/L 020.0400-35	8	6,00	20	7,3	55	35	35	4,0	**820**	**820**
R/L 020.0400-40	8	6,00	20	7,3	60	40	40	4,0	**822**	**822**
R/L 020.0500.20	8	6,50	20	7,3	40	20	20	5,0	**824**	**824**
R/L 020.0500.25	8	6,50	20	7,3	45	25	25	5,0	**826**	**826**
R/L 020.0500.30	8	6,50	20	7,3	50	30	30	5,0	**828**	**828**
R/L 020.0500.35	8	6,50	20	7,3	55	35	35	5,0	**830**	**830**
R/L 020.0500.40	8	6,50	20	7,3	60	40	40	5,0	**832**	**832**
P									●	●
M									●	●
K									●	●
N									●	●
S									●	●
H									●	●
O									●	●

12

→ v_c Page 59

UltraMini – Inserts for axial grooving





Illustrations show right-hand versions

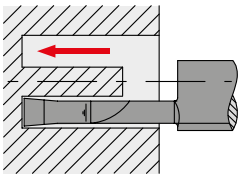
ISO designation	DCONMS $_{h6}$ mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	CW mm	Left-hand 73 057 ...	Right-hand 73 056 ...
R/L 015.2515-20	7	5,9	15	6,3	35	20	20	2,5	572	572
R/L 015.3015-20	7	5,9	15	6,3	35	20	20	3,0	574	574
R/L 015.3015-30	7	5,9	15	6,3	45	30	30	3,0	674	674

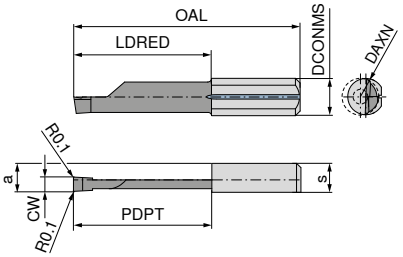
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

→ v_c Page 59

UltraMini – Inserts for axial grooving

▲ with corner radius





Illustrations show right-hand versions

ISO designation	DCONMS $_{h6}$ mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	CW mm	Left-hand 73 257 ...	Right-hand 73 256 ...
R/L 015M2515-20	7	5,9	8	6,3	35	20	20	2,5	800	800
R/L 015M3015-20	7	5,9	8	6,3	35	20	20	3,0	802	802
R/L 015M3015-30	7	5,9	8	6,3	45	30	30	3,0	804	804

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

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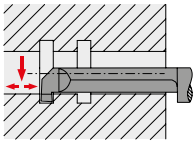
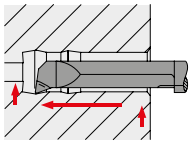
UltraMini – Set: Internal turning, grooving and chamfering, right hand

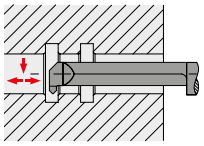
▲ extensive assortment of right-hand tools
▲ K10F – TiN



Grooving (E)



Profile turn (A)



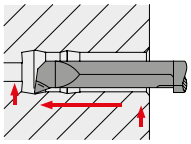
Chamfers (F)

73 085 ...

Tool	Designation	Article no.	Bore Ø mm	Boring depth mm	Grooving depth mm	Groove width mm	Piece	fig.	
Inserts	**R 004.0100-16**	**73 002 541**	4	16	0,8	1,0	1	E	
Inserts	**R 005.0150-20**	**73 002 552**	5	20	1,0	1,5	1	E	
Inserts	**R 005.0200-20**	**73 002 553**	5	20	1,0	2,0	1	E	
Inserts	**R 006.0150-22**	**73 002 562**	6	22	1,8	1,5	1	E	
Inserts	**R 006.0200-22**	**73 002 563**	6	22	1,8	2,0	1	E	
Inserts	**R 050.3-16**	**73 004 530**	3	16			1	A	**999**
Inserts	**R 050.4-16**	**73 004 540**	4	16			1	A	
Inserts	**R 050.5-20**	**73 004 550**	5	20			1	A	
Inserts	**R 050.6-22**	**73 004 560**	6	22			1	A	
Inserts	**R 060.5-20**	**73 006 550**	5	20			1	F	
Tool holder	**645.0016-D**	**73 080 164**					1		
Tool holder	**676.0016-D**	**73 080 166**					1		
Tightening Key	**110.645**	**70 950 175**					1		

UltraMini – Set: Internal Turning

▲ extensive assortment of right-hand tools
▲ K10F – TiN



73 085 ...

Tool	Designation	Article no.	Bore Ø mm	Boring depth mm	Piece	
Inserts	R 050.3-16	73 004 530	3	16	1	
Inserts	R 050.4-16	73 004 540	4	16	1	
Inserts	R 050.5-20	73 004 550	5	20	1	**994**
Inserts	R 050.6-22	73 004 560	6	22	1	
Tool holder	645.0016-D	73 080 164			1	
Tool holder	676.0016-D	73 080 166			1	
Tightening Key	110.645	70 950 175			1	

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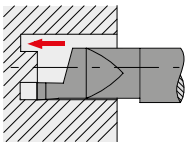
UltraMini – Set: Holder

73 085 ...

Tool	Designation	Article no.	for cutting insert Ø mm	Piece	
Tool holder	**645.0016-D**	**73 080 164**	3 / 4 / 5	1	
Tool holder	**676.0016-D**	**73 080 166**	6 / 7	1	**990**
Tightening Key	**110.645**	**70 950 175**		1	

UltraMini – Set: Axial Grooving

▲ extensive assortment of right-hand tools
▲ K10F – TiN



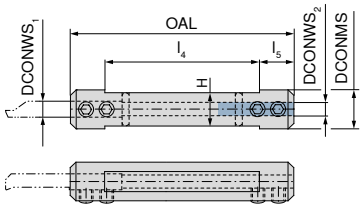
73 085 ...

Tool	Designation	Article no.	Bore Ø mm	Boring depth mm	Grooving depth mm	Groove width mm	Piece	
Inserts	**R 010.1008-10**	**73 050 571**	8	10	1,5	1,0	1	
Inserts	**R 010.1508-10**	**73 050 573**	8	10	2,5	1,5	1	
Inserts	**R 010.2008-10**	**73 050 575**	8	10	3,0	2,0	1	**996**
Inserts	**R 010.2508-20**	**73 050 677**	8	20	3,5	2,5	1	
Inserts	**R 010.3008-20**	**73 050 679**	8	20	3,5	3,0	1	
Tool holder	**676.0016-D**	**73 080 166**					1	
Tightening Key	**110.645**	**70 950 175**					1	

UltraMini – Standard tool holder for cutting inserts

▲ double ended
▲ Machining diameter from Ø 0.5 mm

Scope of supply:
Tool holder with allen key



Designation	$DCONWS_1$ mm	$DCONWS_2$ mm	DCONMS mm	OAL mm	l_4 mm	l_5 mm	H mm	73 080 ...
645.0012-D	4	5	12,00	75	55	10	10,3	**163**
645.0016-D	4	5	16,00	75	55	10	14,0	**164**
645.001905-D	4	5	19,05	90	70	10	17,2	**170**
645.0020-D	4	5	20,00	90	70	10	18,0	**165**
645.0022-D	4	5	22,00	90	70	10	20,0	**171**
645.00254-D	4	5	25,40	95	75	10	23,4	**172**
676.0016-D	6	7	16,00	75	55	10	14,0	**166**
676.001905-D	6	7	19,05	90	70	10	17,2	**173**
676.0020-D	6	7	20,00	90	70	10	18,0	**167**
676.0022-D	6	7	22,00	90	70	10	20,0	**174**
676.00254-D	6	7	25,40	95	75	10	23,4	**175**
687.0016-D	7	8	16,00	75	55	10	14,0	**168**
687.0020-D	7	8	20,00	90	70	10	18,0	**169**

Key I

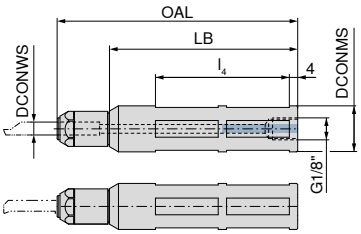
Clamping screw

Spare parts for Article no.	70 950 ...		73 082 ...	
73 080 163	SW2,5	**175**	M5x4	**013**
73 080 164	SW2,5	**175**	M5x6	**001**
73 080 170	SW2,5	**175**	M5x6	**001**
73 080 165	SW2,5	**175**	M5x8	**008**
73 080 171	SW2,5	**175**	M5x8	**008**
73 080 172	SW2,5	**175**	M5x8	**008**
73 080 166	SW2,5	**175**	M5x6	**001**
73 080 173	SW2,5	**175**	M5x6	**001**
73 080 167	SW2,5	**175**	M5x8	**008**
73 080 174	SW2,5	**175**	M5x8	**008**
73 080 175	SW2,5	**175**	M5x8	**008**
73 080 168	SW2,5	**175**	M6x6	**014**
73 080 169	SW2,5	**175**	M6x6	**014**

UltraMini – Quick change tool holder for cutting inserts

Scope of supply:

Tool holder, lock nut and clamping wedge



Designation	DCONWS	DCONMS $_{g6}$	OAL	LB	l_4	73 089 ...
	mm	mm	mm	mm	mm	
UM600H.0012.4	4	12,00	115	90	64	**124**
UM600H.0016.4	4	16,00	115	90	64	**164**
UM600H.001905.4	4	19,05	115	90	64	**194**
UM600H.0020.4	4	20,00	115	90	64	**204**
UM600H.0022.4	4	22,00	115	90	64	**224**
UM600H.0025.4	4	25,00	115	90	64	**254**
UM600H.00254.4	4	25,40	115	90	64	**264**
UM600H.0028.4	4	28,00	115	90	64	**284**
UM600H.0012.5	5	12,00	115	90	64	**125**
UM600H.0016.5	5	16,00	115	90	64	**165**
UM600H.001905.5	5	19,05	115	90	64	**195**
UM600H.0020.5	5	20,00	115	90	64	**205**
UM600H.0022.5	5	22,00	115	90	64	**225**
UM600H.0025.5	5	25,00	115	90	64	**255**
UM600H.00254.5	5	25,40	115	90	64	**265**
UM600H.0028.5	5	28,00	115	90	64	**285**
UM600H.0012.6	6	12,00	115	90	64	**126**
UM600H.0016.6	6	16,00	115	90	64	**166**
UM600H.001905.6	6	19,05	115	90	64	**196**
UM600H.0020.6	6	20,00	115	90	64	**206**
UM600H.0022.6	6	22,00	115	90	64	**226**
UM600H.0025.6	6	25,00	115	90	64	**256**
UM600H.00254.6	6	25,40	115	90	64	**266**
UM600H.0028.6	6	28,00	115	90	64	**286**
UM600H.0012.7	7	12,00	115	90	64	**127**
UM600H.0016.7	7	16,00	115	90	64	**167**
UM600H.001905.7	7	19,05	115	90	64	**197**
UM600H.0020.7	7	20,00	115	90	64	**207**
UM600H.0022.7	7	22,00	115	90	64	**227**
UM600H.0025.7	7	25,00	115	90	64	**257**
UM600H.00254.7	7	25,40	115	90	64	**267**
UM600H.0028.7	7	28,00	115	90	64	**287**

Avoid pulling cuts. Ensure a suitable clamping force is used when using thro' coolant supply. Can be tightened using a key.

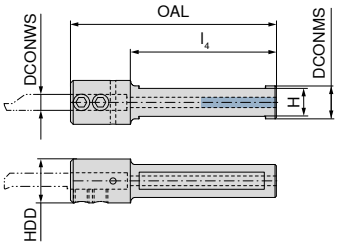
		Lock nut UM600H	Clamping wedge UM600H
		73 950 ...	73 950 ...
Spare parts DCONWS			
4	M4	**104**	**111**
5	M5	**105**	**111**
6	M6	**106**	**111**
7	M7	**107**	**111**

UltraMini – Toolholder for inserts

▲ single ended

Scope of supply:

Tool holder with allen key



73 081 ...

Designation	DCONWS mm	HDD mm	DCONMS mm	OAL mm	l_4 mm	H mm	
640.0012-D	4	16	12	75	53	10,2	**264**
650.0012-D	5	16	12	75	53	10,2	**265**
660.0012-D	6	16	12	75	53	10,2	**266**
670.0012-D	7	16	12	75	53	10,2	**267**
680.0012-D	8	16	12	75	53	10,2	**268**

Key I

Clamping screw

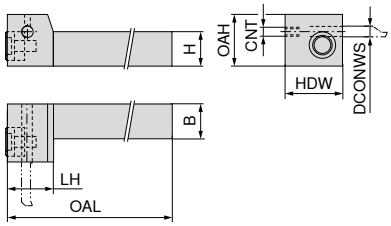
Spare parts DCONWS		**70 950 ...**		**73 082 ...**
4	SW2,5	**175**	M5x0,5x6	**010**
5	SW2,5	**175**	M5x0,5x6	**010**
6	SW2,5	**175**	M5x0,5x6	**010**
7	SW2,5	**175**	M5x0,5x6	**010**
8	SW2,5	**175**	M5x0,5x6	**010**

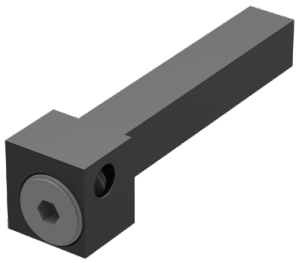
12

UltraMini – Toolholder for inserts

Scope of supply:

Tool holder with allen key





ISO designation	DCONWS	OAL	LH	B	HDW	H	OAH	CNT	Left-hand	Right-hand
	mm	mm	mm	mm	mm	mm	mm		73 083 ...	73 084 ...
R/L .IK.UHCM.1212.4	4	90	17	12	20	12	18	M5	124	124
R/L .IK.UHCM.1212.5	5	90	17	12	20	12	18	M5	125	125
R/L .IK.UHCM.1212.6	6	90	17	12	20	12	21	M5	126	126
R/L .IK.UHCM.1212.7	7	90	17	12	20	12	21	M5	127	127

Suitable coolant connections can be found in our sliding head tooling catalogue.

Clamping key – T

80 397 ...

Clamping screw

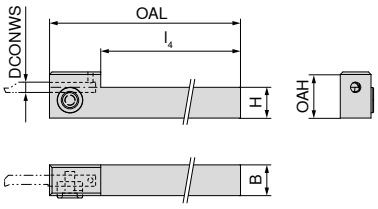
73 082 ...

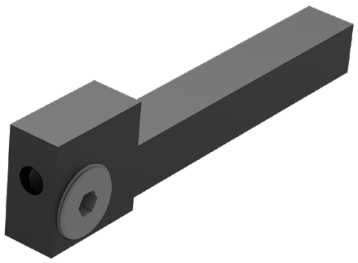
Spare parts DCONWS				
4	SW5	050	UM 12	011
5	SW5	050	UM 12	011
6	SW5	050	UM 16	012
7	SW5	050	UM 16	012

UltraMini – Toolholder for inserts

Scope of supply:

Tool holder with allen key





73 086 ...

Designation	DCONWS	OAL	l_4	B	H	OAH	
	mm	mm	mm	mm	mm	mm	
UM.1010.4	4	100	75	10	10	20	104
UM.1010.5	5	100	75	10	10	20	105
UM.1212.4	4	100	75	12	12	22	124
UM.1212.5	5	100	75	12	12	22	125
UM.1212.6	6	100	75	12	12	22	126

Clamping key – T

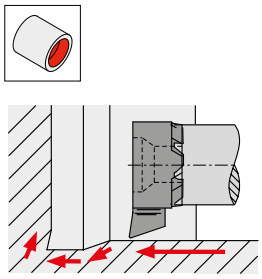
80 397 ...

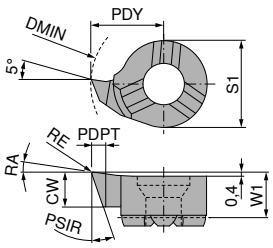
Clamping screw

73 082 ...

Spare parts DCONWS				
4	SW5	050	UM 12	011
5	SW5	050	UM 12	011
6	SW5	050	UM 16	012

MiniCut – Insert for turning and profiling





CWX500 CWX500

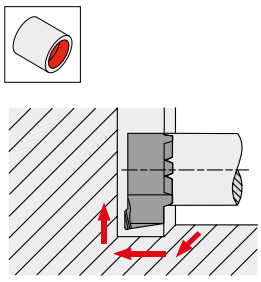
Illustrations show right-hand versions

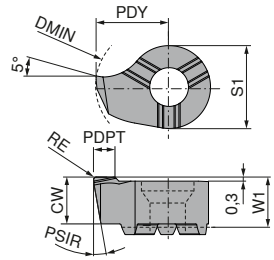
Size	ISO designation	DMIN	CW	W1	PDY	S1	RE	PDPT	PSIR	RA	Left-hand 73 324 ...	Right-hand 73 322 ...
		mm	mm	mm	mm	mm	mm	mm	°	°		
08	8,00. R/L .3,30.18°	7,8	3,3	3,5	4,65	6,0	0,20	0,6	18	8	033	033
	8,00. R/L .3,50.18°	7,8	3,5	3,5	4,65	6,0	0,05	0,6	18	8	035	035
	8,00. R/L .3,50.20°	7,8	3,5	3,5	4,65	6,0	0,20	0,6	20	20	135	135
09	9,00. R/L .3,60.18°	9,0	3,6	3,6	5,50	6,2	0,20	0,8	18	8	136	136
	9,00. R/L .3,60.20°	9,0	3,6	3,6	5,50	6,2	0,20	0,8	20	20	236	236
11	9,80. R/L .3,90.18°	9,8	3,9	4,2	5,50	8,0	0,20	1,0	18	8	139	139
	11,00. R/L .3,90.18°	11,0	3,9	4,2	6,70	8,0	0,20	1,0	18	8	339	339
	11,00. R/L .4,20.20°	11,0	4,2	4,2	6,70	8,0	0,20	1,0	20	20	342	342
14	14,00. R/L .5,00.18°	13,8	5,0	5,1	8,70	9,0	0,20	1,5	18	8	550	550
	14,00. R/L .5,30.20°	14,0	5,3	5,3	8,70	9,0	0,20	1,5	20	20	553	553
16	15,50. R/L .5,00.18°	15,5	5,0	5,4	9,70	11,0	0,20	1,5	18	8	750	750
P											●	●
M											●	●
K											●	●
N											●	●
S											●	●
H											●	●
O											●	●

→ v_c Page 59

MiniCut – Insert for copy turning

▲ with chip breaker





CWX500 CWX500

Illustrations show right-hand versions

Size	ISO designation	DMIN	CW	W1	PDY	S1	RE	PDPT	PSIR	Left-hand 73 388 ...	Right-hand 73 386 ...
		mm	mm	mm	mm	mm	mm	mm	°		
08	8,00. R/L .3,40.10°	8	3,4	3,5	4,65	6,0	0,2	0,5	10	13400	13400
09	9,00. R/L .3,50.10°	9	3,5	3,6	5,50	6,2	0,2	0,5	10	136	136
11	11,00. R .4,10.10°	11	4,1	4,2	6,70	8,0	0,2	0,5	10	14100	14100
P										●	●
M										●	●
K										●	●
N										●	●
S										●	●
H										●	●
O										●	●

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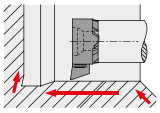
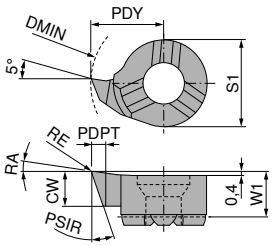
12

MiniCut – CBN insert for profiling – hard turning

▲ 56 to 65 HRC





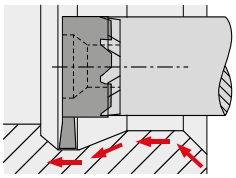
Illustrations show right-hand versions

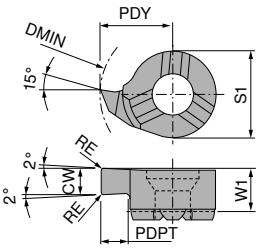
Size	ISO designation	DMIN mm	CW mm	W1 mm	PDY mm	S1 mm	RE mm	PDPT mm	PSIR °	RA °	Left-hand CBN 73 368 ...	Right-hand CBN 73 366 ...
08	8,00. R/L .3,30.18°	7,8	3,3	3,5	4,65	6	0,2	0,39	18	8	033	033
11	11,00. R/L .3,90.18°	11,0	3,9	4,2	6,70	8	0,2	0,55	18	8	139	139
14	14,00. R/L .5,00.18°	13,8	5,0	5,3	8,70	9	0,2	0,69	18	8	550	550
16	16,00. R/L .5,00.18°	15,5	5,0	5,4	9,70	11	0,2	0,77	18	8	750	750
P												
M												
K												
N												
S											○	○
H											●	●
O												

→ v_c Page 59

MiniCut – Internal turning insert

▲ CDX = ap_{max}





CWX500 CWX500

Illustrations show right-hand versions

Size	ISO designation	DMIN mm	CW mm	PDPT mm	W1 mm	PDY mm	S1 mm	RE mm	CDX mm	Left-hand 73 316 ...	Right-hand 73 314 ...
08	8,00. R/L .1,50.1,0	8	1,5	1,0	3,3	4,8	6,0	0,2	0,2	015	015
	8,00. R/L .2,00.1,0	8	2,0	1,0	3,3	4,8	6,0	0,2	0,2	020	020
09	9,00. R/L .1,50.2,0	9	1,5	2,0	3,6	5,5	6,2	0,2	0,2	115	115
	9,00. R/L .1,50.3,0	10	1,5	3,0	3,6	6,5	6,2	0,2	0,2	121	121
	9,00. R/L .2,00.2,0	9	2,0	2,0	3,6	5,5	6,2	0,2	0,2	120	120
	9,00. R/L .2,00.3,0	10	2,0	3,0	3,6	6,5	6,2	0,2	0,2	122	122
11	11,00. R/L .1,50.2,3	11	1,5	2,3	4,2	6,7	8,0	0,2	0,2	315	315
	11,00. R/L .2,00.2,3	11	2,0	2,3	4,2	6,7	8,0	0,2	0,2	320	320
14	14,00. R/L .1,50.4,0	14	1,5	4,0	5,3	9,0	9,0	0,2	0,2	515	515
	14,00. R/L .1,50,5,5	16	1,5	5,5	5,2	10,5	9,0	0,2	0,2	516	516
	14,00. R/L .1,50.6,5	17	1,5	6,5	5,2	11,5	9,0	0,2	0,2	517	517
	14,00. R/L .2,00.4,0	14	2,0	4,0	5,3	9,0	9,0	0,2	0,2	520	520
	14,00. R/L .2,00.5,5	16	2,0	5,5	5,2	10,5	9,0	0,2	0,2	521	521
	14,00. R/L .2,00.6,5	17	2,0	6,5	5,2	11,5	9,0	0,2	0,2	522	522
	14,00. R/L .2,50.5,5	16	2,5	5,5	5,2	10,5	9,0	0,2	0,2	525	525
	14,00. R/L .2,50.6,5	17	2,5	6,5	5,2	11,5	9,0	0,2	0,2	526	526
	14,00. R/L .3,00.5,5	16	3,0	5,5	5,2	10,5	9,0	0,2	0,2	530	530
	14,00. R/L .3,00.6,5	17	3,0	6,5	5,2	11,5	9,0	0,2	0,2	531	531
16	16,00. R/L .2,00.4,3	16	2,0	4,3	5,4	10,2	11,0	0,2	0,2	720	720
P										●	●
M										●	●
K										●	●
N										●	●
S										●	●
H										●	●
O										●	●

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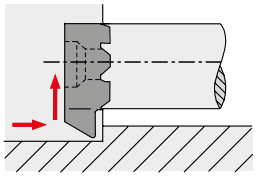
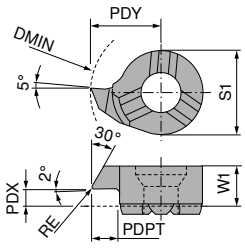
12

MiniCut – Back boring insert

▲ CDX = ap_{max}





CWX500 CWX500

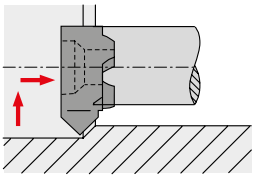
Illustrations show right-hand versions

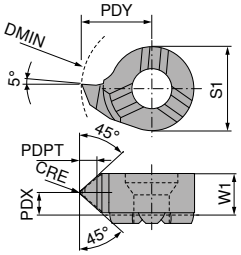
Size	ISO designation	DMIN mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	RE mm	CDX mm	Left-hand 73 332 ...	Right-hand 73 330 ...
08	8,00. R/L .30°.1,3	7,8	1,3	3,50	1,0	4,65	6,0	0,2	0,6	013	013
09	9,00. R/L .30°.1,7	9,0	1,7	3,55	1,2	5,50	6,2	0,2	0,8	117	117
	9,00. R/L .30°.2,3	10,0	2,3	3,55	1,2	6,50	6,2	0,2	0,8	123	123
11	11,00. R/L .30°.2,3	11,0	2,3	4,30	1,6	6,70	8,0	0,2	1,0	323	323
14	14,00. R/L .30°.3,5	13,8	3,5	5,40	2,4	8,70	9,0	0,2	1,5	535	535
P										●	●
M										●	●
K										●	●
N										●	●
S										●	●
H										●	●
O										●	●

→ v_c Page 59

MiniCut – Internal turning and chamfering insert

▲ CDX = ap_{max}





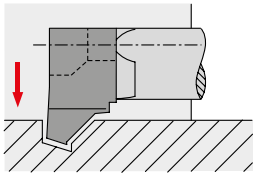
CWX500 CWX500

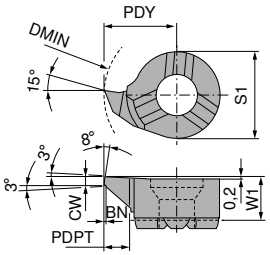
Illustrations show right-hand versions

Size	ISO designation	DMIN mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	CRE mm	CDX mm	Left-hand 73 336 ...	Right-hand 73 334 ...
08	8,00. R/L .45°.1,4	8	1,4	3,50	1,8	4,8	6,0	0,2	0,6	010	010
09	9,00. R/L .45°.1,3	9	1,3	3,55	1,8	5,5	6,2	0,2	0,8	110	110
11	11,00. R/L .45°.1,5	11	1,5	4,30	2,2	6,7	8,0	0,2	1,0	310	310
14	14,00. R/L .45°.1,5	14	1,5	5,40	2,8	9,0	9,0	0,2	1,2	510	510
P										●	●
M										●	●
K										●	●
N										●	●
S										●	●
H										●	●
O										●	●

→ v_c Page 59

MiniCut – Insert for pregrooving and chamfering





CWX500 CWX500

Illustrations show right-hand versions

Size	ISO designation	DMIN mm	CW mm	PDPT mm	W1 mm	PDY mm	S1 mm	BN mm	Left-hand 73 340 ...	Right-hand 73 338 ...
08	8,00. R/L .1,00.45°	8	1	1,0	3,3	4,8	6,0	0,2	100	100
09	9,00. R/L .1,00.45°	9	1	1,5	3,6	5,5	6,2	0,2	215	215
11	11,00. R/L .1,00.45°	11	1	1,5	4,2	6,7	8,0	0,2	315	315
14	14,00. R/L .1,00.45°	14	1	1,5	5,3	9,0	9,0	0,2	515	515
16	16,00. R/L .1,00.45°	16	1	1,5	5,4	10,2	11,0	0,2	715	715
P									●	●
M									●	●
K									●	●
N									●	●
S									●	●
H									●	●
O									●	●

→ v_c Page 59

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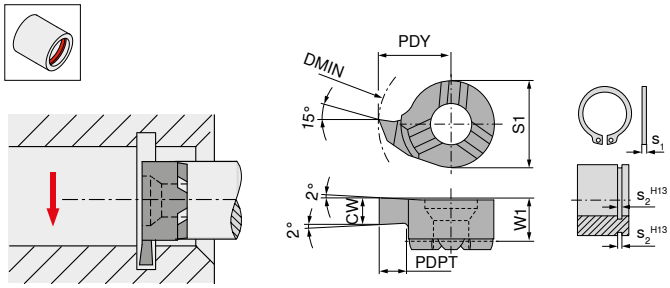
MiniCut – Grooving insert

CWX500 CWX500



Illustrations show right-hand versions

Size	ISO designation	DMIN	CW	PDPT	W1	s_1	$s_{2\ H13}$	PDY	S1	Left-hand 73 312 ...	Right-hand 73 310 ...
		mm	mm	mm	mm	mm	mm	mm	mm		
08	8,00. R/L .0,73.1,0	8	0,73	1,0	3,3	0,6	0,7	4,8	6,0	073	073
	8,00. R/L .0,83.1,0	8	0,83	1,0	3,3	0,7	0,8	4,8	6,0	083	083
	8,00. R/L .0,93.1,0	8	0,93	1,0	3,3	0,8	0,9	4,8	6,0	093	093
	8,00. R/L .1,00.1,0	8	1,00	1,0	3,3			4,8	6,0	110	110
	8,00. R/L .1,20.1,0	8	1,20	1,0	3,3	1,0	1,1	4,8	6,0	112	112
	8,00. R/L .1,40.1,0	8	1,40	1,0	3,3	1,2	1,3	4,8	6,0	114	114
	8,00. R/L .1,50.1,0	8	1,50	1,0	3,3			4,8	6,0	115	115
	8,00. R/L .1,70.1,0	8	1,70	1,0	3,3	1,5	1,6	4,8	6,0	117	117
	8,00. R/L .2,00.1,0	8	2,00	1,0	3,3			4,8	6,0	120	120
09	9,00. R/L .0,73.1,2	9	0,73	1,2	3,6	0,6	0,7	5,5	6,2	173	173
	9,00. R/L .0,83.1,3	9	0,83	1,3	3,6	0,7	0,8	5,5	6,2	183	183
	9,00. R/L .0,93.1,5	9	0,93	1,5	3,6	0,8	0,9	5,5	6,2	193	193
	9,00. R/L .1,00.1,8	9	1,00	1,8	3,6			5,5	6,2	210	210
	9,00. R/L .1,20.1,8	9	1,20	1,8	3,6	1,0	1,1	5,5	6,2	212	212
	9,00. R/L .1,40.1,8	9	1,40	1,8	3,6	1,2	1,3	5,5	6,2	214	214
	9,00. R/L .1,50.1,8	9	1,50	1,8	3,6			5,5	6,2	215	215
	9,00. R/L .1,70.1,8	9	1,70	1,8	3,6	1,5	1,6	5,5	6,2	217	217
	9,00. R/L .2,00.1,8	9	2,00	1,8	3,6			5,5	6,2	220	220
	9,00. R/L .2,50.1,8	9	2,50	1,8	3,6			5,5	6,2	225	225
	9,00. R/L .3,00.1,8	9	3,00	1,8	3,6			5,5	6,2	230	230
11	11,00. R/L .0,73.1,2	11	0,73	1,2	4,2	0,6	0,7	6,7	8,0	373	373
	11,00. R/L .0,83.1,3	11	0,83	1,3	4,2	0,7	0,8	6,7	8,0	383	383
	11,00. R .0,93.1,5	11	0,93	1,5	4,2	0,9	0,9	6,7	8,0		393
	11,00. L .0,93.1,5	11	0,93	1,5	4,2	0,8	0,9	6,7	8,0	393	
	11,00. R/L .1,00.2,3	11	1,00	2,3	4,2			6,7	8,0	310	310
	11,00. R/L .1,20.2,3	11	1,20	2,3	4,2	1,0	1,1	6,7	8,0	312	312
	11,00. R/L .1,40.2,3	11	1,40	2,3	4,2	1,2	1,3	6,7	8,0	314	314
	11,00. R/L .1,50.2,3	11	1,50	2,3	4,2			6,7	8,0	315	315
	11,00. R/L .1,70.2,3	11	1,70	2,3	4,2	1,5	1,6	6,7	8,0	317	317
	11,00. R/L .2,00.2,3	11	2,00	2,3	4,2			6,7	8,0	320	320
	11,00. R/L .2,50.2,3	11	2,50	2,3	4,2			6,7	8,0	325	325
	11,00. R/L .3,00.2,3	11	3,00	2,3	4,2			6,7	8,0	330	330
14	14,00. R/L .0,73.1,2	14	0,73	1,2	5,3	0,6	0,7	9,0	9,0	573	573
	14,00. R/L .0,83.1,3	14	0,83	1,3	5,3	0,7	0,8	9,0	9,0	583	583
	14,00. R/L .0,93.1,5	14	0,93	1,5	5,3	0,8	0,9	9,0	9,0	593	593
	14,00. R/L .1,20.4,0	14	1,20	4,0	5,3	1,0	1,1	9,0	9,0	512	512
	14,00. R/L .1,40.4,0	14	1,40	4,0	5,3	1,2	1,3	9,0	9,0	514	514
	14,00. R/L .1,50.4,0	14	1,50	4,0	5,3			9,0	9,0	515	515
	14,00. R/L .1,70.4,0	14	1,70	4,0	5,3	1,5	1,6	9,0	9,0	517	517
	14,00. R/L .2,00.4,0	14	2,00	4,0	5,3			9,0	9,0	520	520
	14,00. R/L .2,50.4,0	14	2,50	4,0	5,3			9,0	9,0	525	525
	14,00. R/L .3,00.4,0	14	3,00	4,0	5,3			9,0	9,0	530	530
16	16,00. R/L .0,73.1,2	16	0,73	1,2	5,4	0,6	0,7	10,2	11,0	773	773
	16,00. R/L .0,83.1,3	16	0,83	1,3	5,4	0,7	0,8	10,2	11,0	783	783
	16,00. R/L .0,93.1,5	16	0,93	1,5	5,4	0,8	0,9	10,2	11,0	793	793
	16,00. R/L .1,20.4,3	16	1,20	4,3	5,4	1,0	1,1	10,2	11,0	712	712
	16,00. R/L .1,40.4,3	16	1,40	4,3	5,4	1,2	1,3	10,2	11,0	714	714
	16,00. R/L .1,50.4,3	16	1,50	4,3	5,4			10,2	11,0	715	715
	16,00. R/L .1,70.4,3	16	1,70	4,3	5,4	1,5	1,6	10,2	11,0	717	717
	16,00. R/L .2,00.4,3	16	2,00	4,3	5,4			10,2	11,0	720	720
	16,00. R/L .2,50.4,3	16	2,50	4,3	5,4			10,2	11,0	725	725
	16,00. R/L .3,00.4,3	16	3,00	4,3	5,4			10,2	11,0	730	730
	16,00. R/L .3,50.4,3	16	3,50	4,3	5,4			10,2	11,0	735	735
	16,00. R/L .4,00.4,3	16	4,00	4,3	5,4			10,2	11,0	740	740

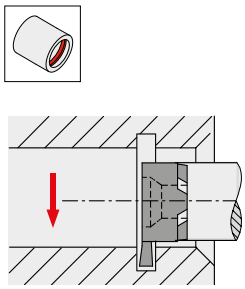
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

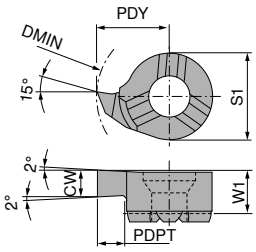
→ v_c Page 59

MiniCut – Grooving insert

▲ large groove depth ($T_{max.}$ 5.5 mm)

CWX500 CWX500





Illustrations show right-hand versions

Size	ISO designation	DMIN mm	CW mm	PDPT mm	W1 mm	PDY mm	S1 mm	Left-hand 73 372 ...	Right-hand 73 370 ...
14	14,00. R/L .1,50.5,5	16	1,5	5,5	5,2	10,5	9	715	715
	14,00. R/L .2,00.5,5	16	2,0	5,5	5,2	10,5	9	720	720
	14,00. R/L .2,50.5,5	16	2,5	5,5	5,2	10,5	9	725	725
	14,00. R/L .3,00.5,5	16	3,0	5,5	5,2	10,5	9	730	730

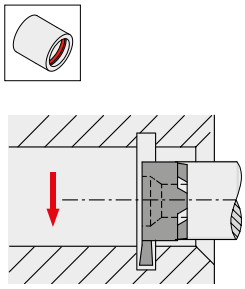
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

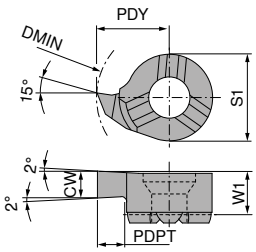
→ v_c Page 59

MiniCut – Grooving insert

▲ large groove depth ($T_{max.}$ 6.5 mm)

CWX500 CWX500





Illustrations show right-hand versions

Size	ISO designation	DMIN mm	CW mm	PDPT mm	W1 mm	PDY mm	S1 mm	Left-hand 73 384 ...	Right-hand 73 382 ...
14	14,00. R/L .1,50.6,5	17	1,5	6,5	5,2	11,5	9	515	515
	14,00. R/L .2,00.6,5	17	2,0	6,5	5,2	11,5	9	520	520
	14,00. R/L .2,50.6,5	17	2,5	6,5	5,2	11,5	9	525	525
	14,00. R/L .3,00.6,5	17	3,0	6,5	5,2	11,5	9	530	530

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

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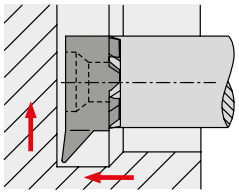
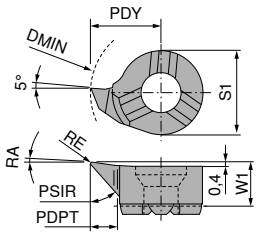
12

MiniCut – Internal undercut insert

▲ CDX = ap_{max}





CWX500 CWX500

Illustrations show right-hand versions

Size	ISO designation	DMIN mm	PDPT mm	W1 mm	PDY mm	S1 mm	RE mm	CDX mm	PSIR °	RA °	Left-hand 73 328 ...	Right-hand 73 326 ...
08	8,00. R/L .30°.1,0	7,8	1,0	3,5	4,65	6,0	0,2	0,4	30	3	010	010
	8,00. R/L .47°.1,2	7,8	1,2	3,5	4,65	6,0	0,2	0,4	47	3	012	012
09	9,00. R/L .47°.1,5	9,0	1,5	3,6	5,50	6,2	0,2	0,5	47	3	115	115
11	11,00. R/L .30°.2,3	11,0	2,3	4,2	6,70	8,0	0,2	0,6	30	3	423	423
	11,00. R/L .47°.2,3	11,0	2,3	4,2	6,70	8,0	0,2	0,6	47	3	323	323
14	13,70. R/L .47°.3,0	13,7	3,0	5,3	8,70	9,0	0,2	0,8	47	3	530	530
	13,70. R/L .30°.4,0	13,7	4,0	5,3	8,70	9,0	0,2	0,8	30	3	540	540
16	15,80. R/L .30°.4,3	15,8	4,3	5,4	10,20	11,0	0,2	1,0	30	3	744	744
P											●	●
M											●	●
K											●	●
N											●	●
S											●	●
H											●	●
O											●	●

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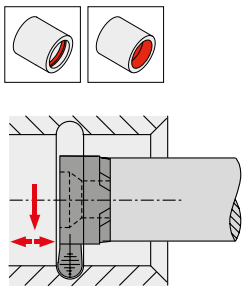
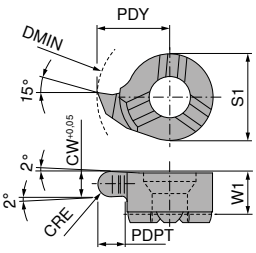
MiniCut – Full radius grooving and turning insert





CWX500 CWX500

Illustrations show right-hand versions

Size	ISO designation	DMIN mm	CW mm	PDPT mm	W1 mm	PDY mm	S1 mm	CRE mm	Left-hand 73 320 ...	Right-hand 73 318 ...
08	8,00. R/L .0,80.1,0	8	0,8	1,0	3,3	4,8	6,0	0,4	008	008
	8,00. R/L .1,20.1,0	8	1,2	1,0	3,3	4,8	6,0	0,6	012	012
	8,00. R/L .1,80.1,0	8	1,8	1,0	3,3	4,8	6,0	0,9	018	018
	8,00. R/L .2,00.1,0	8	2,0	1,0	3,3	4,8	6,0	1,0	020	020
09	9,00. R/L .0,80.1,6	9	0,8	1,6	3,6	5,5	6,2	0,4	108	108
	9,00. R/L .1,20.1,6	9	1,2	1,6	3,6	5,5	6,2	0,6	112	112
	9,00. R/L .1,80.1,6	9	1,8	1,6	3,6	5,5	6,2	0,9	118	118
	9,00. R/L .2,00.1,6	9	2,0	1,6	3,6	5,5	6,2	1,0	120	120
11	11,00. R/L .0,80.2,3	11	0,8	2,3	4,2	6,7	8,0	0,4	308	308
	11,00. R/L .1,20.2,3	11	1,2	2,3	4,2	6,7	8,0	0,6	312	312
	11,00. R/L .1,60.2,3	11	1,6	2,3	4,2	6,7	8,0	0,8	316	316
	11,00. R/L .1,80.2,3	11	1,8	2,3	4,2	6,7	8,0	0,9	318	318
	11,00. R/L .2,00.2,3	11	2,0	2,3	4,2	6,7	8,0	1,0	320	320
	11,00. R/L .2,40.2,3	11	2,4	2,3	4,2	6,7	8,0	1,2	324	324
	11,00. R/L .3,00.2,3	11	3,0	2,3	4,2	6,7	8,0	1,5	330	330
14	14,00. R/L .0,80.4,0	14	0,8	4,0	5,3	9,0	9,0	0,4	508	508
	14,00. R/L .1,20.4,0	14	1,2	4,0	5,3	9,0	9,0	0,6	512	512
	14,00. R/L .1,80.4,0	14	1,8	4,0	5,3	9,0	9,0	0,9	518	518
	14,00. R/L .2,00.4,0	14	2,0	4,0	5,3	9,0	9,0	1,0	520	520
	14,00. R/L .2,20.4,0	14	2,2	4,0	5,3	9,0	9,0	1,1	522	522
	14,00. R/L .3,00.4,0	14	3,0	4,0	5,3	9,0	9,0	1,5	530	530
16	16,00. R/L .1,60.4,3	16	1,6	4,3	5,4	10,2	11,0	0,8	716	716
	16,00. R/L .1,80.4,3	16	1,8	4,3	5,4	10,2	11,0	0,9	718	718
	16,00. R/L .2,00.4,3	16	2,0	4,3	5,4	10,2	11,0	1,0	720	720
	16,00. R/L .2,20.4,3	16	2,2	4,3	5,4	10,2	11,0	1,1	722	722
	16,00. R/L .2,40.4,3	16	2,4	4,3	5,4	10,2	11,0	1,2	724	724
	16,00. R/L .3,00.4,3	16	3,0	4,3	5,4	10,2	11,0	1,5	730	730
	16,00. R/L .3,20.4,3	16	3,2	4,3	5,4	10,2	11,0	1,6	732	732
	16,00. R/L .4,00.4,3	16	4,0	4,3	5,4	10,2	11,0	2,0	740	740
P									●	●
M									●	●
K									●	●
N									●	●
S									●	●
H									●	●
O									●	●

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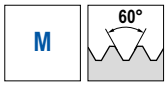
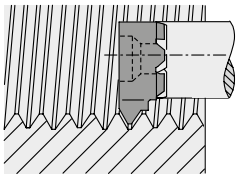
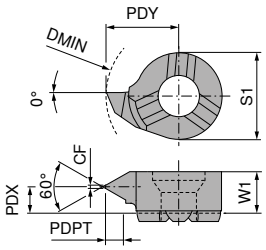
MiniCut – Threading insert (Partial profile)







Illustrations show right-hand versions

Size	ISO designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand 73 344 ...	Right-hand 73 342 ...
08	8,00. R/L .0,5/0,75.60°	8	0,5 - 0,75	0,06	0,43	3,50	2,7	4,8	6,0	012	012
	8,00. R/L .1,0/1,25.60°	8	1,0 - 1,25	0,12	0,70	3,50	2,7	4,8	6,0	014	014
	8,00. R/L .1,5/1,75.60°	8	1,5 - 1,75	0,18	0,95	3,50	2,5	4,8	6,0	010	010
09	9,00. R/L .0,5/0,75.60°	9	0,5 - 0,75	0,06	0,27	3,55	3,2	5,5	6,2	112	112
	9,00. R/L .1,0/1,25.60°	9	1,0 - 1,25	0,12	0,54	3,55	3,0	5,5	6,2	114	114
	9,00. R/L .1,5/1,75.60°	9	1,5 - 1,75	0,18	0,81	3,55	2,8	5,5	6,2	116	116
	9,00. R/L .1,75/2,0.60°	9	1,75 - 2,0	0,20	0,95	3,55	2,6	5,5	6,2	118	118
	9,00. R/L .2,0/2,5.60°	9	2,0 - 2,5	0,25	1,08	3,55	2,5	5,5	6,2	120	120
	9,00. R/L .2,5/3,0.60°	9	2,5 - 3,0	0,31	1,35	3,55	2,1	5,5	6,2	122	122
	9,00. R/L .3,0/3,5.60°	9	3,0 - 3,5	0,37	1,62	3,55	1,9	5,5	6,2	124	124
11	11,00. R/L .0,5/0,75.60°	11	0,5 - 0,75	0,06	0,75	4,30	3,5	6,7	8,0	312	312
	11,00. R/L .1,0/1,25.60°	11	1,0 - 1,25	0,12	0,55	4,30	3,5	6,7	8,0	314	314
	11,00. R/L .1,5/1,75.60°	11	1,5 - 1,75	0,18	0,81	4,30	3,5	6,7	8,0	316	316
	11,00. R/L .2,0/2,5.60°	11	2,0 - 2,5	0,25	1,08	4,30	3,0	6,7	8,0	310	310
	11,00. R/L .2,5/3,0.60°	11	2,5 - 3,0	0,31	1,35	4,30	3,0	6,7	8,0	320	320
14	14,00. R/L .1,0/1,25.60°	14	1,0 - 1,25	0,12	0,55	5,40	4,7	9,0	9,0	512	512
	14,00. R/L .1,5/1,75.60°	14	1,5 - 1,75	0,18	0,81	5,40	4,5	9,0	9,0	514	514
	14,00. R/L .2,0/2,5.60°	14	2,0 - 2,5	0,25	1,08	5,40	4,2	9,0	9,0	510	510
	14,00. R/L .2,5/3,0.60°	14	2,5 - 3,0	0,31	1,35	5,40	4,7	9,0	9,0	520	520
16	16,00. R/L .1,0/1,25.60°	16	1,0 - 1,25	0,12	0,55	5,50	4,7	10,2	11,0	712	712
	16,00. R/L .1,5/1,75.60°	16	1,5 - 1,75	0,18	0,81	5,50	4,5	10,2	11,0	714	714
	16,00. R/L .2,0/2,5.60°	16	2,0 - 2,5	0,25	1,08	5,50	4,2	10,2	11,0	716	716
	16,00. R/L .2,5/3,0.60°	16	2,5 - 3,0	0,31	1,35	5,50	4,2	10,2	11,0	710	710
P										●	●
M										●	●
K										●	●
N										●	●
S										●	●
H										●	●
O										●	●

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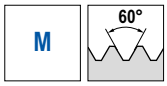
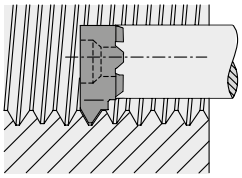
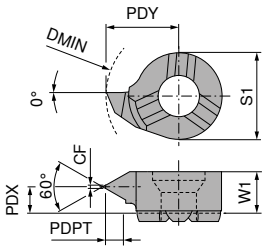
MiniCut – Threading insert (Full profile)







Illustrations show right-hand versions

Size	ISO designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand 73 348 ...	Right-hand 73 346 ...
09	9,00. R/L .0,5.60°	9	0,50	0,06	0,27	3,55	3,25	5,5	6,2	405	405
	9,00. R/L .1,0.60°	9	1,00	0,12	0,54	3,55	3,00	5,5	6,2	410	410
	9,00. R/L .1,5.60°	9	1,50	0,18	0,81	3,55	2,80	5,5	6,2	415	415
	9,00. R/L .1,75.60°	9	1,75	0,20	0,95	3,55	2,70	5,5	6,2	418	418
	9,00. R/L .2,0.60°	9	2,00	0,25	1,08	3,55	2,60	5,5	6,2	420	420
	9,00. R/L .2,5.60°	9	2,50	0,31	1,35	3,55	2,50	5,5	6,2	425	425
	9,00. R/L .3,0.60°	9	3,00	0,37	1,62	3,55	2,20	5,5	6,2	430	430
11	11,00. R/L .1,0.60°	11	1,00	0,12	0,54	4,30	3,50	6,7	8,0	314	314
	11,00. R/L .1,5.60°	11	1,50	0,18	0,81	4,30	3,50	6,7	8,0	316	316
	11,00. R/L .2,0.60°	11	2,00	0,25	1,08	4,30	3,20	6,7	8,0	310	310
	11,00. R/L .2,5.60°	11	2,50	0,31	1,35	4,30	3,00	6,7	8,0	320	320
	11,00. R/L .3,0.60°	11	3,00	0,37	1,62	4,30	2,90	6,7	8,0	330	330
14	14,00. R/L .0,5.60°	14	0,50	0,06	0,27	5,40	3,50	9,0	9,0	510	510
	14,00. R/L .1,0.60°	14	1,00	0,12	0,54	5,40	3,50	9,0	9,0	512	512
	14,00. R/L .1,5.60°	14	1,50	0,18	0,81	5,40	3,30	9,0	9,0	514	514
	14,00. R/L .2,0.60°	14	2,00	0,25	1,08	5,40	4,20	9,0	9,0	610	610
	14,00. R/L .2,5.60°	14	2,50	0,31	1,35	5,40	4,70	9,0	9,0	520	520
16	16,00. R/L .1,0.60°	16	1,00	0,12	0,54	5,50	4,70	10,2	11,0	712	712
	16,00. R/L .1,5.60°	16	1,50	0,18	0,81	5,50	4,50	10,2	11,0	714	714
	16,00. R/L .2,0.60°	16	2,00	0,25	1,08	5,50	4,20	10,2	11,0	716	716
	16,00. R/L .2,5.60°	16	2,50	0,31	1,35	5,50	4,20	10,2	11,0	710	710
	16,00. R/L .3,0.60°	16	3,00	0,37	1,62	5,50	4,00	10,2	11,0	720	720
	16,00. R/L .3,5.60°	16	3,50	0,43	1,89	5,50	3,80	10,2	11,0	730	730
	16,00. R/L .4,0.60°	16	4,00	0,50	2,16	5,50	3,60	10,2	11,0	740	740
P										●	●
M										●	●
K										●	●
N										●	●
S										●	●
H										●	●
O										●	●

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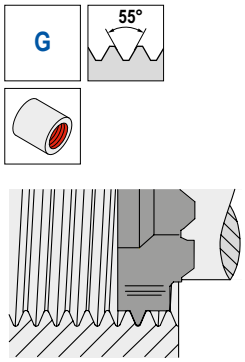
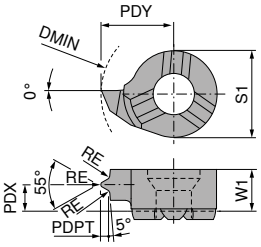
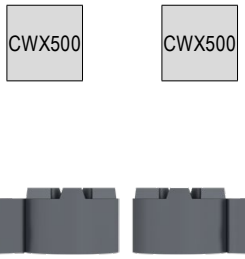
MiniCut – Threading insert (Full profile)







Illustrations show right-hand versions

Size	ISO designation	DMIN mm	TP mm	TPI 1/"	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	RE mm	Left-hand 73 352 ...	Right-hand 73 350 ...
11	11,00. R/L .1,814.55°	11	1,814	14	1,16	4,30	3,0	6,7	8	0,24	306	306
	11,00. R/L .1,337.55°	11	1,337	19	0,85	4,30	2,7	6,7	8	0,18	304	304
14	14,00. R/L .1,814.55°	14	1,814	14	1,16	5,35	3,6	9,0	9	0,24	506	506
	14,00. R/L .1,337.55°	14	1,337	19	0,85	5,35	3,8	9,0	9	0,18	504	504
16	16,00. R/L .2,309.55°	16	2,309	11	1,48	5,50	3,5	10,2	11	0,31	708	708
	16,00. R/L .1,814.55°	16	1,814	14	1,16	5,50	3,9	10,2	11	0,24	706	706
P											●	●
M											●	●
K											●	●
N											●	●
S											●	●
H											●	●
O											●	●

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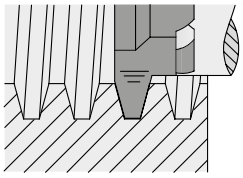
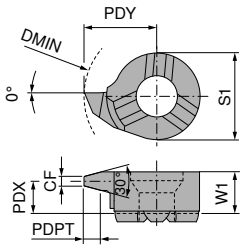
MiniCut – Threading insert (Partial profile)

▲ Trapezoidal thread DIN 103





Illustrations show right-hand versions

Size	ISO designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand 73 356 ...	Right-hand 73 354 ...
09	9,00. R/L .1,5.30°	9	1,5	0,47	0,90	3,55	3,00	5,5	6,2	415	415
	9,00. R/L .2,0.30°	9	2,0	0,60	1,25	3,55	2,85	5,5	6,2	420	420
	9,00. R/L .3,0.30°	9	3,0	0,96	1,75	3,55	2,25	5,5	6,2	430	430
	9,00. R/L .4,0.30°	10	4,0	1,33	2,25	3,55	2,25	5,5	6,2	440	440
11	11,00. R/L .1,5.30°	11	1,5	0,47	0,90	4,30	3,70	6,7	8,0	315	315
	11,00. R/L .2,0.30°	11	2,0	0,60	1,25	4,30	3,50	6,7	8,0	320	320
	11,00. R/L .3,0.30°	11	3,0	0,96	1,75	4,30	3,20	6,7	8,0	330	330
	11,00. R/L .4,0.30°	11	4,0	1,33	2,25	3,95	2,60	6,7	8,0	340	340
14	14,00. R/L .2,0.30°	14	2,0	0,60	1,25	5,30	4,30	9,0	9,0	520	520
	14,00. R/L .3,0.30°	14	3,0	0,96	1,75	5,30	4,00	9,0	9,0	530	530
	14,00. R/L .4,0.30°	14	4,0	1,33	2,25	5,30	3,60	9,0	9,0	540	540
	14,00. R/L .5,0.30°	14	5,0	1,69	2,75	5,30	3,30	9,0	9,0	550	550
16	16,00. R/L .2,0.30°	16	2,0	0,60	1,25	5,50	4,50	9,7	11,0	720	720
	16,00. R/L .3,0.30°	16	3,0	0,96	1,75	5,50	4,30	9,7	11,0	730	730
	16,00. R/L .4,0.30°	16	4,0	1,33	2,25	5,50	4,00	9,7	11,0	740	740
	16,00. R/L .5,0.30°	16	5,0	1,69	2,75	5,50	3,55	9,7	11,0	750	750
	16,00. R/L .6,0.30°	16	6,0	1,92	3,50	5,50	3,30	10,2	11,0	760	760
P										●	●
M										●	●
K										●	●
N										●	●
S										●	●
H										●	●
O										●	●

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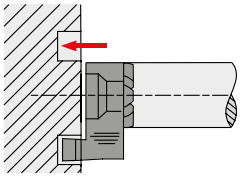
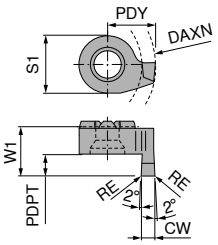
MiniCut – Axial grooving insert





CWX500 CWX500

Illustrations show right-hand versions

Size	ISO designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	RE mm	S1 mm	Left-hand 73 364 ...	Right-hand 73 362 ...
14	14,00. R/L .1,0.1,5	14	1,0	1,5	8,3	9		9	510	510
	14,00. R/L .1,5.2,5	14	1,5	2,5	8,3	9	0,2	9	515	515
	14,00. R/L .2,0.3,0	14	2,0	3,0	8,3	9	0,2	9	520	520
	14,00. R/L .2,0.5,0	14	2,0	5,0	10,3	9	0,2	9	620	620
	14,00. R/L .2,5.3,0	14	2,5	3,0	8,3	9	0,2	9	525	525
	14,00. R/L .2,5.5,0	14	2,5	5,0	10,3	9	0,2	9	625	625
	14,00. R/L .3,0.3,0	14	3,0	3,0	8,3	9	0,2	9	530	530
	14,00. R/L .3,0.5,0	14	3,0	5,0	10,3	9	0,2	9	630	630
P									●	●
M									●	●
K									●	●
N									●	●
S									●	●
H									●	●
O									●	●

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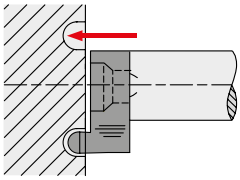
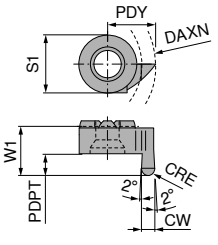
MiniCut – Full radius axial grooving insert





CWX500 CWX500

Illustrations show right-hand versions

Size	ISO designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	CRE mm	S1 mm	Left-hand 73 376 ...	Right-hand 73 374 ...
14	14,00. R/L . 1,0.1,5	14	1,0	1,5	8,3	9	0,5	9	510	510
	14,00. R/L . 1,6.2,5	14	1,6	2,5	8,3	9	0,8	9	516	516
	14,00. R/L . 2,0.3,0	14	2,0	3,0	8,3	9	1,0	9	520	520
	14,00. R/L . 2,5.3,0	14	2,5	3,0	8,3	9	1,2	9	525	525
	14,00. R/L . 3,0.3,0	14	3,0	3,0	8,3	9	1,5	9	530	530
P									●	●
M									●	●
K									●	●
N									●	●
S									●	●
H									●	●
O									●	●

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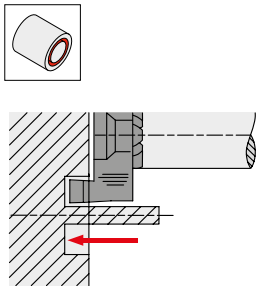
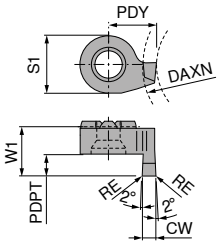
MiniCut – Axial grooving insert over a spigot

CWX500 CWX500





Illustrations show right-hand versions

Size	ISO designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	RE mm	S1 mm	Left-hand 73 360 ...	Right-hand 73 358 ...
14	14/12. R/L .1,0.1,5	12	1,0	1,5	8,3	7,0		9	310	310
	14/12. R/L .1,5.2,5	12	1,5	2,5	8,3	7,5	0,2	9	315	315
	14/12. R/L .2,0.3,0	12	2,0	3,0	8,3	8,0	0,2	9	320	320
	14/12. R/L .2,0.5,0	12	2,0	5,0	10,3	8,0	0,2	9	420	420
	14/12. R/L .2,5.3,0	12	2,5	3,0	8,3	8,5	0,2	9	325	325
	14/12. R/L .2,5.5,0	12	2,5	5,0	10,3	8,5	0,2	9	425	425
	14/12. R/L .3,0.3,0	12	3,0	3,0	8,3	9,0	0,2	9	330	330
	14/12. R/L .3,0.5,0	12	3,0	5,0	10,3	9,0	0,2	9	430	430
P									●	●
M									●	●
K									●	●
N									●	●
S									●	●
H									●	●
O									●	●

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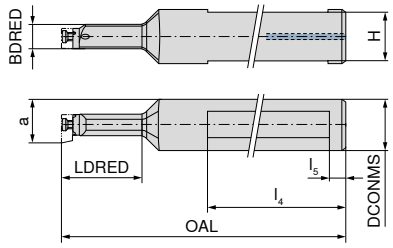
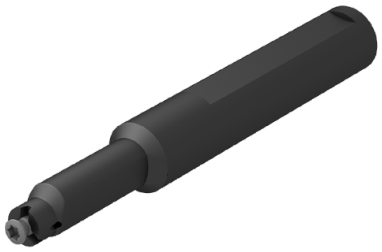
MiniCut – Steel Tool holder

Scope of supply:
Holder with clamping screw





Size	Designation	a	DCONMS	OAL	l_4	LDRED	BDRED	H	l_5	73 522 ...
		mm	mm	mm	mm	mm	mm	mm	mm	
08	8,00/16.N.12.1,0	7,8	16	80	60	12		15,0	5	012
	8,00/16.N.22.1,0	7,8	16	90	60	22	7,0	15,0	5	122
09	9,00/16.N.14.1,8	8,6	16	95	60	14	7,4	15,0	5	014
	9,00/16.N.25.1,8	8,6	16	105	60	25	7,4	15,0	5	125
11	11,00/16.N.16.2,3	10,7	16	97	60	16		14,5	5	016
	11,00/16.N.29.2,3	10,7	16	110	60	29	9,5	14,5	5	129
14	14,00/16.N.18.4,0	13,8	16	100	60	18	11,0	14,5	5	018
	14,00/16.N.38.4,0	13,8	16	120	60	38	11,0	14,5	5	138
16	16,00/16.N.22.4,3	15,7	16	100	60	22		14,5	5	022
	16,00/16.N.42.4,3	15,7	16	120	60	42	13,5	14,5	5	142

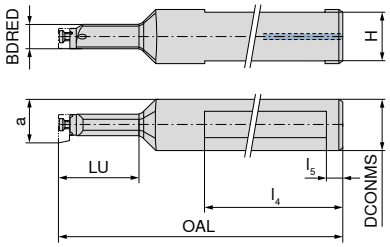
Key D

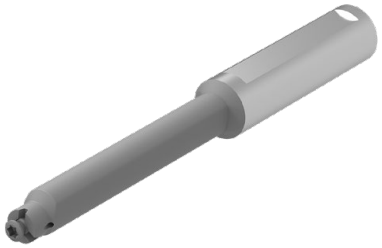
Clamping screw

Spare parts		80 950 ...		73 082 ...	
Size					
08	T08	110	M2,6	002
09	T08	110	M2,6	002
11	T10	112	M3,5	003
14	T15	113	M4	004
16	T20	114	M5	005

MiniCut – Solid Carbide Tool holder – vibration damped

Scope of supply:
Holder with clamping screw





Size	Designation	a	DCONMS	OAL	l_4	LU	BDRED	H	l_5	73 520 ...
		mm	mm	mm	mm	mm	mm	mm	mm	
08	8,00/12.N.21.1,0 HM	7,8	12	80	50	22,60		11,0	5	021
	8,00/12.N.30.1,0 HM	7,8	12	90	54	30,80		11,0	5	030
	8,00/12.N.42.1,0 HM	7,8	12	100	54	42,80		11,0	5	042
	8,00/12.N.50.1,0 HM	7,8	12	115	48	51,60	7,2	11,0	5	050
09	9,00/12.N.22.1,0 HM	8,6	12	90	60	23,60	7,4	11,0	5	222
	9,00/12.N.30.2,0 HM	8,6	12	98	60	30,54	7,4	11,0	5	230
	9,00/12.N.42.3,0 HM	8,6	12	110	60	43,60	7,4	11,0	5	242
	9,00/12.N.56.4,0 HM	8,6	12	122	56	57,60	7,4	11,0	5	256
11	11,00/12.N.29.2,3 HM	10,7	12	95	60	26,40		10,5	5	129
	11,00/12.N.42.2,3 HM	10,7	12	110	56	42,50		10,5	5	142
	11,00/12.N.56.2,3 HM	10,7	12	120	56	57,60		10,5	5	156
	11,00/12.N.64.2,3 HM	10,7	12	130	56	65,60	9,5	10,5	5	164
14	14,00/12.N.34.4,0 HM	13,8	12	100	59	35,00	11,0	10,5	5	234
	14,00/12.N.45.4,0 HM	13,8	12	110	59	46,25	11,0	10,5	5	245
	14,00/12.N.64.4,0 HM	13,8	12	130	60	65,25	11,0	10,5	5	264
	14,00/16.N.34.4,0 HM	13,8	16	100	59	35,60	11,0	14,5	5	334
	14,00/16.N.45.4,0 HM	13,8	16	110	56	46,60	11,0	14,5	5	345
	14,00/16.N.64.4,0 HM	13,8	16	130	59	65,40	11,0	14,5	5	364
	14,00/16.N.75.4,0 HM	13,8	16	145	56	81,60	11,0	14,5	5	375
16	16,00/12.N.40.4,3 HM	15,7	12	130	60	41,25		10,5	5	440
	16,00/12.N.56.4,3 HM	15,7	12	130	60	57,25		10,5	5	456
	16,00/12.N.80.4,3 HM	15,7	12	150	60	81,06		10,5	5	480
	16,00/16.N.56.4,3 HM	15,7	16	130	60	57,60		14,5	5	556
	16,00/16.N.40.4,3 HM	15,7	16	130	60	41,60		14,5	5	540
	16,00/16.N.80.4,3 HM	15,7	16	150	60	81,60		14,5	5	580

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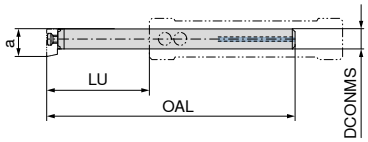
Key D

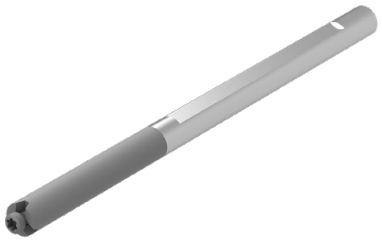
Clamping screw

Spare parts		80 950 ...		73 082 ...
Size				
08	T08	110	M2,6	002
09	T08	110	M2,6	002
11	T10	112	M3,5	003
14	T15	113	M4	004
16	T20	114	M5	005

MiniCut – HM – Flexoholder

Scope of supply:
Holder with clamping screw





Size	Designation	DCONMS mm	OAL mm	LU mm	a mm	73 525 ...
08	8,0/6.N16/2	6	65	18	8	818
	8,0/6.N40/4	6	103	40	8	840
11	11,0/8.N20/2	8	79	20	11	120 1)
	11,0/8.N50/4	8	129	50	11	150 1)

1) with thro' coolant

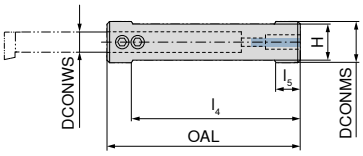
Key D

Clamping screw

Spare parts Size		80 950 ...		73 082 ...
08	T08	110	M2,6	002
11	T10	112	M3,5	003

MiniCut – Base holder for solid carbide Flexoholder

Scope of supply:
Holder with clamping screw



Size	Designation	DCONWS mm	DCONMS mm	H mm	OAL mm	l_4 mm	l_5 mm	73 526 ...
08	8/16.75	6	16	14	75	55	10	816
	8/20.75	6	20	18	75	70	10	820
11	11/16.75	8	16	14	75	55	10	116
	11/20.75	8	20	18	75	70	10	120

Key I

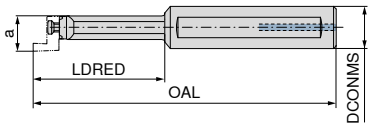
Clamping screw

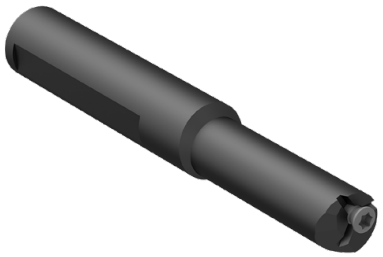
Spare parts for Article no.		70 950 ...		73 082 ...
73 526 816	SW2,5	175	M5x0,5x6	010
73 526 820	SW2,5	175	M5x0,5x6	010
73 526 116	SW2,5	175	M5x0,5x4	009
73 526 120	SW2,5	175	M5x0,5x6	010

MiniCut – Steel holder

▲ for axial machining

Scope of supply:
Holder with clamping screw





Size	Designation	a mm	DCONMS mm	OAL mm	LDRED mm	Left-hand 73 523 ...	Right-hand 73 524 ...
14	14,0/16. L .25.1,0	13,5	16	90	25	025	
	14,0/16. R .25.1,0	13,5	16	90	25		025
	14,0/16. L .45.1,0	13,5	16	110	45	145	
	14,0/16. R .45.1,0	13,5	16	110	45		145

Key D

Clamping screw

Spare parts Size		Key D 80 950 ...		Clamping screw 73 082 ...
14	T15	113	M4	004

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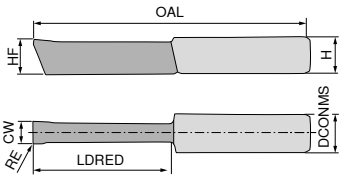
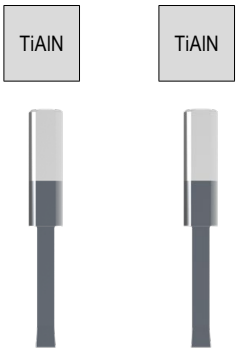
SlotCut – Inserts – DIN 138

▲ b_1 = Groove width





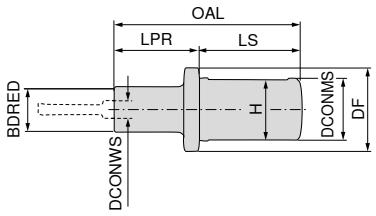
Designation	$b_{1\ P9/JS9}$	CW	HF	RE	OAL	LDRED	DMIN	DCONMS	H	73 601 ...	73 602 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm		
NPU.0198.01.1	2	1,98	5,5	0,1	38	12,5	6	7	6,3		**099**
NPU.0200.01.1	2	2,01	5,5	0,1	38	12,5	6	7	6,3	**099**	
NPU.0298.01.1	3	2,98	6,2	0,1	38	12,5	7	7	6,3		**100**
NPU.0300.01.1	3	3,01	6,2	0,1	38	12,5	7	7	6,3	**100**	
NPU.0398.01.1	4	3,98	6,2	0,1	40	15,0	7	7	6,3		**101**
NPU.0398.02.2	4	3,98	6,2	0,2	50	25,0	7	7	6,3		**102**
NPU.0400.01.1	4	4,01	6,2	0,1	40	15,0	7	7	6,3	**101**	
NPU.0400.02.1	4	4,01	6,2	0,2	40	15,0	7	7	6,3	**102**	
NPU.0400.02.2	4	4,01	6,2	0,2	50	25,0	7	7	6,3	**103**	
NPU.0498.02.2	5	4,98	5,8	0,2	50	25,0	7	7	6,3		**103**
NPU.0500.02.2	5	5,01	5,8	0,2	50	25,0	8	7	6,3	**104**	

Tolerance **JS 9** for 73 601, Tolerance **P 9** for 73 602

SlotCut – Toolholder for broaching inserts

Scope of supply:

Tool holder with clamping screw, without insert



Designation	DCONWS	BDRED	DCONMS	DF	OAL	LS	LPR	H	73 610 ...
	mm	mm	mm	mm	mm	mm	mm	mm	
NHU.25	7	18	25	33	73	40	33	23	**025**
NHU.32	7	20	32	40	73	40	33	30	**032**

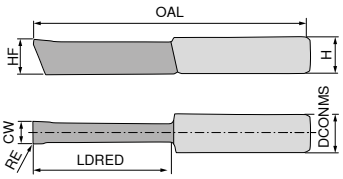
Key I

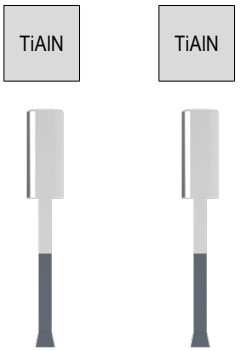
Clamping screw

Spare parts DCONMS		70 950 ...		73 082 ...
25	SW2,5	**175**	M5x6	**001**
32	SW2,5	**175**	M5x6	**001**

SlotCut – Inserts – DIN 138

▲ b_1 = Groove width





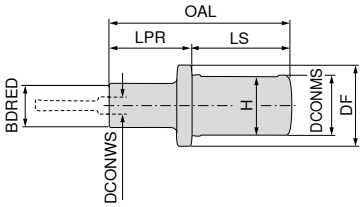
Designation	$b_{1\ JS\ 9/P\ 9}$	CW	HF	RE	OAL	LDRED	DMIN	DCONMS	H	73 607 ...	73 608 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm		
NP10.398.02.2	4	3,98	9	0,2	50	25	10	10	9,2	**101**	
NP10.398.02.3	4	3,98	9	0,2	66	41	10	10	9,2	**102**	
NP10.400.02.2	4	4,01	9	0,2	50	25	10	10	9,2		**101**
NP10.400.02.3	4	4,01	9	0,2	66	41	10	10	9,2		**102**
NP10.498.02.2	5	4,98	9	0,2	50	25	10	10	9,2	**103**	
NP10.498.02.3	5	4,98	9	0,2	66	41	10	10	9,2	**104**	
NP10.500.02.2	5	5,01	9	0,2	50	25	10	10	9,2		**103**
NP10.500.02.3	5	5,01	9	0,2	66	41	10	10	9,2		**104**

Tolerance **P 9** for 73 607, Tolerance **JS 9** for 73 608

SlotCut – Toolholder for Cutting Inserts

Scope of supply:

Tool holder with clamping screw, without insert



Designation	DCONWS	BDRED	$DCONMS_{g6}$	DF	OAL	LS	LPR	H	73 612 ...
	mm	mm	mm	mm	mm	mm	mm	mm	
NH10.0025.1	10	20	25	33	73	40	33	23	**025**
NH10.0032.1	10	20	32	40	73	40	33	30	**032**

Spare parts DCONMS			70 950 ...		70 950 ...
25	SW3	**176**		M6x5,5	**031**
32	SW3	**176**		M6x5,5	**031**

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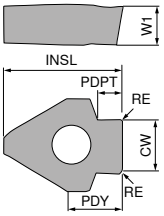
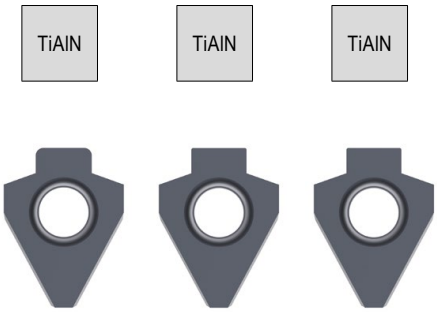
SlotCut – Inserts – DIN 138

▲ b_1 = Groove width





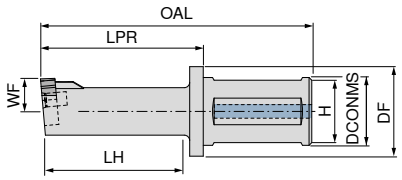
Designation	$b_{1\ P\,9/JS\,9/C\,11}$	CW	RE	PDY	INSL	PDPT	DMIN	W1	clamping holder	73 603 ...	73 604 ...	73 605 ...
	mm	mm	mm	mm	mm	mm	mm	mm				
NV15.0398.02	4	3,98	0,20	6,5	13,0	2,3	15	3,2	NHV 15			**110**
NV15.0401.02	4	4,01	0,20	6,5	13,0	2,3	15	3,2	NHV 15		**110**	
NV15.0410.050	4	4,10	0,50	6,5	13,0	2,2	15	3,2	NHV 15	**108**		
NV15.0498.02	5	4,98	0,20	6,5	13,0	2,8	15	3,2	NHV 15			**111**
NV15.0501.02	5	5,01	0,20	6,5	13,0	2,8	15	3,2	NHV 15		**111**	
NV15.0510.050	5	5,10	0,50	6,5	13,0	2,5	15	3,2	NHV 15	**109**		
NV15.0598.02	6	5,98	0,20	6,5	13,0	3,3	15	3,2	NHV 15			**112**
NV15.0601.02	6	6,01	0,20	6,5	13,0	3,3	15	3,2	NHV 15		**112**	
NV15.0612.085	6	6,12	0,85	6,5	13,0	2,6	15	3,2	NHV 15	**110**		
NPV.0498.02	5	4,98	0,20	8,0	17,3	2,7	22	5,3	NHV 22			**100**
NPV.0501.02	5	5,01	0,20	8,0	17,3	2,7	22	5,3	NHV 22		**100**	
NPV.0598.02	6	5,98	0,20	8,0	17,3	3,4	22	5,3	NHV 22			**101**
NPV.0601.02	6	6,01	0,20	8,0	17,3	3,4	22	5,3	NHV 22		**101**	
NPV.0612.085	6	6,12	0,85	8,0	17,3	2,6	22	5,3	NHV 22	**101**		
NPV.0713.085	7	7,13	0,85	8,0	17,3	3,3	22	5,3	NHV 22	**102**		
NPV.0798.02	8	7,98	0,20	8,0	17,3	4,1	22	5,3	NHV 22/30			**102**
NPV.0801.02	8	8,01	0,20	8,0	17,3	4,1	22	5,3	NHV 22/30		**102**	
NPV.0813.105	8	8,13	1,05	8,0	17,3	3,4	22	5,3	NHV 22/30	**103**		
NPV.0998.03	10	9,98	0,30	8,0	17,3	4,2	30	5,3	NHV 30			**103**
NPV.1001.03	10	10,01	0,30	8,0	17,3	4,2	30	5,3	NHV 30		**103**	
NPV.1013.105	10	10,13	1,05	10,9	20,2	4,2	40	5,3	NHV 38	**104**		
NPV.1197.03	12	11,97	0,30	10,9	20,2	5,7	40	5,3	NHV 38			**104**
NPV.1202.03	12	12,02	0,30	10,9	20,2	5,7	40	5,3	NHV 38		**104**	
NPV.1202.05	20	12,02	0,50	10,9	20,2	8,5	40	5,3	NHV 38		**105**	
NPV.1215.135	12	12,15	1,35	10,9	20,2	5,1	40	5,3	NHV 38	**105**		
NPV.1215.175	16	12,15	1,75	10,9	20,2	6,6	40	5,3	NHV 38	**106**		
NPV.1215.225	24	12,15	2,25	10,9	20,2	8,5	40	5,3	NHV 38	**107**		
NPV.1397.03	14	13,97	0,30	10,9	20,1	7,5	45	5,3	NHV 45			**106**
NPV.1402.03	14	14,02	0,30	10,9	20,1	7,5	45	5,3	NHV 45		**106**	
NPV.1597.03	16	15,97	0,30	10,9	20,1	7,5	45	5,3	NHV 45			**107**
NPV.1602.03	16	16,02	0,30	10,9	20,1	7,5	45	5,3	NHV 45		**107**	
NPV.1797.05	18	17,97	0,50	10,9	20,1	9,5	45	5,3	NHV 45			**108**
NPV.1802.05	18	18,02	0,50	10,9	20,1	9,5	45	5,3	NHV 45		**108**	
NPV.1997.05	20	19,97	0,50	10,9	20,1	10,0	45	5,3	NHV 45			**109**
NPV.2002.05	20	20,02	0,50	10,9	20,1	10,0	45	5,3	NHV 45		**109**	

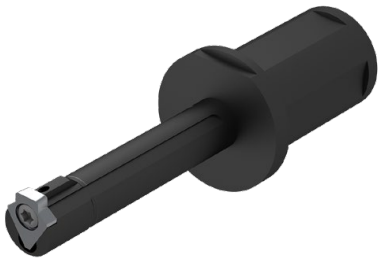
Tolerance **C 11** for 73 603, Tolerance **JS 9** for 73 604, Tolerance **P 9** for 73 605

SlotCut – Toolholder for inserts

Scope of supply:

Tool holder with clamping screw, without insert





Designation	DCONMS mm	DMIN mm	DF mm	OAL mm	LH mm	LPR mm	H mm	WF mm	73 613 ...
NHV.15.1	25	15	33	75	25	35	23	8,4	**025**
NHV.15.2	25	15	33	90	40	50	23	8,4	**125**
NHV.15.3	25	15	33	110	60	70	23	8,4	**225**

Key D

80 950 ...

Clamping screw

73 950 ...

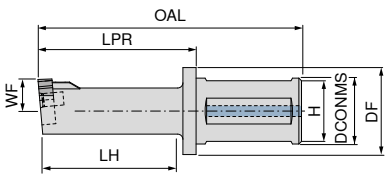
Spare parts

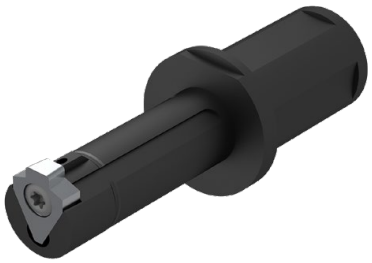
DCONMS				
25	T15	**113**	M4x10	**029**

SlotCut – Toolholder for inserts

Scope of supply:

Tool holder with clamping screw, without insert





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Designation	DCONMS $_{g6}$ mm	DMIN mm	DF mm	OAL mm	LH mm	LPR mm	H mm	WF mm	73 611 ...
NHV.22	25	22	33	100	50	60	23	12,0	**025**
NHV.30	32	30	45	100	50	60	30	16,5	**032**
NHV.30	32	30	45	125	75	85	30	16,5	**532**
NHV.38	32	38	45	100	50	60	30	22,0	**132**
NHV.38	32	38	45	125	75	85	30	22,0	**632**
NHV.45	40	45	55	175	105	115	38	24,0	**140**
NHV.45	40	45	55	120	50	60	38	24,0	**040**
NHV.45	40	45	55	225	155	165	38	24,0	**240**

Key D

80 950 ...

Clamping screw

73 082 ...

Spare parts

DCONMS				
25	T20	**114**	M5x13	**007**
32	T20	**114**	M5x13	**007**
40	T20	**114**	M5x13	**007**

Material examples for cutting data tables

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

*** Tensile strength**

Cutting data standard values

Index	UltraMini K10F uncoated	UltraMini TiN	UltraMini TiAlN	UltraMini DPX 57S	UltraMini TiAlN+	MiniCut CWX500	MiniCut CBN
	v_c in m/min						
P.1.1		**90**	**110**	110	110	**160**	
P.1.2		**80**	**100**	100	100	**140**	
P.1.3		**60**	**80**	80	80	**140**	
P.1.4		**60**	**80**	80	80	**110**	
P.1.5		**60**	**60**	60	60	**100**	
P.2.1		**60**	**80**	80	80	**110**	
P.2.2		**60**	**60**	60	60	**100**	
P.2.3		**50**	**60**	60	60	**90**	
P.2.4		**50**	**60**	60	60	**80**	
P.3.1		**50**	**60**	60	60	**80**	
P.3.2		**30**	**50**	**50**	50	**70**	
P.3.3		**30**	**30**	**30**	30	**50**	
P.4.1		**60**	**70**	**70**	70	**100**	
P.4.2		**50**	**60**	**60**	60	**90**	
M.1.1		**60**	**80**	**80**	80	**80**	
M.2.1		**50**	**60**	**60**	60	**70**	
M.3.1		**40**	**50**	**50**	50	**60**	
K.1.1		**80**	**100**	100	100	**90**	
K.1.2		**60**	**70**	70	70	**100**	
K.2.1		**60**	**60**	60	60	**80**	
K.2.2		**50**	**60**	60	60	**70**	
K.3.1		**80**	**100**	100	100	**120**	
K.3.2		**70**	**80**	80	80	**100**	
N.1.1	100	**200**	**230**	230	230	**290**	
N.1.2	100	**180**	**220**	220	220	**280**	
N.2.1	90	**160**	**190**	190	190	**240**	
N.2.2	70	**140**	**170**	170	170	**200**	
N.2.3	50	**80**	**100**	100	100	**120**	
N.3.1	80	**140**	**170**	170	170	**210**	
N.3.2	70	**120**	**140**	140	140	**180**	
N.3.3	50	**100**	**120**	120	120	**130**	
N.4.1	50	**100**	**120**	120	120	**100**	
S.1.1		30	**50**	50	50	**50**	
S.1.2		30	**30**	30	30	**30**	30
S.2.1		30	**50**	50	50	**50**	50
S.2.2		30	**30**	30	30	**40**	30
S.2.3			**30**	30	30	**30**	30
S.3.1		30	**50**	50	50	**50**	
S.3.2		20	**30**	30	30	**40**	
S.3.3			**20**	20	20	**30**	20
H.1.1		30	**40**	40	**40**	**50**	**40**
H.1.2			30	30	**30**	40	**30**
H.1.3				20	**30**		**30**
H.1.4							
H.2.1							
H.3.1		20	**30**	30	**30**	**40**	**30**
O.1.1	**50**	**90**	**110**	110	110	**150**	
O.1.2	**50**	**100**	**120**	120	120	**150**	
O.2.1		**90**	**110**	110	110	**130**	
O.2.2		**60**	**80**	80	80	**100**	
O.3.1	50	**100**	**120**	120	120	**150**	

	UltraMini	MiniCut
	f in mm/rev.	
Internal turning and profiling	0,02–0,05	0,03–0,10
Internal turning and profiling – hard turning	0,02–0,06	0,03–0,10
Turning and profile turning – super alloys	0,02–0,08	
Internal turning	0,02–0,05	0,01–0,03
Back boring	0,02–0,04	0,03–0,10
Turning and chamfering	0,01–0,03	0,03–0,10
Pre-parting and chamfering	0,01–0,02	0,01–0,03
Groove turning	0,01–0,02	0,01–0,03
Internal Undercuts	0,01–0,03	0,03–0,08
Groove and profile turning	0,01–0,02	0,01–0,03
Axial grooving	0,02–0,05	0,02–0,05

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values – 73 000 ... / 73 001 ...

		Roughing										
	UltraMini DPX77S	Ø ≤ 2 mm Corner radius in mm			Ø 2,5–4 mm Corner radius in mm				Ø ≥ 5 mm Corner radius in mm			
Index		0,05	0,1	0,15	0,05	0,1	0,15	0,2 / 0,4	0,05	0,1	0,15	0,2 / 0,4
	v_c in m/min	f in mm/rev.			f in mm/rev.				f in mm/rev.			
P.1.1	110	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
P.1.2	100	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
P.1.3	80	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
P.1.4	80	0,023–0,065	0,025–0,071	0,026–0,076	0,046–0,13	0,05–0,142	0,053–0,151	0,055–0,158	0,085–0,244	0,093–0,266	0,099–0,284	0,104–0,297
P.1.5	60	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
P.2.1	80	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
P.2.2	60	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
P.2.3	60	0,019–0,054	0,021–0,059	0,022–0,063	0,038–0,109	0,042–0,119	0,044–0,127	0,046–0,132	0,071–0,204	0,078–0,222	0,083–0,238	0,087–0,248
P.2.4	60	0,018–0,051	0,02–0,056	0,021–0,06	0,036–0,103	0,039–0,112	0,042–0,12	0,044–0,125	0,067–0,193	0,074–0,21	0,079–0,224	0,082–0,235
P.3.1	60	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
P.3.2	50	0,02–0,057	0,022–0,063	0,023–0,067	0,04–0,115	0,044–0,125	0,047–0,134	0,049–0,14	0,075–0,215	0,082–0,235	0,088–0,251	0,092–0,262
P.3.3	30	0,016–0,045	0,017–0,049	0,018–0,053	0,032–0,091	0,035–0,099	0,037–0,106	0,039–0,11	0,06–0,17	0,065–0,185	0,069–0,198	0,072–0,207
P.4.1	70	0,022–0,064	0,024–0,069	0,026–0,074	0,044–0,127	0,048–0,138	0,052–0,148	0,054–0,155	0,083–0,238	0,091–0,26	0,097–0,277	0,101–0,29
P.4.2	60	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
M.1.1	80	0,015–0,042	0,016–0,046	0,017–0,049	0,03–0,085	0,032–0,092	0,034–0,099	0,036–0,103	0,056–0,159	0,061–0,173	0,065–0,185	0,068–0,193
M.2.1	60	0,013–0,038	0,014–0,041	0,015–0,044	0,026–0,076	0,029–0,082	0,031–0,088	0,032–0,092	0,05–0,142	0,054–0,155	0,058–0,165	0,06–0,173
M.3.1	50	0,014–0,039	0,015–0,043	0,016–0,046	0,028–0,079	0,03–0,086	0,032–0,092	0,033–0,096	0,052–0,147	0,056–0,161	0,06–0,172	0,063–0,179
K.1.1	100	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
K.1.2	70	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
K.2.1	60	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
K.2.2	60	0,021–0,059	0,022–0,064	0,024–0,069	0,041–0,118	0,045–0,129	0,048–0,137	0,05–0,144	0,077–0,221	0,084–0,241	0,09–0,257	0,094–0,269
K.3.1	100	0,025–0,073	0,028–0,079	0,03–0,084	0,051–0,145	0,055–0,158	0,059–0,169	0,062–0,177	0,095–0,272	0,104–0,297	0,111–0,317	0,116–0,331
K.3.2	80	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
N.1.1	230	0,032–0,091	0,035–0,099	0,037–0,106	0,064–0,181	0,069–0,198	0,074–0,211	0,077–0,221	0,119–0,34	0,13–0,371	0,139–0,396	0,145–0,414
N.1.2	220	0,031–0,089	0,034–0,097	0,036–0,104	0,062–0,178	0,068–0,194	0,073–0,208	0,076–0,217	0,117–0,335	0,128–0,365	0,136–0,389	0,142–0,407
N.2.1	190	0,03–0,085	0,032–0,092	0,034–0,099	0,059–0,169	0,065–0,185	0,069–0,197	0,072–0,206	0,111–0,318	0,121–0,346	0,129–0,37	0,135–0,386
N.2.2	170	0,029–0,083	0,032–0,091	0,034–0,097	0,058–0,166	0,063–0,181	0,068–0,194	0,071–0,202	0,109–0,312	0,119–0,34	0,127–0,363	0,133–0,38
N.2.3	100	0,029–0,082	0,031–0,089	0,033–0,095	0,057–0,163	0,062–0,178	0,067–0,19	0,07–0,199	0,107–0,306	0,117–0,334	0,125–0,356	0,13–0,373
N.3.1	170	0,03–0,085	0,032–0,092	0,034–0,099	0,059–0,169	0,065–0,185	0,069–0,197	0,072–0,206	0,111–0,318	0,121–0,346	0,129–0,37	0,135–0,386
N.3.2	140	0,028–0,08	0,031–0,087	0,033–0,093	0,056–0,16	0,061–0,175	0,065–0,187	0,068–0,195	0,105–0,301	0,115–0,328	0,122–0,35	0,128–0,366
N.3.3	120	0,027–0,077	0,029–0,084	0,031–0,09	0,054–0,154	0,059–0,168	0,063–0,18	0,066–0,188	0,101–0,289	0,11–0,315	0,118–0,337	0,123–0,352
N.4.1	120	0,027–0,077	0,029–0,084	0,031–0,09	0,054–0,154	0,059–0,168	0,063–0,18	0,066–0,188	0,101–0,289	0,11–0,315	0,118–0,337	0,123–0,352
S.1.1	50	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
S.1.2	30	0,019–0,053	0,02–0,058	0,022–0,062	0,037–0,106	0,04–0,115	0,043–0,123	0,045–0,129	0,069–0,198	0,076–0,216	0,081–0,231	0,085–0,242
S.2.1	50	0,018–0,051	0,02–0,056	0,021–0,06	0,036–0,103	0,039–0,112	0,042–0,12	0,044–0,125	0,067–0,193	0,074–0,21	0,079–0,224	0,082–0,235
S.2.2	30	0,014–0,039	0,015–0,043	0,016–0,046	0,028–0,079	0,03–0,086	0,032–0,092	0,033–0,096	0,052–0,147	0,056–0,161	0,06–0,172	0,063–0,179
S.2.3	30	0,015–0,042	0,016–0,046	0,017–0,049	0,03–0,085	0,032–0,092	0,034–0,099	0,036–0,103	0,056–0,159	0,061–0,173	0,065–0,185	0,068–0,193
S.3.1	50	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
S.3.2	30	0,019–0,054	0,021–0,059	0,022–0,063	0,038–0,109	0,042–0,119	0,044–0,127	0,046–0,132	0,071–0,204	0,078–0,222	0,083–0,238	0,087–0,248
S.3.3	20	0,013–0,038	0,014–0,041	0,015–0,044	0,026–0,076	0,029–0,082	0,031–0,088	0,032–0,092	0,05–0,142	0,054–0,155	0,058–0,165	0,06–0,173
H.1.1	40	0,013–0,038	0,014–0,041	0,015–0,044	0,026–0,076	0,029–0,082	0,031–0,088	0,032–0,092	0,05–0,142	0,054–0,155	0,058–0,165	0,06–0,173
H.1.2	30	0,011–0,03	0,012–0,033	0,012–0,035	0,021–0,06	0,023–0,066	0,025–0,07	0,026–0,074	0,036–0,102	0,039–0,111	0,042–0,119	0,043–0,124
H.1.3												
H.1.4												
H.2.1	30	0,014–0,041	0,016–0,044	0,017–0,048	0,029–0,082	0,031–0,089	0,033–0,095	0,035–0,099	0,054–0,153	0,058–0,167	0,062–0,178	0,065–0,186
H.3.1	30	0,013–0,036	0,014–0,04	0,015–0,042	0,025–0,073	0,028–0,079	0,03–0,084	0,031–0,088	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166
O.1.1	110	0,031–0,089	0,034–0,097	0,036–0,104	0,062–0,178	0,068–0,194	0,073–0,208	0,076–0,217	0,117–0,335	0,128–0,365	0,136–0,389	0,142–0,407
O.1.2	120	0,028–0,079	0,03–0,086	0,032–0,092	0,055–0,157	0,06–0,171	0,064–0,183	0,067–0,191	0,103–0,295	0,112–0,321	0,12–0,343	0,126–0,359
O.2.1	110	0,017–0,05	0,019–0,054	0,02–0,058	0,035–0,1	0,038–0,109	0,041–0,116	0,043–0,121	0,065–0,187	0,071–0,204	0,076–0,218	0,08–0,228
O.2.2	80	0,017–0,048	0,018–0,053	0,02–0,056	0,034–0,097	0,037–0,105	0,039–0,113	0,041–0,118	0,064–0,181	0,069–0,198	0,074–0,211	0,077–0,221
O.3.1	120											

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Index	Finishing												
	Ø ≤ 2 mm Corner radius in mm			Ø 2,5–4 mm Corner radius in mm					Ø ≥ 5 mm Corner radius in mm				
	0,05	0,1	0,15	0,05	0,1	0,15	0,2	0,4	0,05	0,1	0,15	0,2	0,4
	f in mm/rev.			f in mm/rev.					f in mm/rev.				
P.1.1	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
P.1.2	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
P.1.3	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
P.1.4	0,006–0,016	0,007–0,019	0,008–0,022	0,015–0,042	0,017–0,05	0,02–0,056	0,022–0,061	0,028–0,079	0,023–0,065	0,027–0,077	0,03–0,086	0,033–0,095	0,043–0,122
P.1.5	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
P.2.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
P.2.2	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
P.2.3	0,005–0,014	0,006–0,016	0,006–0,018	0,012–0,036	0,015–0,042	0,016–0,047	0,018–0,051	0,023–0,066	0,019–0,055	0,022–0,064	0,025–0,072	0,028–0,079	0,036–0,102
P.2.4	0,005–0,013	0,005–0,015	0,006–0,017	0,012–0,034	0,014–0,039	0,015–0,044	0,017–0,049	0,022–0,063	0,018–0,052	0,021–0,061	0,024–0,068	0,026–0,075	0,034–0,097
P.3.1	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
P.3.2	0,005–0,014	0,006–0,017	0,007–0,019	0,013–0,038	0,015–0,044	0,017–0,049	0,019–0,054	0,025–0,07	0,02–0,058	0,024–0,068	0,027–0,076	0,029–0,084	0,038–0,108
P.3.3	0,004–0,011	0,005–0,013	0,005–0,015	0,01–0,03	0,012–0,035	0,014–0,039	0,015–0,043	0,019–0,055	0,016–0,046	0,019–0,053	0,021–0,06	0,023–0,066	0,03–0,085
P.4.1	0,006–0,016	0,007–0,019	0,007–0,021	0,015–0,041	0,017–0,049	0,019–0,055	0,021–0,06	0,027–0,078	0,022–0,064	0,026–0,075	0,029–0,084	0,032–0,092	0,042–0,119
P.4.2	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
M.1.1	0,004–0,011	0,004–0,012	0,005–0,014	0,01–0,028	0,011–0,032	0,013–0,036	0,014–0,04	0,018–0,052	0,015–0,043	0,017–0,05	0,02–0,056	0,022–0,062	0,028–0,08
M.2.1	0,003–0,01	0,004–0,011	0,004–0,013	0,009–0,025	0,01–0,029	0,011–0,033	0,013–0,036	0,016–0,046	0,013–0,038	0,016–0,045	0,018–0,05	0,019–0,055	0,025–0,071
M.3.1	0,003–0,01	0,004–0,012	0,005–0,013	0,009–0,026	0,011–0,03	0,012–0,034	0,013–0,037	0,017–0,048	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074
K.1.1	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
K.1.2	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
K.2.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
K.2.2	0,005–0,015	0,006–0,017	0,007–0,02	0,013–0,039	0,016–0,045	0,018–0,051	0,02–0,056	0,025–0,072	0,021–0,059	0,024–0,069	0,027–0,078	0,03–0,086	0,039–0,111
K.3.1	0,006–0,018	0,007–0,021	0,008–0,024	0,017–0,047	0,019–0,056	0,022–0,062	0,024–0,069	0,031–0,089	0,026–0,073	0,03–0,085	0,034–0,096	0,037–0,106	0,048–0,136
K.3.2	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
N.1.1	0,008–0,023	0,009–0,027	0,011–0,03	0,02–0,058	0,024–0,068	0,027–0,077	0,03–0,084	0,038–0,109	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.1.2	0,008–0,022	0,009–0,026	0,01–0,03	0,02–0,058	0,024–0,068	0,027–0,077	0,03–0,084	0,038–0,109	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.2.1	0,007–0,021	0,009–0,025	0,01–0,028	0,019–0,055	0,023–0,065	0,025–0,073	0,028–0,08	0,036–0,103	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.2.2	0,007–0,021	0,009–0,024	0,01–0,028	0,019–0,054	0,022–0,064	0,025–0,072	0,028–0,079	0,036–0,102	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.2.3	0,007–0,021	0,008–0,024	0,009–0,027	0,019–0,053	0,022–0,062	0,025–0,07	0,027–0,077	0,035–0,1	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.3.1	0,007–0,021	0,009–0,025	0,01–0,028	0,019–0,055	0,023–0,065	0,025–0,073	0,028–0,08	0,036–0,103	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.3.2	0,007–0,02	0,008–0,024	0,009–0,027	0,018–0,052	0,021–0,061	0,024–0,069	0,027–0,076	0,034–0,098	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.3.3	0,007–0,019	0,008–0,023	0,009–0,026	0,018–0,05	0,021–0,059	0,023–0,066	0,026–0,073	0,033–0,094	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.4.1	0,007–0,019	0,008–0,023	0,009–0,026	0,018–0,05	0,021–0,059	0,023–0,066	0,026–0,073	0,033–0,094	0,027–0,078	0,032–0,091	0,036–0,102	0,039–0,112	0,051–0,145
S.1.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
S.1.2	0,005–0,013	0,005–0,016	0,006–0,018	0,012–0,035	0,014–0,04	0,016–0,046	0,018–0,05	0,023–0,065	0,019–0,053	0,022–0,062	0,025–0,07	0,027–0,077	0,035–0,099
S.2.1	0,005–0,013	0,005–0,015	0,006–0,017	0,012–0,034	0,014–0,039	0,015–0,044	0,017–0,049	0,022–0,063	0,018–0,052	0,021–0,061	0,024–0,068	0,026–0,075	0,034–0,097
S.2.2	0,003–0,01	0,004–0,012	0,005–0,013	0,009–0,026	0,011–0,03	0,012–0,034	0,013–0,037	0,017–0,048	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074
S.2.3	0,004–0,011	0,004–0,012	0,005–0,014	0,01–0,028	0,011–0,032	0,013–0,036	0,014–0,04	0,018–0,052	0,015–0,043	0,017–0,05	0,02–0,056	0,022–0,062	0,028–0,08
S.3.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
S.3.2	0,005–0,014	0,006–0,016	0,006–0,018	0,012–0,036	0,015–0,042	0,016–0,047	0,018–0,051	0,023–0,066	0,019–0,055	0,022–0,064	0,025–0,072	0,028–0,079	0,036–0,102
S.3.3	0,003–0,01	0,004–0,011	0,004–0,013	0,009–0,025	0,01–0,029	0,011–0,033	0,013–0,036	0,016–0,046	0,013–0,038	0,016–0,045	0,018–0,05	0,019–0,055	0,025–0,071
H.1.1	0,003–0,01	0,004–0,011	0,004–0,013	0,009–0,025	0,01–0,029	0,011–0,033	0,013–0,036	0,016–0,046	0,013–0,038	0,016–0,045	0,018–0,05	0,019–0,055	0,025–0,071
H.1.2	0,003–0,008	0,003–0,009	0,004–0,01	0,007–0,02	0,008–0,023	0,009–0,026	0,01–0,029	0,013–0,037	0,011–0,03	0,012–0,036	0,014–0,04	0,015–0,044	0,02–0,057
H.1.3													
H.1.4													
H.2.1	0,004–0,01	0,004–0,012	0,005–0,014	0,009–0,027	0,011–0,031	0,012–0,035	0,014–0,039	0,017–0,05	0,014–0,041	0,017–0,048	0,019–0,054	0,021–0,059	0,027–0,077
H.3.1	0,003–0,009	0,004–0,011	0,004–0,012	0,008–0,024	0,01–0,028	0,011–0,031	0,012–0,034	0,016–0,044	0,013–0,036	0,015–0,043	0,017–0,048	0,018–0,053	0,024–0,068
O.1.1	0,008–0,022	0,009–0,026	0,01–0,03	0,02–0,058	0,024–0,068	0,027–0,077	0,03–0,084	0,038–0,109	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
O.1.2	0,007–0,02	0,008–0,023	0,009–0,026	0,018–0,051	0,021–0,06	0,024–0,068	0,026–0,074	0,034–0,096	0,028–0,079	0,032–0,093	0,036–0,104	0,04–0,114	0,052–0,148
O.2.1	0,004–0,013	0,005–0,015	0,006–0,017	0,011–0,033	0,013–0,038	0,015–0,043	0,017–0,047	0,021–0,061	0,018–0,05	0,021–0,059	0,023–0,066	0,025–0,073	0,033–0,094
O.2.2	0,004–0,012	0,005–0,014	0,006–0,016	0,011–0,032	0,013–0,037	0,015–0,042	0,016–0,046	0,021–0,059	0,017–0,049	0,02–0,057	0,022–0,064	0,025–0,07	0,032–0,091
O.3.1													

12

Broaching – Recommendations for Correct Use

SlotCut

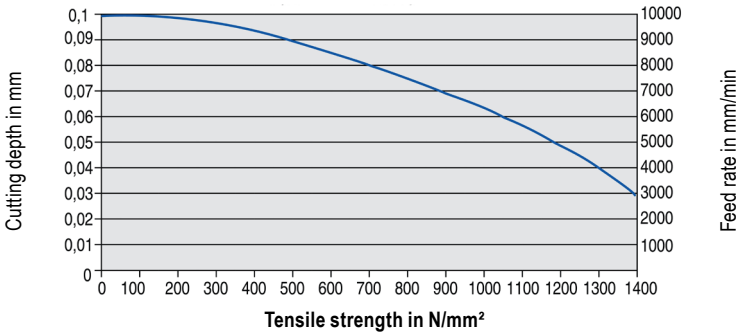
More and more often small and medium sized batch sizes are manufactured with precision grooves.

To directly machine such grooves in one set-up on one machine, it requires a special application of “Broaching” tools.

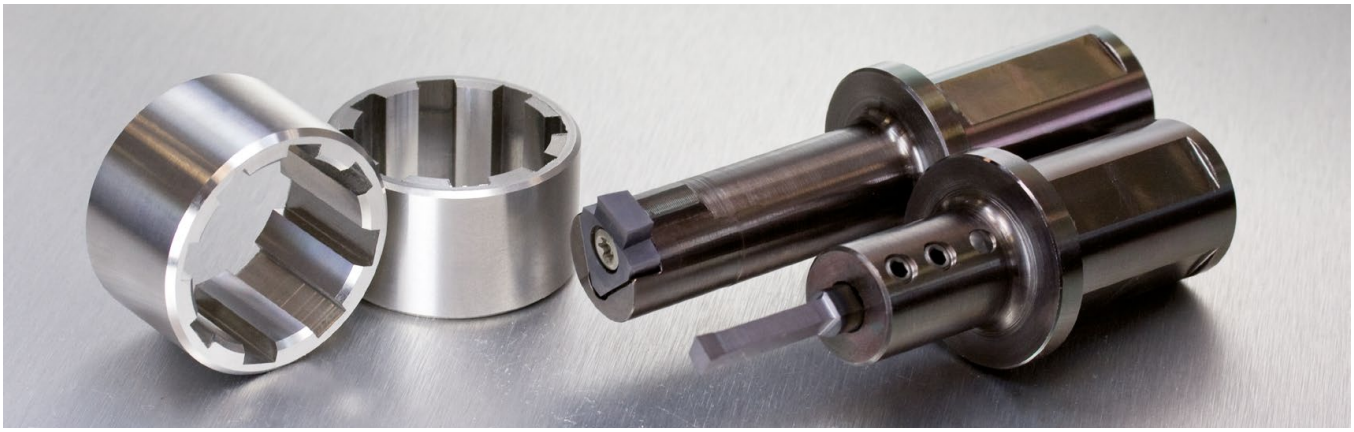
The SlotCut system can produce grooves with the most common groove tolerances.
To this end, there are four options. Two concepts are based on a solid carbide solution, which gives great success with small diameters.
For larger diameters, the concept with screw-on inserts is more suitable.

Broaching, on both lathes and machining centers is now economical, and provides highly accurate results in the shortest possible time.

Appoximate values when broaching



The data depends strongly on the conditions and represent only an appoximate value, factors such as machine stability, application and material may require adjustment of the data upward or downward.



Tips for the User

- ▲ Avoid interrupted cuts.
- ▲ Where possible, orientate the part so the groove is at the top, so the chips fall away!
- ▲ Ensure there is a relief at the end of the groove.
- ▲ Lift the tool out of the groove when retracting.
- ▲ Use coolant
  This will increase tool life and surface quality.
- ▲ Adjustment of the tool is essential, therefore the tool diameter must be considered.

Coatings

TiAlN+
- ▲ TiAlN multilayer coating
- ▲ Maximum application temperature: 1000°C

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

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

CWX500
- ▲ Carbide, TiAlN-coated
- ▲ The universal carbide grade for almost all materials

DPX77S
- ▲ TiAlN+X-coating
- ▲ Maximum application temperature: 900°C

DPX57S
- ▲ TiCrN coating
- ▲ Maximum application temperature: 900°C

Thread types

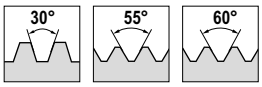
M Metric ISO standard thread

MF Metric ISO fine thread

G Whitworth thread

Tr Metric ISO trapezoidal fine thread

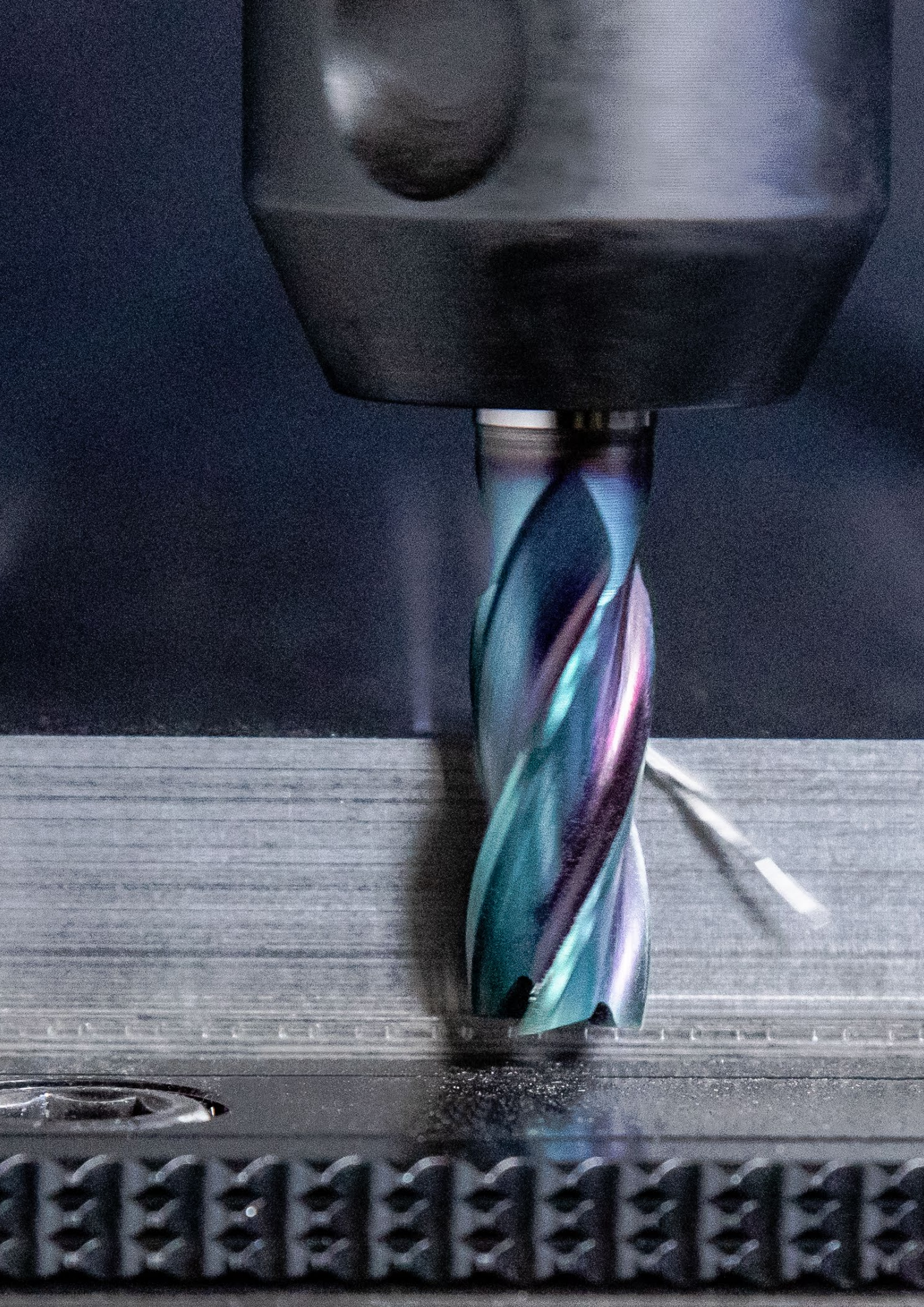
Thread flank angle



Cooling

with thro' coolant

12



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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Technical Information:	
Cutting Data	32–40
Formula for cutting data calculation	40
Version description	41
Differences between the milling cutter types	41
Coating	41

WNT \ Performance

Premium quality tools for high performance.

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

Symbol explanation

Shank

Shank type

Length: extra short / short / medium / long / extra long

Cutting edge preparation

Sharp

Corner chamfer (CHW = chamfer width in mm)

Full Radius

Application

Machining example

The red arrows describe the possible feed directions

Cutting geometry
λ_s = helix angle
γ_s = rake angle

ZEFP = Number of flutes

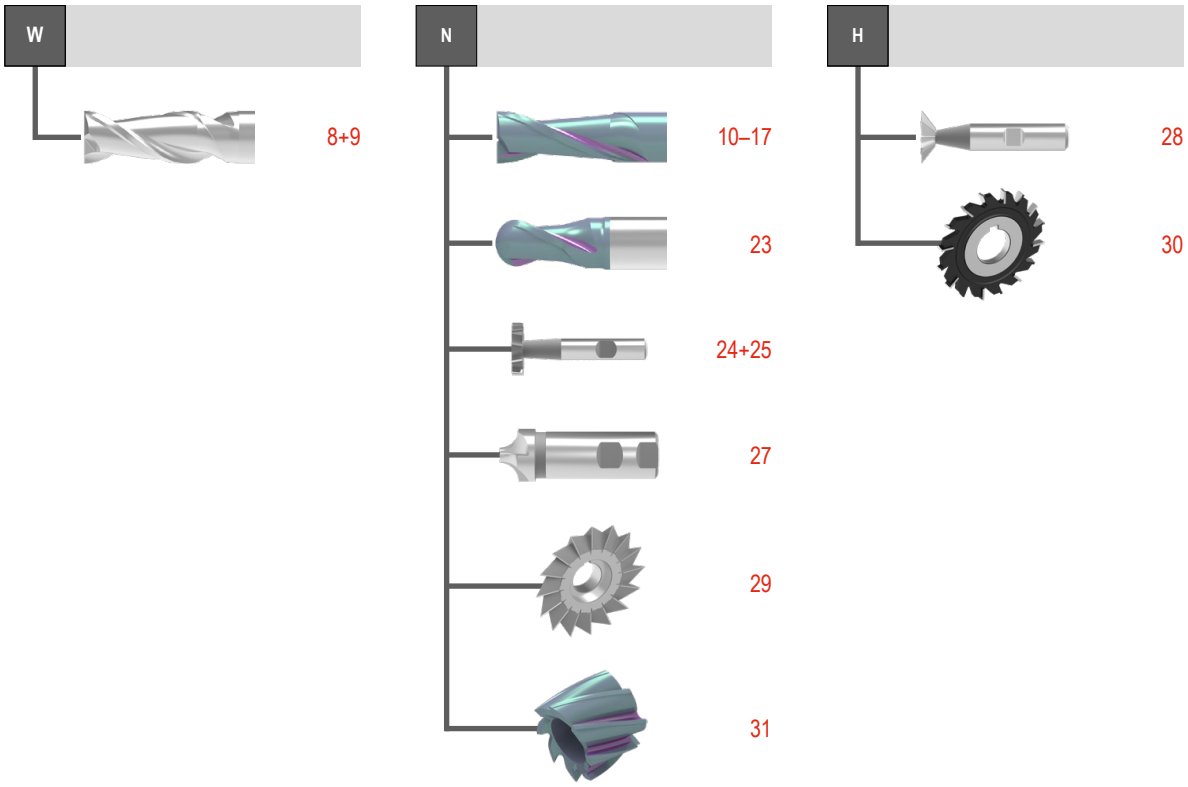
● = **Main Application**

○ = Extended application

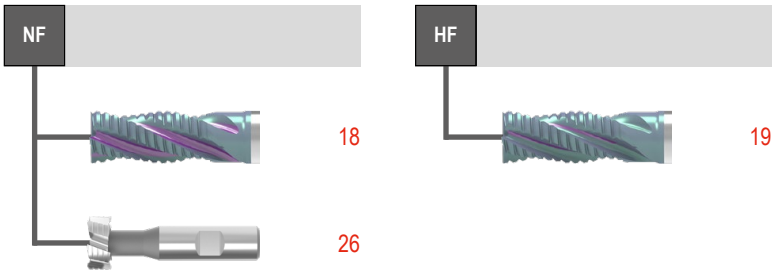
Toolfinder

softer — Material to machine — harder

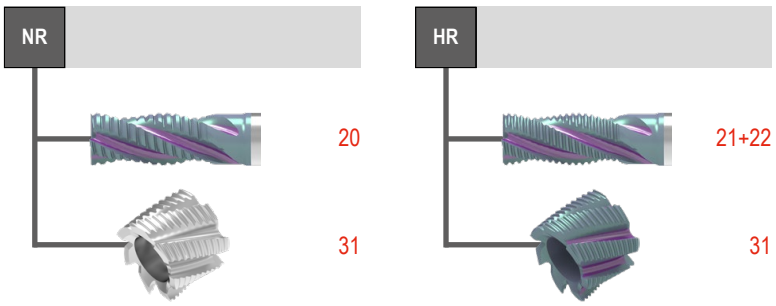
Finish milling



Rough and finish machining



Rough machining



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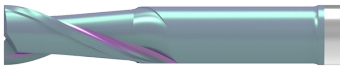
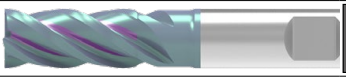
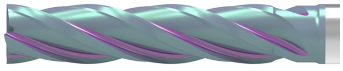
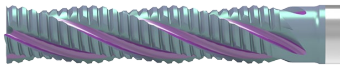
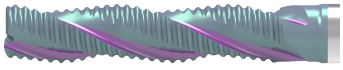
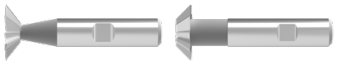
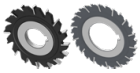
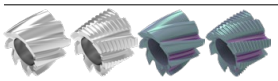
Overview HSS milling cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Material, e.g. PM = Powdersteel	coated	uncoated	WNT \ Performance
Finishing cutter																			
	W	2	2–20				●			●	■				▤	HSS-E		□	8
	W	3–4	2–32				●			●	■				▤	HSS-E		□	9
	N	2	1–26	●	●	●	○	○		○	■				▤	HSS-E	■	□	10+11
	N	3	1–10	●	●	●	○	○		○	■				▤	HSS-E	■	□	12
	N	3	1,8–22,0	●	●	●	○	○		○	■				▤	HSS-E	■		13+14
	N	4	4–20	○	●	○	●	●		●	■				▤	HSS-E	■	□	15
	N	4–8	2–50	●	●	●	○	○		○	■				▤	HSS-E	■	□	16+17
Rough and finish milling cutters																			
	NF	4	6–25	●	○	●	○	○		○	■				▤	HSS-E	■		18
	HF	4	6–20	●	○	●	○	○		○	■				▤	PM	■		19
Rough milling cutters																			
	NR	3	6–25	●	○	●	○	○		○		■			▤	HSS-E	■		20
	HR	4–6	6–32	●	●	●	○	○		○		■			▤	PM	■		21
	HR	3–6	4–32	●	●	●	○	○		○		■			▤	HSS-E	■		22
Ball nose end milling cutters																			
	N	2	2–30	●	○	●	○	○		○				◡	▤	HSS-E	■	□	23

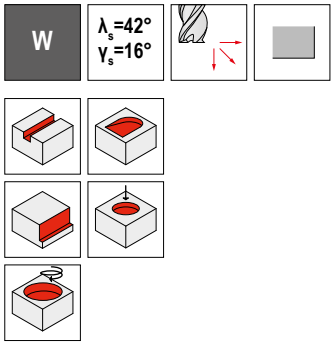
Overview HSS milling cutters

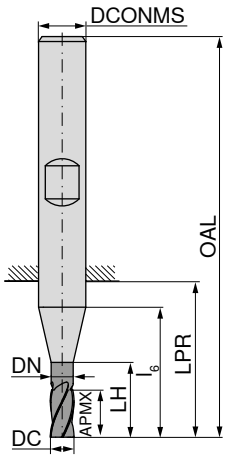
Form / Side and Face / Shell milling cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Material, e.g. PM = Powdersteel	coated	uncoated	WNT \ Performance
	N	6–10	11–60	●	○	●	○	○		○						HSS-E		☐	24
	N	6–12	10,5–45,5	●	○	●	○	○		○						HSS-E		☐	25
	NF	6–8	21–45	●	○	●	○	○		○						HSS-E		☐	26
	N	4–6	6–16	●	○	●	○	○		○						HSS-E		☐	27
	H	10	16–25	●	○	●	○	○		○						HSS-E		☐	28
	N	14–28	40–125	●	○	●	○	○		○						HSS-E		☐	29
	H	16–48	50–160	●	○	●	●	●		●						HSS-E		☐	30
		7–10	40–80	●	●	●	●	○		●						HSS-E	☐	☐	31

13

Slot milling cutter HSS-E Co 8





DIN 844

50 144 ...

DC e8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
2,0	7		7	13	15	51	6	2	**020**
2,5	8		8	14	16	52	6	2	**025**
3,0	8		8	14	16	52	6	2	**030**
4,0	11		11	17	19	55	6	2	**040**
5,0	13		13	19	21	57	6	2	**050**
6,0	13		13	19	21	57	6	2	**060**
6,5	16	6,0	22	24	26	66	10	2	**065**
8,0	19	7,5	25	27	29	69	10	2	**080**
10,0	22	9,5	30	30	32	72	10	2	**100**
12,0	26	11,5	36	36	38	83	12	2	**120**
14,0	26	11,5	36	36	38	83	12	2	**140**
16,0	32	15,0	42	42	44	92	16	2	**160**
18,0	32	15,0	42	42	44	92	16	2	**180**
20,0	38	19,0	52	52	54	104	20	2	**200**

P	
M	
K	
N	●
S	
H	
O	●

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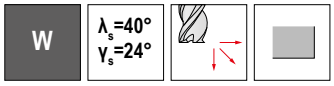
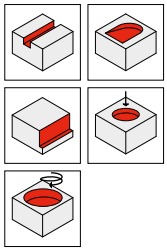
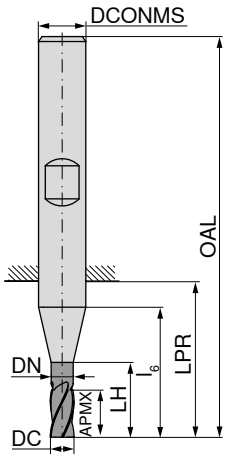
End milling cutter HSS-E Co 8







	DIN 69844	DIN 844
	50 120 ...	50 121 ...

DC k10 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP		
2	7		7	13	15	51	6	3	020	
3	8		8	14	16	52	6	3	030	
3	12		12	18	20	56	6	3		030
4	11		11	17	19	55	6	3	040	
4	19		19	25	27	63	6	3		040
5	13		13	19	21	57	6	3	050	
5	24		24	30	32	68	6	3		050
6	13	5,5	19	19	21	57	6	3	060	
6	24	5,5	30	30	32	68	6	3		060
7	16	6,5	22	24	26	66	10	3	070	
7	30	6,5	36	38	40	80	10	3		070
8	19	7,5	25	27	29	69	10	3	080	
8	38	7,5	44	46	48	88	10	3		080
9	19	8,5	26	27	29	69	10	3	090	
9	38	8,5	45	46	48	88	10	3		090
10	22	9,5	30	30	32	72	10	3	100	
10	45	9,5	53	53	55	95	10	3		100
12	26	11,5	36	36	38	83	12	3	120	
12	53	11,5	63	63	65	110	12	3		120
14	26	11,5	36	36	38	83	12	3	140	
14	53	11,5	63	63	65	110	12	3		140
16	32	15,0	42	42	44	92	16	3	160	
16	63	15,0	73	73	75	123	16	3		160
18	32	15,0	42	42	44	92	16	3	180	
18	63	15,0	73	73	75	123	16	3		180
20	38	19,0	52	52	54	104	20	3	200	
20	75	19,0	89	89	91	141	20	3		200
22	38	19,0	52	52	54	104	20	3	220	
22	75	19,0	89	89	91	141	20	3		220
24	90	23,0	106	108	110	166	25	3		240
25	45	24,0	63	45	65	121	25	4	250	
25	90	24,0	108	108	110	166	25	4		250
28	90	24,0	108	108	110	166	25	4		280
30	90	24,0	108	108	110	166	25	4		300
32	106	31,0	123	123	126	186	32	4		320

P		
M		
K		
N	●	●
S		
H		
O	●	●

→ v_c/f_z Page 33–35

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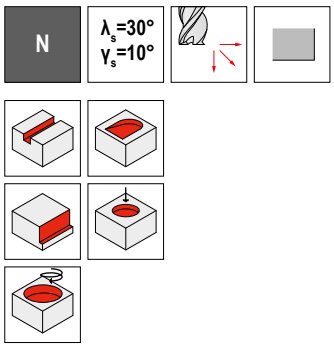
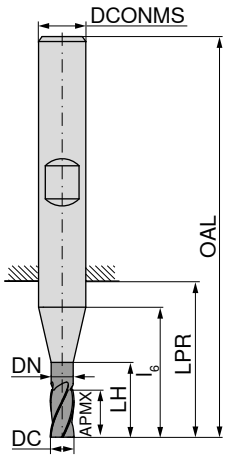
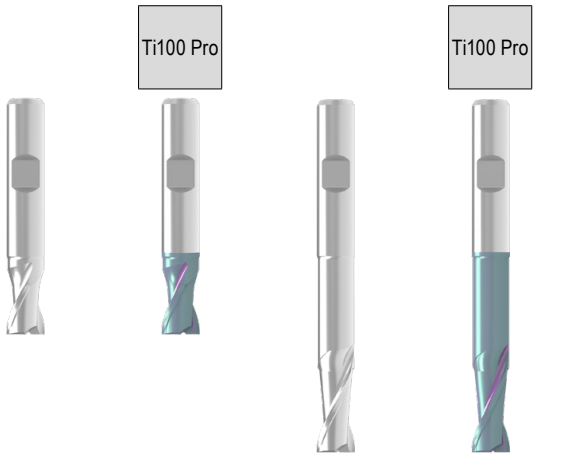
Slot milling cutter HSS-E Co 8







	DIN 327	DIN 327	Factory standard	Factory standard
	50 100 ...	54 025 ...	50 122 ...	54 020 ...

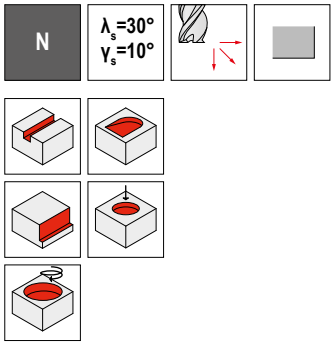
DC mm	DC Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP				
1,0	h10	2,5		2,5	9	11	47	6	2	010 [1]	010 [1]		
1,5	h10	3,0		3,0	9	11	47	6	2	015 [1]	015 [1]		
1,8	h10	4,0		4,0	10	12	48	6	2	018	018		
2,0	e8	4,0		4,0	10	12	48	6	2	020	020		
2,5	e8	5,0		5,0	11	13	49	6	2	025	025		
3,0	e8	5,0		5,0	11	13	49	6	2	030	030		
3,0	e8	8,0		8,0	18	20	56	6	2			030	030
3,5	h10	6,0		6,0	12	14	50	6	2	035	035		
4,0	e8	7,0		7,0	13	15	51	6	2	040	040		
4,0	e8	11,0		11,0	25	27	63	6	2			040	040
4,5	h10	7,0		7,0	13	15	51	6	2	045	045		
5,0	e8	8,0		8,0	14	16	52	6	2	050	050		
5,0	e8	13,0		13,0	30	32	68	6	2			050	050
5,5	h10	8,0		8,0	14	16	52	6	2	055	055		
6,0	e8	8,0	5,50	14,0	14	16	52	6	2	060	060		
6,0	e8	13,0	5,50	30,0	30	32	68	6	2			060	060
6,5	h10	10,0	6,00	16,0	18	20	60	10	2	065	065		
7,0	e8	10,0	6,50	16,0	18	20	60	10	2	070	070		
7,0	e8	16,0	6,35	36,0	38	40	80	10	2			070	070
7,5	h10	10,0	7,00	16,0	18	20	60	10	2	075	075		
8,0	e8	11,0	7,50	17,0	19	21	61	10	2	080	080		
8,0	e8	19,0	7,35	44,0	46	48	88	10	2			080	080
8,5	h10	11,0	8,00	18,0	19	21	61	10	2	085	085		
9,0	h10	11,0	8,50	18,0	19	21	61	10	2	090	090		
9,0	h10	19,0	8,35	45,0	46	48	88	10	2			090	090
9,5	h10	11,0	9,00	18,0	19	21	61	10	2	095	095		
10,0	e8	13,0	9,50	21,0	21	23	63	10	2	100	100		
10,0	e8	22,0	9,35	53,0	53	55	95	10	2			100	100
10,5	h10	13,0	10,00	21,0	23	25	70	12	2	105	105		
11,0	h10	13,0	10,50	21,0	23	25	70	12	2	110	110		
11,0	h10	22,0	10,50	53,0	55	57	102	12	2			110	110
11,5	h10	13,0	11,00	21,0	23	25	70	12	2	115	115		
12,0	e8	16,0	11,50	26,0	26	28	73	12	2	120	120		
12,0	e8	26,0	11,50	63,0	63	65	110	12	2			120	120
13,0	h10	16,0	11,50	26,0	26	28	73	12	2	130	130		
14,0	e8	16,0	11,50	26,0	26	28	73	12	2	140	140		
14,0	e8	26,0	11,50	63,0	63	65	110	12	2			140	140
15,0	h10	16,0	11,50	26,0	26	28	73	12	2	150	150		
15,0	h10	26,0	11,50	63,0	63	65	110	12	2			150	150
16,0	e8	19,0	15,00	29,0	29	31	79	16	2	160	160		
16,0	e8	32,0	15,00	73,0	73	75	123	16	2			160	160
P										●	●	●	●
M										○	●	○	●
K										●	●	●	●
N										○	○	○	○
S										○	○	○	○
H													
O										○	○	○	○

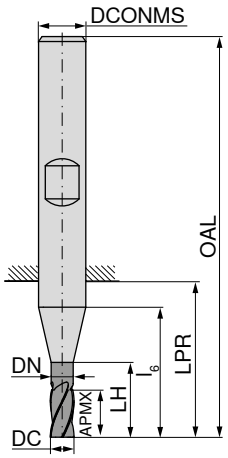
1) Factory standard

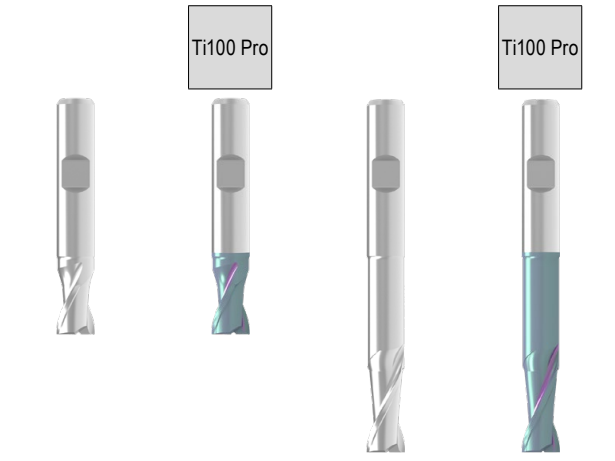
→ v_c/f_z Page 33–35

Continued on next page

Slot milling cutter HSS-E Co 8







										DIN 327		DIN 327		Factory standard		Factory standard	
										50 100 ...		54 025 ...		50 122 ...		54 020 ...	
DC mm	DC Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP								
17,0	h10	19,0	15,00	29,0	29	31	79	16	2	**170**		**170**					
18,0	e8	19,0	15,00	29,0	29	31	79	16	2	**180**		**180**					
18,0	e8	32,0	15,00	73,0	73	75	123	16	2					**180**		**180**	
19,0	h10	19,0	15,00	29,0	29	31	79	16	2	**190**		**190**					
20,0	e8	22,0	19,00	36,0	36	38	88	20	2	**200**		**200**					
20,0	e8	38,0	19,00	89,0	89	91	141	20	2					**200**		**200**	
22,0	e8	22,0	19,00	36,0	36	38	88	20	2	**220**		**220**					
24,0	e8	26,0	23,00	42,0	44	46	102	25	2	**240**		**240**					
25,0	e8	26,0	24,00	44,0	44	46	102	25	2	**250**		**250**					
26,0	h10	26,0	24,00	44,0	44	46	102	25	2	**260**		**260**					
P										●		●		●		●	
M										○		●		○		●	
K										●		●		●		●	
N										○		○		○		○	
S										○		○		○		○	
H																	
O										○		○		○		○	

1) Factory standard

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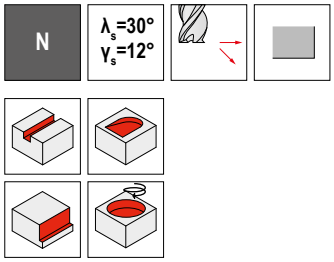
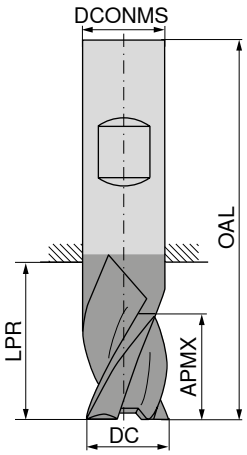
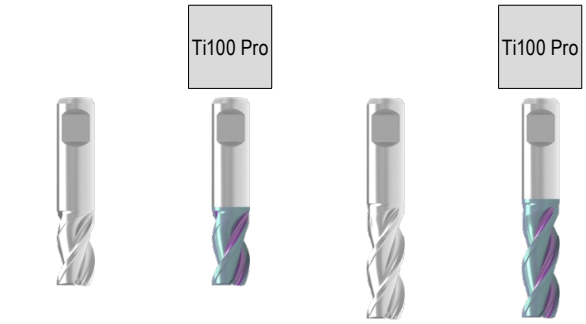
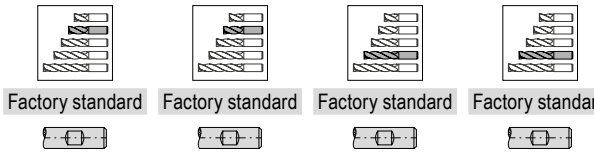
Throw-away milling cutter, HSS-E Co 8

▲ Shank similar to DIN 1835 B









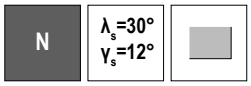
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 092 ...	54 014 ...	50 093 ...	54 042 ...
1,00	2	8	34	6	3	010	010		
1,50	3	8	34	6	3	015	015		
1,50	4	10	35	6	3			015 [1]	015 [1]
1,80	3	8	34	6	3	018	018		
2,00	4	9	35	6	3	020	020		
2,00	7	12	38	6	3			020 [1]	020
2,30	4	9	35	6	3	023	023		
2,50	5	10	36	6	3	025	025		
2,50	8	13	39	6	3			025 [1]	025
2,80	5	10	36	6	3	028	028		
3,00	5	10	36	6	3	030	030		
3,00	8	13	39	6	3			030 [1]	030
3,30	6	11	37	6	3	033	033		
3,50	6	11	37	6	3	035	035		
3,50	10	15	41	6	3			035 [1]	035
3,80	7	12	38	6	3	038	038		
4,00	7	12	38	6	3	040	040		
4,00	11	16	42	6	3			040 [1]	040
4,30	7	12	38	6	3	043	043		
4,50	7	12	38	6	3	045	045		
4,50	11	16	42	6	3			045 [1]	045
4,80	8	13	39	6	3	048	048		
5,00	8	13	39	6	3	050	050		
5,00	13	18	44	6	3			050 [1]	050
5,30	8	13	39	6	3	053	053		
5,50	8	13	39	6	3	055	055		
5,50	13	18	44	6	3			055 [1]	055
5,75	8	13	39	6	3	057	057		
6,00	8	13	39	6	3	060	060		
6,00	13	18	44	6	3			060 [1]	060
6,50	10	14	42	8	3	065	065		
6,50	16	20	48	8	3			065 [1]	065
7,00	10	14	42	8	3	070	070		
7,00	16	20	48	8	3			070 [1]	070
7,50	10	14	42	8	3	075	075		
7,50	16	20	48	8	3			075 [1]	075
8,00	11	15	43	8	3	080	080		
8,00	19	23	51	8	3			080 [1]	080
8,50	11	16	48	10	3	085	085		
8,50	19	24	56	10	3			085 [1]	085
9,00	11	16	48	10	3	090	090		
9,00	19	24	56	10	3			090 [1]	090
9,50	11	16	48	10	3	095	095		
9,50	19	24	56	10	3			095 [1]	095
10,00	13	18	50	10	3	100	100		
10,00	22	27	59	10	3			100 [1]	100
P						●	●	●	●
M						○	●	○	●
K						●	●	●	●
N						○	○	○	○
S						○	○	○	○
H									
O						○	○	○	○

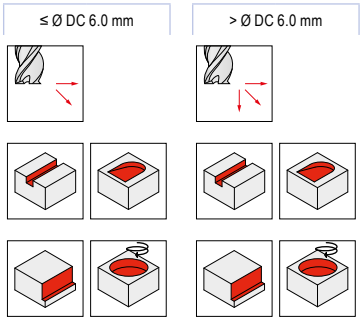
1) Shank tolerance -0,025 / -0,0323

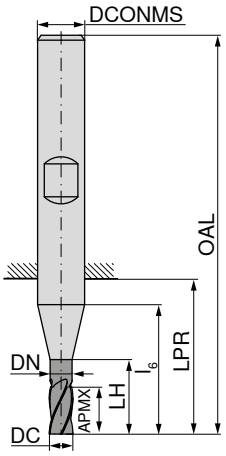
→ v_c/f_z Page 33–35

End milling cutter HSS-E Co 8

▲ ≤ Ø DC 6 mm, 3 cutting edges to centre







DIN 327 | DIN 844 K

DC	DC Tol.	APMX	DN	LH	l_6	LPR	OAL	DCONMS	ZEFP	54 021 ...	54 016 ...
mm		mm	mm	mm	mm	mm	mm	mm			
1,8	h10	4		4	10	12	48	6	3	018	
2,0	e8	4		4	10	12	48	6	3	020	
2,5	e8	5		5	11	13	49	6	3	025	
3,0	e8	5		5	11	13	49	6	3	030	
3,0	e8	8		8	14	16	52	6	3		030
3,5	h10	6		6	12	14	50	6	3	035	
3,5	h10	10		10	16	18	54	6	3		035
4,0	e8	7		7	13	15	51	6	3	040	
4,0	e8	11		11	17	19	55	6	3		040
4,5	h10	7		7	13	15	51	6	3	045	
4,5	h10	11		11	17	19	55	6	3		045
5,0	e8	8		8	14	16	52	6	3	050	
5,0	e8	13		13	19	21	57	6	3		050
5,5	h10	8		8	14	16	52	6	3	055	
5,5	h10	13		13	19	21	57	6	3		055
6,0	e8	8	5,5	14	14	16	52	6	3	060	
6,0	e8	13	5,5	19	19	21	57	6	3		060
6,5	h10	10	6,0	16	18	20	60	10	3	065	
6,5	h10	16	6,0	22	24	26	66	10	3		065
7,0	e8	10	6,5	16	18	20	60	10	3	070	
7,0	e8	16	6,5	22	24	26	66	10	3		070
7,5	h10	10	7,0	16	18	20	60	10	3	075	
7,5	h10	16	7,0	22	24	26	66	10	3		075
8,0	e8	11	7,5	17	19	21	61	10	3	080	
8,0	e8	19	7,5	25	27	29	69	10	3		080
8,5	h10	11	8,0	18	19	21	61	10	3	085	
8,5	h10	19	8,0	26	27	29	69	10	3		085
9,0	h10	11	8,5	18	19	21	61	10	3	090	
9,0	h10	19	8,5	26	27	29	69	10	3		090
9,5	h10	11	9,0	18	19	21	61	10	3	095	
9,5	h10	19	9,0	26	27	29	69	10	3		095
10,0	e8	13	9,5	21	21	23	63	10	3	100	
10,0	e8	22	9,5	30	30	32	72	10	3		100
10,5	h10	13	10,0	21	23	25	70	12	3	105	
11,0	h10	13	10,5	21	23	25	70	12	3	110	
11,0	h10	22	10,5	30	32	34	79	12	3		110
11,5	h10	13	11,0	21	23	25	70	12	3	115	
11,5	h10	22	11,0	30	32	34	79	12	3		115
12,0	e8	16	11,5	26	26	28	73	12	3	120	
12,0	e8	26	11,5	36	36	38	83	12	3		120

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

→ v_c/f_z Page 33–35

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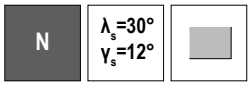
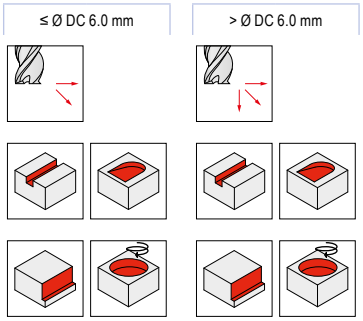
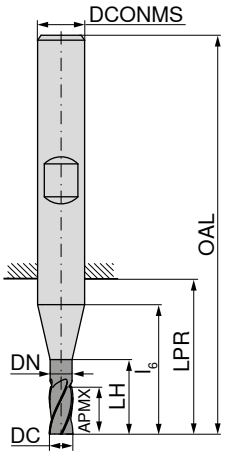
Continued on next page

End milling cutter HSS-E Co 8

▲ ≤ Ø DC 6 mm, 3 cutting edges to centre





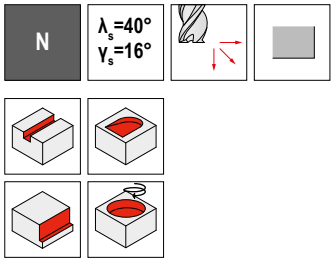


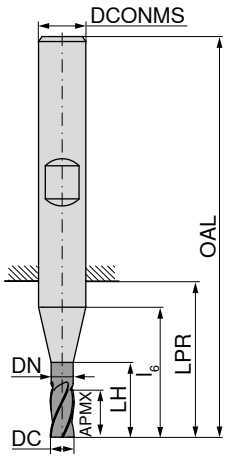
DIN 327 | DIN 844 K

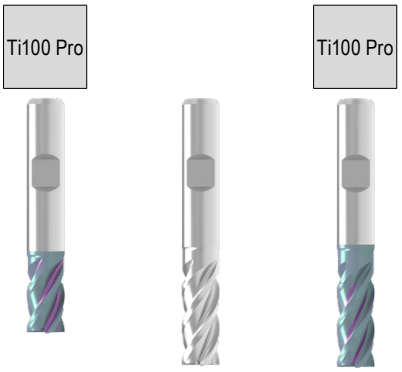
DC mm	DC Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS mm	ZEFP	54 021 ...	54 016 ...
13,0	h10	16	11,5	26	26	28	73	12	3	**130**	
13,0	h10	26	11,5	36	36	38	83	12	3		**130**
14,0	e8	16	11,5	26	26	28	73	12	3	**140**	
14,0	e8	26	11,5	36	36	38	83	12	3		**140**
15,0	h10	16	11,5	26	26	28	73	12	3	**150**	
15,0	h10	26	11,5	36	36	38	83	12	3		**150**
15,5	h10	32	15,0	42	42	44	92	16	3		**155**
16,0	e8	19	15,0	29	29	31	79	16	3	**160**	
16,0	e8	32	15,0	42	42	44	92	16	3		**160**
17,0	h10	19	15,0	29	29	31	79	16	3	**170**	
17,0	h10	32	15,0	42	42	44	92	16	3		**170**
18,0	e8	19	15,0	29	29	31	79	16	3	**180**	
18,0	e8	32	15,0	42	42	44	92	16	3		**180**
19,0	h10	19	15,0	29	29	31	79	16	3	**190**	
19,0	h10	32	15,0	42	42	44	92	16	3		**190**
19,5	h10	38	19,0	52	52	54	104	20	3		**195**
20,0	e8	22	19,0	36	36	38	88	20	3	**200**	
20,0	e8	38	19,0	52	52	54	104	20	3		**200**
22,0	e8	38	19,0	52	52	54	104	20	3		**220**
P										●	●
M										●	●
K										●	●
N										○	○
S										○	○
H											
O										○	○

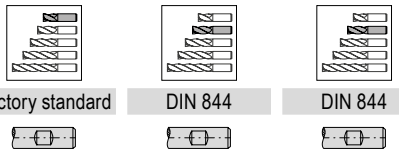
→ v_c/f_z Page 33–35

End milling cutter HSS-E Co 8









	Factory standard	DIN 844	DIN 844
	54 017 ...	50 124 ...	54 011 ...

DC mm	DC Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP				
4	k10	11		11	17	19	55	6	4			**040**	**040**
5	k10	13		13	19	21	57	6	4			**050**	**050**
6	e8	8	5,5	14	14	16	52	6	4	**060**			
6	k10	13	5,5	19	19	21	57	6	4			**060**	**060**
8	e8	11	7,5	17	19	21	61	10	4	**080**			
8	k10	19	7,5	25	27	29	69	10	4			**080**	**080**
10	e8	13	9,5	21	21	23	63	10	4	**100**			
10	k10	22	9,5	30	30	32	72	10	4			**100**	**100**
12	e8	16	11,5	26	26	28	73	12	4	**120**			
12	k10	26	11,5	36	36	38	83	12	4			**120**	**120**
14	e8	16	11,5	26	26	28	73	12	4	**140**			
14	k10	26	11,5	36	36	38	83	12	4			**140**	**140**
15	k10	26	11,5	36	36	38	83	12	4			**150**	
16	e8	19	15,0	29	29	31	79	16	4	**160**			
16	k10	32	15,0	42	42	44	92	16	4			**160**	**160**
20	e8	22	19,0	36	36	38	88	20	4	**200**			
20	k10	38	19,0	52	52	54	104	20	4			**200**	**200**
P										○		○	○
M										●		●	●
K										○		○	○
N										●		●	●
S										●		●	●
H													
O										●		●	●

→ v_c/f_z Page 33–35

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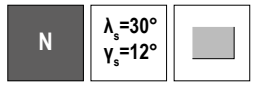
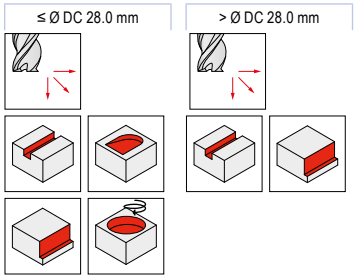
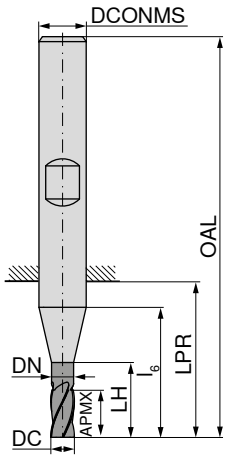
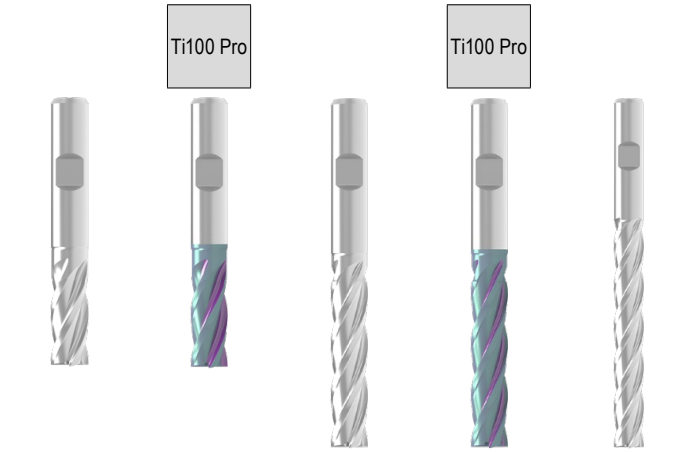
End milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre









	DIN 69844	DIN 69844	DIN 844	DIN 844	Factory standard
	50 110 ...	54 018 ...	50 111 ...	54 019 ...	50 104 ...

DC mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS mm	ZEFP									
2,0	7		7	13	15	51	6	4	**020**		**020**						
2,5	8		8	14	16	52	6	4	**025**		**025**						
3,0	8		8	14	16	52	6	4	**030**		**030**						
3,0	12		12	18	20	56	6	4					**030**		**030**		
4,0	11		11	17	19	55	6	4	**040**		**040**						
4,0	19		19	25	27	63	6	4					**040**		**040**		
5,0	13		13	19	21	57	6	4	**050**		**050**						
5,0	24		24	30	32	68	6	4					**050**		**050**		
6,0	13	5,5	19	19	21	57	6	4	**060**		**060**						
6,0	24	5,5	30	30	32	68	6	4					**060**		**060**		
6,0	56	5,5	62	62	64	100	6	4									**060**
7,0	16	6,5	22	24	26	66	10	4	**070**		**070**						
8,0	19	7,5	25	27	29	69	10	4	**080**		**080**						
8,0	38	7,5	44	46	48	88	10	4					**080**		**080**		
8,0	70	7,5	73	73	75	115	10	4									**080**
9,0	19	8,5	26	27	29	69	10	4	**090**		**090**						
10,0	22	9,5	30	30	32	72	10	4	**100**		**100**						
10,0	45	9,5	53	53	55	95	10	4					**100**		**100**		
10,0	75	9,5	79	79	81	121	10	4									**100**
11,0	22	10,5	30	32	34	79	12	4	**110**		**110**						
12,0	26	11,5	36	36	38	83	12	4	**120**		**120**						
12,0	53	11,5	63	63	65	110	12	4					**120**		**120**		
12,0	85		85	85	85	130	12	4									**120**
13,0	26	11,5	36	36	38	83	12	4	**130**		**130**						
14,0	26	11,5	36	36	38	83	12	4	**140**		**140**						
14,0	53	11,5	63	63	65	110	12	4					**140**		**140**		
14,0	85		85	85	85	130	12	4									**140**
15,0	26	11,5	36	36	38	83	12	4	**150**		**150**						
15,0	53	11,5	63	63	65	110	12	4					**150**		**150**		
16,0	32	15,0	42	42	44	92	16	4	**160**		**160**						
16,0	63	15,0	73	73	75	123	16	4					**160**		**160**		
16,0	90	15,0	95	95	97	145	16	4									**160**
18,0	32	15,0	42	42	44	92	16	4	**180**		**180**						
18,0	63	15,0	73	73	75	123	16	4					**180**		**180**		
18,0	100	15,0	110	110	112	160	16	5									**180**
20,0	38	19,0	52	52	54	104	20	4	**200**		**200**						
20,0	75	19,0	89	89	91	141	20	4					**200**		**200**		
20,0	110	19,0	128	128	130	180	20	5									**200**

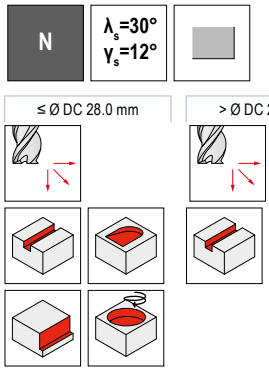
P	●	●	●	●	●
M	○	●	○	●	○
K	●	●	●	●	●
N	○	○	○	○	○
S	○	○	○	○	○
H					
O	○	○	○	○	○

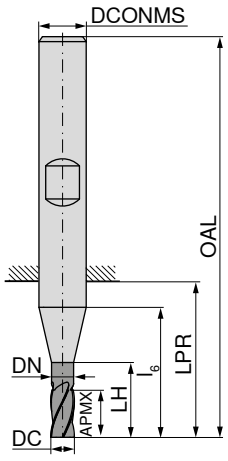
→ v_c/f_z Page 33–35

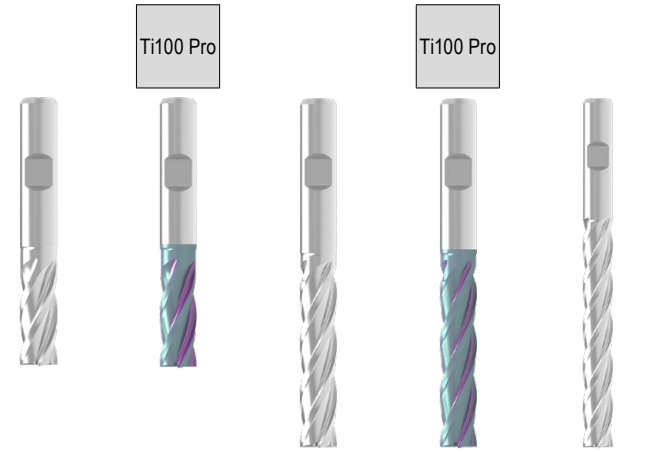
Continued on next page

End milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre







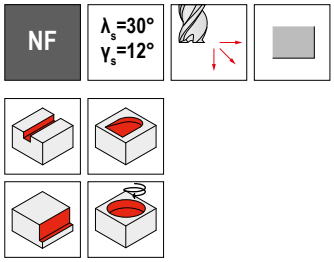
	DIN 69844	DIN 69844	DIN 844	DIN 844	Factory standard
	50 110 ...	54 018 ...	50 111 ...	54 019 ...	50 104 ...

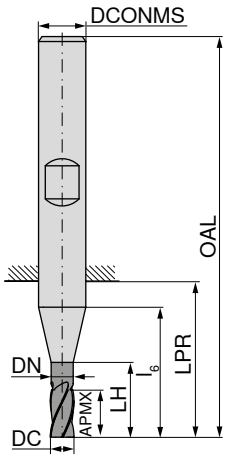
DC mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS mm	ZEFP						
22,0	38	19,0	52	52	54	104	20	5	**220**	**220**				
22,0	75	19,0	89	89	91	141	20	5			**220**	**220**		
22,0	110	19,0	128	128	130	180	20	5						**220**
25,0	45	24,0	63	63	65	121	25	5	**250**	**250**				
25,0	90	24,0	108	108	110	166	25	5			**250**	**250**		
25,0	125	24,0	142	142	144	200	25	6						**250**
28,0	45	24,0	63	63	65	121	25	5	**280**	**280**				
28,0	90	24,0	108	108	110	166	25	5			**280**	**280**		
28,0	140	24,0	147	147	149	205	25	6						**280**
30,0	45	24,0	63	63	65	121	25	5	**300**	**300**				
30,0	90	24,0	108	108	110	166	25	5			**300**	**300**		
32,0	53	31,0	70	70	73	133	32	5		**320**				
32,0	53	31,0	70	70	73	133	32	6	**320**					
32,0	106	31,0	123	123	126	186	32	6			**320**	**320**		
32,0	160	31,0	167	167	170	230	32	6						**320**
40,0	63	38,0	80	80	85	155	40	6	**400**	**400**				
40,0	125	38,0	142	142	147	217	40	6			**400**	**400**		
40,0	180	31,0	197	197	200	260	32	8						**400**
50,0	150	48,0	172	172	172	252	50	8			**500**	**500**		

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

→ v_c/f_z Page 33–35

Roughing-finishing milling cutter HSS-E Co 5





DIN 69844 | DIN 844

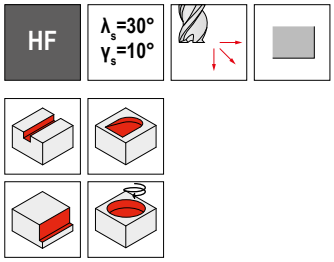
DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 028 ...	54 029 ...
6	13	5,5	19	19	21	57	6	4	060	
6	24	5,5	30	30	32	68	6	4		060
7	16	6,5	22	24	26	66	10	4	070	
8	19	7,5	25	27	29	69	10	4	080	
8	38	7,5	44	46	48	88	10	4		080
9	19	8,5	26	27	29	69	10	4	090	
10	22	9,5	30	30	32	72	10	4	100	
10	45	9,5	53	53	55	95	10	4		100
11	22	10,5	30	32	32	79	12	4	110	
11	45	10,5	53	55	57	102	12	4		110
12	26	11,5	36	36	38	83	12	4	120	
12	53	11,5	63	63	65	110	12	4		120
13	26	11,5	36	36	38	83	12	4	130	
14	26	11,5	36	36	38	83	12	4	140	
16	32	15,0	42	42	44	92	16	4	160	
16	63	15,0	73	73	75	123	16	4		160
18	32	15,0	42	42	44	92	16	4	180	
20	38	19,0	52	52	54	104	20	4	200	
20	75	19,0	89	89	91	141	20	4		200
22	38	19,0	52	52	54	104	20	4	220	
22	75	19,0	89	89	91	141	20	4		220
25	45	24,0	63	63	65	121	25	4	250	
25	90	24,0	108	108	110	166	25	4		250

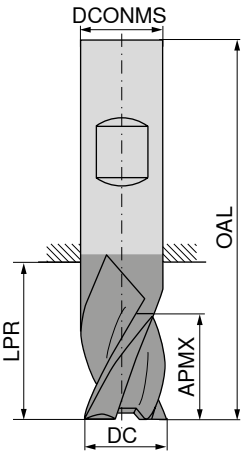
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H		
O	○	○

→ v_c/f_z Page 33–35

Powdersteel roughing finishing cutter

HF | λ_s=30° γ_s=10°





Ti100 Pro

DIN 844

54 034 ...

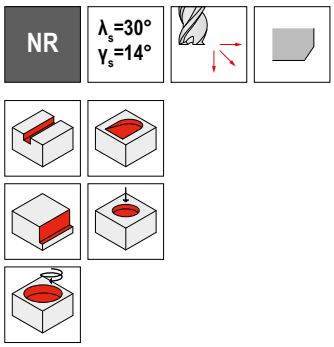
DC $_{k12}$ mm	APMX mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
6	13	21	57	6	4	**060**
8	19	29	69	10	4	**080**
10	22	32	72	10	4	**100**
12	26	38	83	12	4	**120**
16	32	44	92	16	4	**160**
20	38	54	104	20	4	**200**

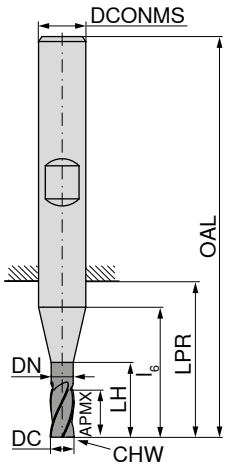
P	●
M	○
K	●
N	○
S	○
H	
O	○

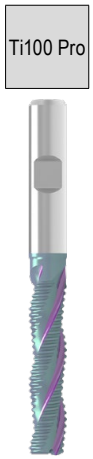
→ v_c/f_z Page 33–35

13

Rough milling cutter HSS-E Co 8







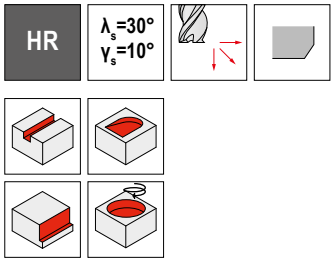
DIN 69844 | DIN 844

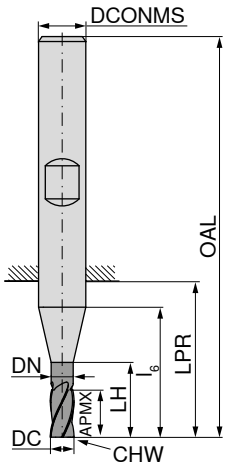
DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	54 026 ...	54 027 ...
6	13	5,5	19	19	21	57	6	0,5	3	**060**	
6	24	5,5	30	30	32	68	6	0,5	3		**060**
8	19	7,5	25	27	29	69	10	0,7	3	**080**	
8	38	7,5	44	46	48	88	10	0,7	3		**080**
10	22	9,5	30	30	32	72	10	0,7	3	**100**	
10	45	9,5	53	53	55	95	10	0,7	3		**100**
12	26	11,5	36	36	38	83	12	0,7	3	**120**	
12	53	11,5	63	63	65	110	12	0,7	3		**120**
14	26	11,5	36	36	38	83	12	0,9	3	**140**	
14	53	11,5	63	63	65	110	12	0,9	3		**140**
16	32	15,0	42	42	44	92	16	0,9	3	**160**	
16	63	15,0	73	73	75	123	16	0,9	3		**160**
18	32	15,0	42	42	44	92	16	0,9	3	**180**	
18	63	15,0	73	73	75	123	16	0,9	3		**180**
20	38	19,0	52	52	54	104	20	0,9	3	**200**	
20	75	19,0	89	89	91	141	20	0,9	3		**200**
25	45	24,0	63	63	65	121	25	0,9	3	**250**	
25	90	24,0	108	108	110	166	25	0,9	3		**250**
P										●	●
M										○	○
K										●	●
N										○	○
S										○	○
H											
O										○	○

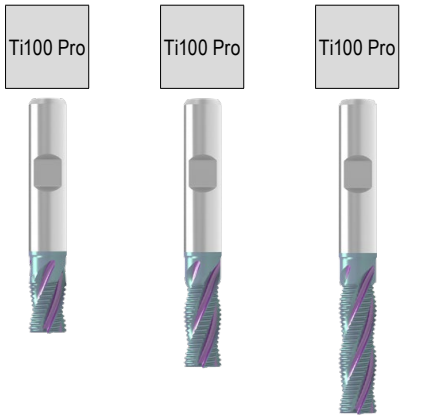
→ v_c/f_z Page 33–35

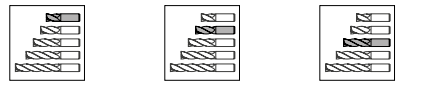
Powdersteel Fine rough milling cutter

HR | λ_s=30° γ_s=10°









	Factory standard	DIN 844	Factory standard
	54 031 ...	54 032 ...	54 033 ...

DC $_{k12}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP			
6	8	5,5	14	14	16	52	6	0,35	4	**060**		
6	13	5,5	19	19	21	57	6	0,35	4		**060**	
8	11	7,5	17	19	21	61	10	0,45	4	**080**		
8	19	7,5	25	27	29	69	10	0,45	4		**080**	
8	28	7,5	34	36	38	78	10	0,45	4			**080**
10	13	9,5	21	21	23	63	10	0,45	4	**100**		
10	22	9,5	30	30	32	72	10	0,45	4		**100**	
10	34	9,5	42	42	44	84	10	0,45	4			**100**
12	16	11,5	26	26	28	73	12	0,60	4	**120**		
12	26	11,5	36	36	38	83	12	0,60	4		**120**	
12	40	11,5	50	50	52	97	12	0,60	4			**120**
14	16	11,5	26	26	28	73	12	0,60	4	**140**		
14	26	11,5	36	36	38	83	12	0,60	4		**140**	
14	40	11,5	50	50	52	97	12	0,60	4			**140**
16	19	15,0	29	29	31	79	16	0,70	4	**160**		
16	32	15,0	42	42	44	92	16	0,70	4		**160**	
16	48	15,0	58	58	60	108	16	0,70	4			**160**
18	19	15,0	29	29	31	79	16	0,70	4	**180**		
18	32	15,0	42	42	44	92	16	0,70	4		**180**	
18	48	15,0	58	58	60	108	16	0,70	4			**180**
20	22	19,0	36	36	38	88	20	0,70	4	**200**		
20	38	19,0	52	52	54	104	20	0,70	4		**200**	
20	56	19,0	70	70	72	122	20	0,70	4			**200**
22	22	19,0	36	36	38	88	20	0,70	4	**220**		
22	38	19,0	52	52	54	104	20	0,70	4		**220**	
22	56	19,0	70	70	72	122	20	0,70	4			**220**
25	26	24,0	44	44	46	102	25	0,70	4	**250**		
25	45	24,0	63	63	65	121	25	0,70	4		**250**	
25	68	24,0	86	86	88	144	25	0,70	4			**250**
32	32	31,0	49	49	52	112	32	0,90	6	**320**		
32	53	31,0	70	70	73	133	32	0,90	6		**320**	

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

→ v_c/f_z Page 33–35

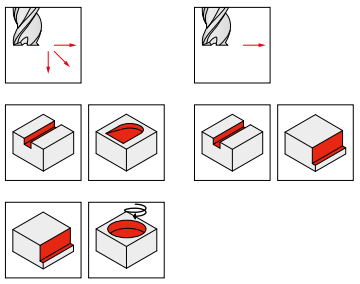
13

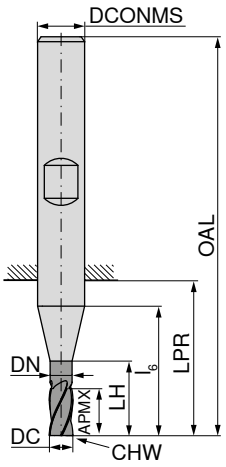
Fine profile milling cutter HSS-E Co 8

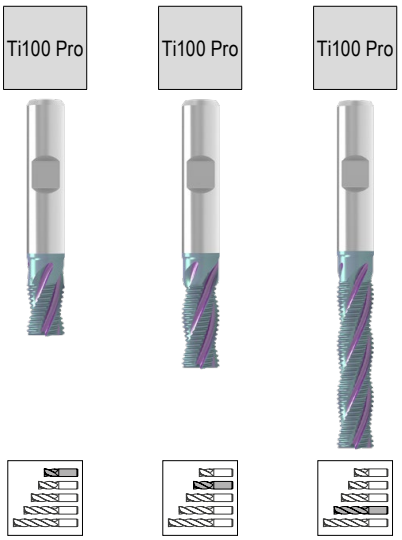
▲ > Ø 28,0 mm recessed centre

HR | λ_s=30° γ_s=10°

≤ Ø DC 28.0 mm | > Ø DC 28.0 mm



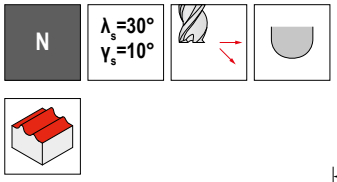


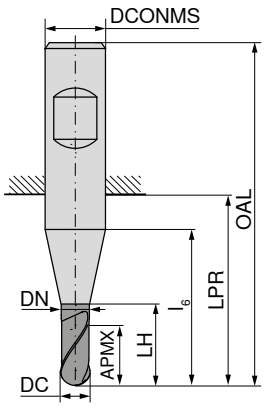


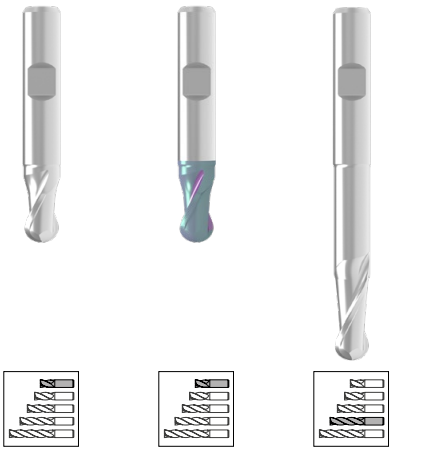
DC mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS mm	CHW mm	ZEFP	Factory standard 54 022 ...	DIN 69844 54 023 ...	DIN 844 54 024 ...
4	11		11	17	19	55	6	0,35	3		**040**	
5	13		13	19	21	57	6	0,35	3		**050**	
6	8	5,5	14	14	16	52	6	0,35	4	**060**		
6	13	5,5	19	19	21	57	6	0,35	4		**060**	
6	24	5,5	30	30	32	68	6	0,35	4			**060**
8	11	7,5	17	19	21	61	10	0,45	4	**080**		
8	19	7,5	25	27	29	69	10	0,45	4		**080**	
8	38	7,5	44	46	48	88	10	0,45	4			**080**
10	13	9,5	21	21	23	63	10	0,45	4	**100**		
10	22	9,5	30	30	32	72	10	0,45	4		**100**	
10	45	9,5	53	53	55	95	10	0,45	4			**100**
12	16	11,5	26	26	28	73	12	0,60	4	**120**		
12	26	11,5	36	36	38	83	12	0,60	4		**120**	
12	53	11,5	63	63	65	110	12	0,60	4			**120**
14	16	11,5	26	26	28	73	12	0,60	4	**140**		
14	26	11,5	36	36	38	83	12	0,60	4		**140**	
14	53	11,5	63	63	65	110	12	0,60	4			**140**
16	19	15,0	29	29	31	79	16	0,70	4	**160**		
16	32	15,0	42	42	44	92	16	0,70	4		**160**	
16	63	15,0	73	73	75	123	16	0,70	4			**160**
18	19	15,0	29	29	31	79	16	0,70	4	**180**		
18	32	15,0	42	42	44	92	16	0,70	4		**180**	
18	63	15,0	73	73	75	123	16	0,70	4			**180**
20	22	19,0	36	36	38	88	20	0,70	4	**200**		
20	38	19,0	52	52	54	104	20	0,70	4		**200**	
20	75	19,0	89	89	91	141	20	0,70	4			**200**
22	38	19,0	52	52	54	114	20	0,70	4		**220**	
22	75	19,0	89	89	91	141	20	0,70	4			**220**
25	45	24,0	63	63	65	121	25	0,70	4		**250**	
25	90	24,0	108	108	110	166	25	0,70	4			**250**
28	45	24,0	63	63	65	121	25	0,90	5		**280**	
28	90	24,0	108	108	110	166	25	0,90	5			**280**
30	45	24,0	63	63	65	121	25	0,90	5		**300**	
30	90	24,0	108	108	110	166	25	0,90	5			**300**
32	53	31,0	70	70	73	133	32	0,90	6		**320**	
32	106	31,0	123	123	126	186	32	0,90	6			**320**
P										●	●	●
M										●	●	●
K										●	●	●
N										○	○	○
S										○	○	○
H												
O										○	○	○

→ v_c/f_z Page 33–35

Ball nosed end milling cutter HSS-E Co 8







Factory standard | Factory standard | Factory standard

DC h10 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 320 ...	54 041 ...	50 321 ...
2	4		4	10	12	48	6	2	020	020	
3	5		5	11	13	49	6	2	030	030	
3	8		8	18	20	56	6	2			030
4	7		7	13	15	51	6	2	040	040	
4	11		11	25	27	63	6	2			040
5	8		8	14	16	52	6	2	050	050	
5	13		13	30	32	68	6	2			050
6	8	5,50	14	14	16	52	6	2	060	060	
6	13	5,50	30	30	32	68	6	2			060
7	10	6,50	16	18	20	60	10	2	070	070	
7	16	6,35	36	38	40	80	10	2			070
8	11	7,50	17	19	21	61	10	2	080	080	
8	19	7,35	44	46	48	88	10	2			080
9	11	8,50	18	19	21	61	10	2	090	090	
9	19	8,35	45	46	48	88	10	2			090
10	13	9,50	21	21	23	63	10	2	100	100	
10	22	9,35	53	53	55	95	10	2			100
11	13	10,50	21	23	25	70	12	2	110		
11	22	10,50	53	55	57	102	12	2			110
12	16	11,50	26	26	28	73	12	2	120	120	
12	26	11,50	63	63	65	110	12	2			120
13	16	11,50	26	26	28	73	12	2	130	130	
14	16	11,50	26	26	28	73	12	2	140	140	
14	26	11,50	63	63	65	110	12	2			140
15	16	11,50	26	26	28	73	12	2	150	150	
15	26	11,50	63	63	65	110	12	2			150
16	19	15,50	29	29	31	79	16	2	160	160	
16	32	15,00	73	73	75	123	16	2			160
18	19	15,50	29	29	31	79	16	2	180	180	
18	32	15,00	73	73	75	123	16	2			180
20	22	19,00	36	36	38	88	20	2	201	201	
22	22	19,00	36	36	38	88	20	2	220		
24	26	23,00	42	44	46	102	25	2	240	240	
24	45	23,00	106	108	110	166	25	2			240
25	26	24,00	44	44	46	102	25	2	250		
25	45	24,00	108	108	110	166	25	2			250
26	26	24,00	44	44	46	102	25	2	260		
28	26	24,00	44	44	46	102	25	2	280		
30	26	24,00	44	44	46	102	25	2	300		
30	45	24,00	108	108	110	166	25	2			300
P									●	●	●
M									○	○	○
K									●	●	●
N									○	○	○
S									○	○	○
H											
O									○	○	○

→ v_c/f_z Page 33–35

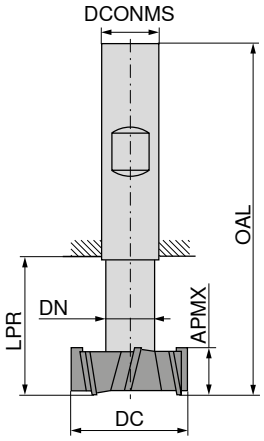
13

T-slot milling cutter HSS-E Co 5, cross pitched

▲ For slots according to DIN 650

N

λ_s=10°
γ_s=11°



DIN 851 A

50 240 ...

DC $_{d11}$ mm	APMX $_{d11}$ mm	DN $_{h12}$ mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
11,0	4	4	13,5	53,5	10	6	**110**
12,5	6	5	17,0	57,0	10	6	**125**
16,0	8	7	22,0	62,0	10	6	**160**
18,0	8	8	25,0	70,0	12	6	**180**
19,0	9	8	26,0	71,0	12	6	**190** 1)
21,0	9	10	29,0	74,0	12	6	**210**
22,0	10	10	30,0	75,0	12	6	**220** 1)
25,0	11	12	34,0	82,0	16	8	**250**
28,0	12	13	37,0	85,0	16	8	**280** 1)
32,0	14	15	42,0	90,0	16	8	**320**
36,0	16	17	47,0	103,0	25	8	**360** 1)
40,0	18	19	52,0	108,0	25	10	**400**
45,0	20	21	57,0	113,0	25	10	**450** 1)
50,0	22	25	64,0	124,0	32	10	**500**
60,0	28	30	79,0	139,0	32	10	**600**

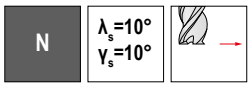
P	●
M	○
K	●
N	○
S	○
H	
O	○

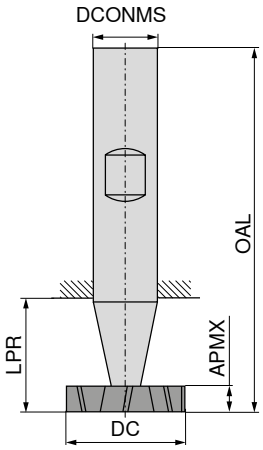
1) Factory standard

→ v_c/f_z Page 36

Slot milling cutter HSS-E Co 5, cross-pitched

▲ For slots according to DIN 6888
▲ CDX = $a_{p\ max.}$





DIN 850

50 234 ...

DC h12 mm	APMX e8 mm	LPR mm	OAL mm	DCONMS h6 mm	CDX mm	ZEFP	
10,5	2,0	14	50	6	3,25	6	**100**
10,5	2,5	14	50	6	3,15	6	**101**
10,5	3,0	14	50	6	3,15	6	**102**
13,5	2,0	16	56	10	4,45	6	**130** 1)
13,5	3,0	16	56	10	4,45	6	**132**
13,5	4,0	16	56	10	4,45	6	**133**
16,5	3,0	16	56	10	5,95	6	**161**
16,5	4,0	16	56	10	5,95	6	**162**
16,5	5,0	16	56	10	5,75	6	**163**
19,5	3,0	23	63	10	6,95	8	**190** 1)
19,5	4,0	23	63	10	6,95	8	**191**
19,5	5,0	23	63	10	6,75	8	**192**
22,5	4,0	23	63	10	8,25	8	**220** 1)
22,5	5,0	23	63	10	8,25	8	**221**
22,5	6,0	23	63	10	8,00	8	**222**
25,5	5,0	23	63	10	9,00	10	**250** 1)
25,5	6,0	23	63	10	9,00	10	**251**
28,5	6,0	23	63	10	10,00	10	**281**
28,5	8,0	23	63	10	10,00	10	**283**
32,5	6,0	26	71	12	12,00	10	**321** 1)
32,5	8,0	26	71	12	12,00	10	**322**
38,5	8,0	26	71	12	13,35	10	**381** 1)
45,5	10,0	26	71	12	16,85	12	**450**

P	●
M	○
K	●
N	○
S	○
H	
O	○

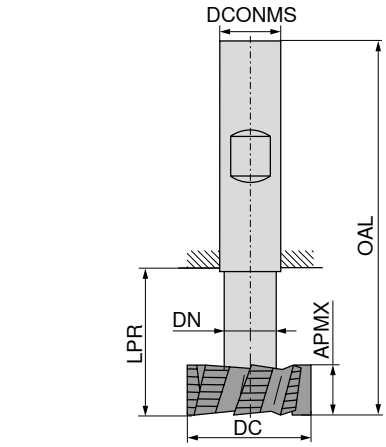
1) Factory standard

→ v_c/f_z Page 36

T-slot milling cutter HSS-E Co 5

▲ For slots according to DIN 650

NF | λ_s=20° γ_s=11°



DIN 851 A

50 241 ...

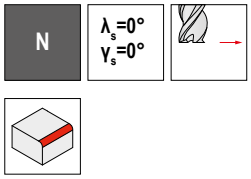
DC d11 mm	APMX mm	DN h12 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
21	9	10	29	74	12	6	**210**
22	10	10	30	75	12	6	**220** 1)
25	11	12	34	82	16	6	**250**
28	12	13	37	85	16	6	**280** 1)
32	14	15	42	90	16	6	**320**
36	16	17	47	103	25	6	**360** 1)
40	18	19	52	108	25	8	**400**
45	20	21	57	113	25	8	**450** 1)

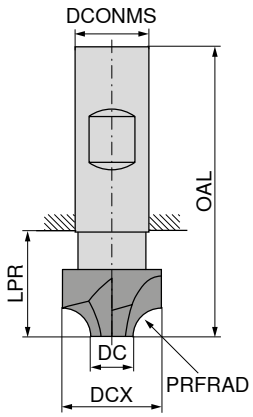
P	●
M	○
K	●
N	○
S	○
H	
O	○

1) Factory standard

→ v_c/f_z Page 36

Quarter-round profile milling cutter HSS-E Co 5, concave





DIN 6518

50 248 ...

PRFRAD $_{H11}$ mm	DCX mm	DC mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
1,0	8	6	20	60	10	4	**010**
1,5	9	6	20	60	10	4	**015**
2,0	10	6	20	60	10	4	**020**
2,5	11	6	20	60	10	4	**025**
3,0	12	6	15	60	12	4	**030**
4,0	14	6	15	60	12	4	**040**
5,0	16	6	15	60	12	4	**050**
6,0	20	8	19	67	16	4	**060**
8,0	24	8	23	71	16	4	**080**
9,0	26	8	29	85	25	4	**090**
10,0	28	8	29	85	25	4	**100**
12,0	34	10	34	90	25	4	**120**
15,0	46	16	44	100	25	6	**150**
16,0	48	16	44	100	25	6	**160**

P	●
M	○
K	●
N	○
S	○
H	
O	○

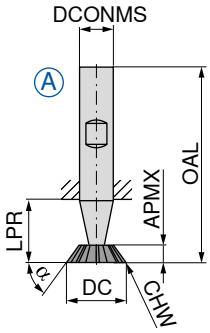
→ v_c/f_z Page 36

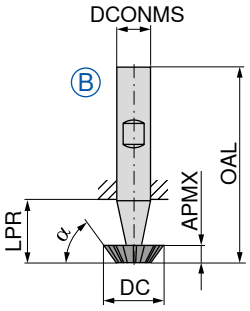
13

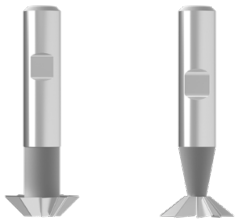
Single angle miling cutters HSS-E Co 5

H

λ_s=0°
γ_s=0°







α°	DC mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Fig.	DIN 1833 50 246 ...	DIN 1833 50 245 ...
45	16	4,0	15	60	12	0,3	10	A		016
	16	4,0	15	60	12		10	B	016	
	20	5,0	18	63	12	0,3	10	A		020
	20	5,0	18	63	12		10	B	020	
	25	6,3	22	67	12	0,3	10	A		025
	25	6,3	22	67	12		10	B	025	
60	16	6,3	15	60	12	0,3	10	A		116
	16	6,3	15	60	12		10	B	116	
	20	8,0	18	63	12	0,3	10	A		120
	20	8,0	18	63	12		10	B	120	
	25	10,0	22	67	12	0,3	10	A		125
	25	10,0	22	67	12		10	B	125	
70	16	7,0	15	60	12	0,3	10	A		216 1)
	20	9,0	18	63	12	0,3	10	A		220 1)
	25	11,0	19	67	16	0,3	10	A		225 1)
P									●	●
M									○	○
K									●	●
N									○	○
S									○	○
H										
O									○	○

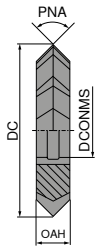
1) Factory standard

→ v_c/f_z Page 37

Double angle milling cutter HSS

▲ with keyway to DIN 138

N | λ_s=0° γ_s=0°



DIN 847

50 360 ...

PNA °	DC mm	OAH mm	DCONMS mm	ZEFP	
45	50	8	16	22	**045**
	63	10	22	24	**145**
	80	12	27	26	**245**
	100	18	32	28	**345**
60	50	10	16	18	**060**
	63	14	22	20	**160**
	80	18	27	22	**260**
	100	25	32	24	**360**
90	50	14	16	16	**090**
	63	20	22	18	**190**
	80	22	27	20	**290**
	100	32	32	24	**390**
120	50	14	16	16	**120** 1)
	63	20	22	16	**121** 1)

P	●
M	○
K	●
N	○
S	○
H	
O	○

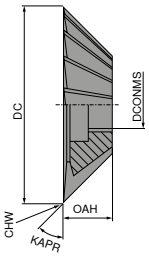
1) Factory standard

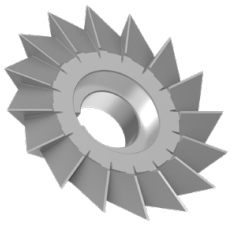
→ v_c/f_z Page 37

Shell type single angle milling cutter HSS

▲ with keyway to DIN 138

N | λ_s=0° γ_s=2°





DIN 842 A

50 362 ...

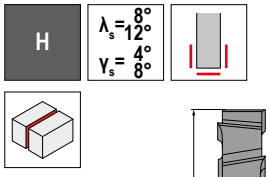
KAPR °	DC mm	OAH mm	DCONMS mm	CHW mm	ZEFP	
45	40	10	10	0,3	14	**045**
	50	13	13	0,3	16	**145**
	63	18	16	0,3	18	**245**
	80	22	22	0,3	20	**345**
	100	28	27	0,3	22	**445**
50	50	16	13	0,3	16	**150**
60	40	13	10	0,3	14	**060**
	50	16	13	0,3	16	**160**
	63	20	16	0,3	18	**260**
	80	25	22	0,3	20	**360**
	100	32	27	0,3	22	**460**
	125	40	32	0,3	28	**560**

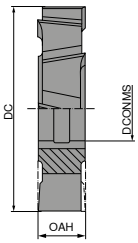
P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c/f_z Page 37

Side and face milling cutter HSS-E Co 5

▲ Fine cross-pitched version
▲ with keyway to DIN 138





DIN 885 A

50 349 ...

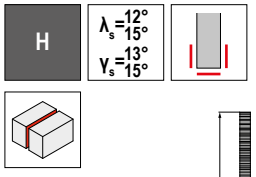
DC mm	OAH mm	DCONMS mm	ZEFP	
50	4	16	16	100
50	5	16	16	102
50	6	16	16	104
50	8	16	16	106
50	10	16	16	108
63	4	22	18	200
63	5	22	18	202
63	6	22	18	204
63	8	22	18	206
63	10	22	18	208
63	12	22	18	210
63	14	22	18	212
80	5	27	20	300
80	6	27	20	302
80	8	27	20	304
80	10	27	18	306
80	12	27	18	308
80	14	27	18	310
80	16	27	18	312
80	18	27	18	314
80	20	27	18	316
100	6	32	22	400
100	8	32	22	402
100	10	32	20	404
100	12	32	20	406
100	14	32	20	408
100	16	32	20	410
100	18	32	20	412
100	20	32	20	414
100	25	32	20	418
125	8	32	24	500
125	10	32	22	502
125	12	32	22	504
125	14	32	22	506
125	16	32	22	508
125	18	32	22	510
125	20	32	22	512
125	25	32	22	516
160	10	40	26	600
160	12	40	26	602
160	14	40	26	604
160	16	40	26	606
160	18	40	26	608
160	20	40	26	610
160	25	40	26	614
160	32	40	26	618

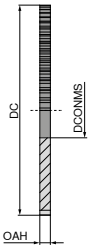
P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 38

Narrow side and face milling cutter HSS-E Co 5

▲ Fine cross-pitched version
▲ with keyway to DIN 138





DIN 1834 A

50 340 ...

DC mm	OAH mm	DCONMS mm	ZEFP	
63	1,6	22	28	200
63	2,0	22	28	202
63	2,5	22	28	204
63	3,0	22	28	206
80	1,6	27	32	300
80	2,0	27	32	302
80	2,5	27	32	304
80	3,0	27	32	306
80	4,0	27	32	310
100	1,6	32	36	400
100	2,0	32	36	402
100	2,5	32	36	404
100	3,0	32	36	406
100	4,0	32	36	410
100	5,0	32	36	414
125	1,6	32	40	500
125	2,0	32	40	502
125	2,5	32	40	504
125	3,0	32	40	506
125	4,0	32	40	510
125	5,0	32	40	514
125	6,0	32	40	516
160	2,0	40	48	600
160	2,5	40	48	602
160	3,0	40	48	604
160	4,0	40	48	606
160	5,0	40	48	608
160	6,0	40	48	610
160	8,0	40	36	612

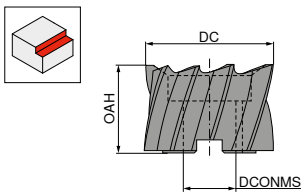
P	●
M	
K	●
N	●
S	●
H	
O	●

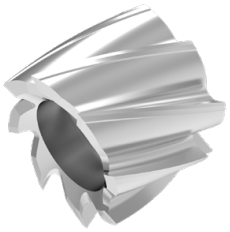
→ v_c/f_z Page 38

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138

N | λ_s=25° γ_s=10°





DIN 1880

50 250 ...

DC mm	OAH mm	DCONMS mm	ZEFP	
40	32	16	8	**040**
50	36	22	8	**050**
63	40	27	8	**063**
80	45	27	10	**080**

P	●
M	●
K	●
N	●
S	○
H	
O	●

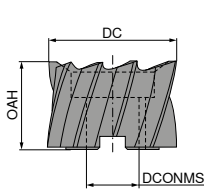
→ v_c/f_z Page 39+40

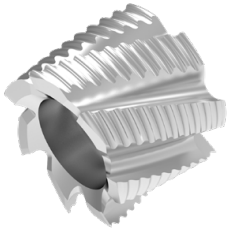
Roughing face milling cutters HSS-E Co 5

▲ with keyway to DIN 138

▲ Manufacturing tolerance lies on the plus range of the tolerance js14

NR | λ_s=25° γ_s=10°





DIN 1880

50 260 ...

DC mm	OAH mm	DCONMS mm	ZEFP	
40	32	16	7	**040**
50	36	22	8	**050**
63	40	27	8	**063**
80	45	27	10	**080**

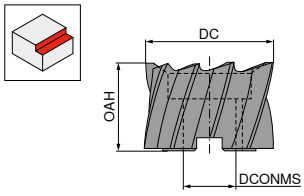
P	●
M	●
K	●
N	●
S	○
H	
O	●

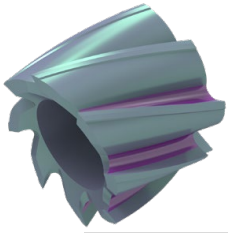
→ v_c/f_z Page 39+40

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138

N | λ_s=25° γ_s=10° | Ti100 Pro





DIN 1880

54 035 ...

DC mm	OAH mm	DCONMS mm	ZEFP	
40	32	16	8	**040**
50	36	22	8	**050**
63	40	27	8	**063**
80	45	27	10	**080**

P	●
M	●
K	●
N	●
S	○
H	
O	●

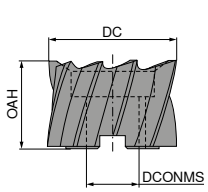
→ v_c/f_z Page 39+40

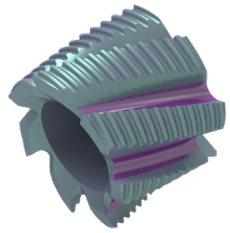
Roughing-finishing face milling cutters HSS-E Co 8

▲ with keyway to DIN 138

▲ Manufacturing tolerance lies on the plus range of the tolerance js14

HR | λ_s=25° γ_s=10° | Ti100 Pro





DIN 1880

54 037 ...

DC mm	OAH mm	DCONMS mm	ZEFP	
40	32	16	7	**040**
50	36	22	8	**050**
63	40	27	8	**063**
80	45	27	10	**080**

P	●
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 39+40

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Material examples for cutting data tables

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

*** Tensile strength**

Cutting speeds – slot, end milling and ball-nosed end milling cutters

Index	Kf f_z	uncoated	Ti100 Pro	Ti100 Pro	● 1st choice ○ suitable		
				Powder steel	Emulsion	Compressed air	MMS
		v_c (m/min)					
P.1.1	1,2	20	45	50	●		
P.1.2	1,2	20	45	50	●		
P.1.3	1,2	20	45	50	●		
P.1.4	1,0	15	30	35	●		
P.1.5	1,0	15	30	35	●		
P.2.1	1,2	20	40	45	●		
P.2.2	1,0	15	40	45	●		
P.2.3	0,8	15	30	35	●		
P.2.4	0,8	15	30	35	●		
P.3.1	1,0	15	30	35	●		
P.3.2	0,8	12	25	30	●		
P.3.3	0,8	10	20	25	●		
P.4.1	1,0	10	20	25	●		
P.4.2	1,0	10	20	25	●		
M.1.1	1,0	10	20	25	●		
M.2.1	0,9	7	15	20	●		
M.3.1	1,0	5	10	15	●		
K.1.1	1,0	18	35	40	●		
K.1.2	1,0	18	25	30	●		
K.2.1	1,0	15	30	35	●		
K.2.2	1,0	15	30	35	●		
K.3.1	1,0	15	35	40	●		
K.3.2	0,8	12	25	30	●		
N.1.1	1,9	150	240	260	●		
N.1.2	1,9	100	130	150	●		
N.2.1	1,8		100	140	●		
N.2.2	1,7		60	80	●		
N.2.3							
N.3.1	1,1		100	130	●		
N.3.2	1,2	30	60	80	●		
N.3.3	1,2	30	60	80	●		
N.4.1	1,8	90	140	160		●	
S.1.1							
S.1.2							
S.2.1							
S.2.2							
S.2.3							
S.3.1	1,0	10	15	25	●		
S.3.2	1,1	10	15	25	●		
S.3.3							
H.1.1							
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1							
O.1.1	2,0	30	50	70	●		
O.1.2	2,0	20	25	40	●		
O.2.1							
O.2.2							
O.3.1	1,0		30	40	○		

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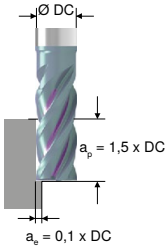
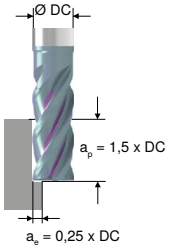
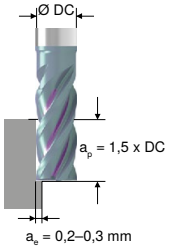
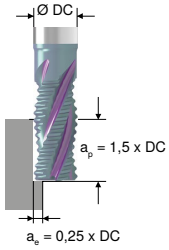
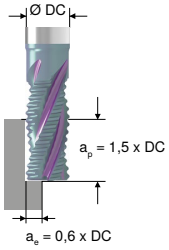
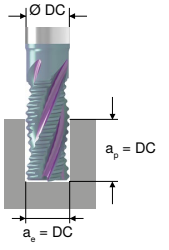
For full slot milling reduce the cutting speed (Vc), indicated in this table by approx. 15 - 20%!

Kf fz = Correction factor for feed per tooth

Feed per tooth for HSS end mills

Appoximate values (in mm) for the feed per tooth (f_z)

	Finish milling						Rough machining					
	Peripheral milling										Full slot milling	
												
	f_z in mm		f_z in mm		f_z in mm		f_z in mm		f_z in mm		f_z in mm	
Ø DC mm	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated
2	0,008	0,009	0,008	0,009	0,008	0,009						
3	0,011	0,012	0,009	0,010	0,010	0,012						
4	0,017	0,018	0,013	0,014	0,014	0,015	0,015	0,016	0,013	0,014	0,011	0,012
5	0,024	0,026	0,014	0,015	0,018	0,020	0,019	0,021	0,016	0,018	0,014	0,016
6	0,032	0,035	0,015	0,017	0,022	0,024	0,024	0,027	0,020	0,022	0,018	0,019
8	0,047	0,051	0,020	0,022	0,029	0,032	0,032	0,036	0,027	0,030	0,024	0,026
10	0,065	0,072	0,026	0,028	0,037	0,041	0,042	0,047	0,035	0,039	0,031	0,034
12	0,084	0,091	0,031	0,034	0,044	0,049	0,051	0,057	0,043	0,047	0,037	0,041
14	0,100	0,106	0,037	0,041	0,054	0,059	0,063	0,069	0,053	0,058	0,045	0,050
16	0,111	0,121	0,042	0,046	0,061	0,067	0,072	0,079	0,060	0,066	0,052	0,057
18	0,126	0,136	0,048	0,053	0,070	0,077	0,084	0,093	0,071	0,078	0,061	0,067
20	0,141	0,151	0,052	0,057	0,076	0,083	0,092	0,101	0,077	0,084	0,066	0,073
22	0,160	0,166	0,059	0,065	0,085	0,094	0,104	0,114	0,087	0,096	0,075	0,082
25	0,170	0,188	0,065	0,072	0,095	0,104	0,117	0,129	0,098	0,108	0,084	0,093
28	0,196	0,210	0,075	0,083	0,109	0,120	0,136	0,150	0,114	0,125	0,098	0,108
32	0,212	0,240	0,086	0,094	0,124	0,137	0,157	0,173	0,131	0,145	0,113	0,125
36	0,224	0,240	0,099	0,109	0,144	0,159	0,170	0,194	0,142	0,162	0,126	0,140
40	0,240	0,240	0,108	0,119	0,157	0,173	0,184	0,202	0,154	0,169	0,132	0,146
45	0,240	0,240	0,108	0,119	0,157	0,173	0,200	0,220	0,170	0,180	0,140	0,160
50	0,240	0,240	0,108	0,119	0,157	0,173	0,200	0,220	0,170	0,180	0,140	0,160

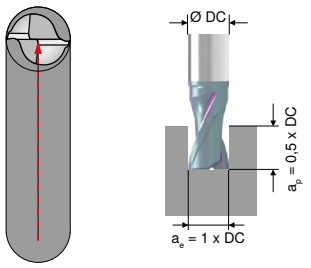
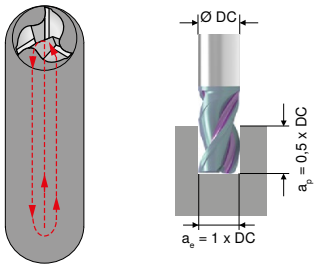
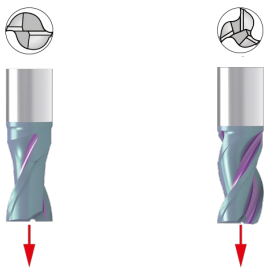
Attention:
In the case of uncoated milling cutters climb milling is preferred to conventional milling. When using coated milling cutters climb milling is necessary in order to achieve optimum results.

Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor Kf f_z** from the table on → **page 33.**

In general the following is valid:
f_z (milling) = f_z x Kf f_z
f_z (drilling) = f_z (milling) ÷ no. of teeth

Feed per tooth when milling parallel key slots with HSS slot drills

Appoximate values (in mm) for the feed per tooth (f_z)

	Full slot milling (in one cut)		Profile slot milling (internal profile milling)				Circular ramping			
										
			Roughing cut		Finishing cut					
	f_z in mm		f_z in mm				f_z in mm			
Ø DC mm	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated
2	0,005	0,006	0,005	0,006	0,008	0,009	0,003	0,003	0,002	0,002
3	0,009	0,010	0,009	0,010	0,015	0,016	0,004	0,005	0,003	0,003
4	0,012	0,013	0,012	0,013	0,022	0,024	0,006	0,007	0,004	0,004
5	0,016	0,017	0,016	0,017	0,030	0,033	0,008	0,009	0,005	0,006
6	0,020	0,022	0,020	0,022	0,039	0,043	0,010	0,011	0,007	0,007
8	0,026	0,029	0,026	0,029	0,055	0,061	0,013	0,014	0,009	0,010
10	0,034	0,037	0,034	0,037	0,075	0,082	0,017	0,019	0,011	0,012
12	0,040	0,044	0,040	0,044	0,093	0,101	0,020	0,022	0,013	0,015
14	0,049	0,054	0,049	0,054	0,117	0,118	0,024	0,027	0,016	0,018
16	0,056	0,062	0,056	0,062	0,135	0,135	0,028	0,031	0,019	0,021
18	0,065	0,072	0,065	0,072	0,151	0,151	0,033	0,036	0,022	0,024
20	0,071	0,078	0,071	0,078	0,167	0,167	0,035	0,039	0,024	0,026
22	0,080	0,088	0,080	0,088	0,184	0,184	0,040	0,044	0,027	0,029
25	0,089	0,098	0,089	0,098	0,208	0,208	0,044	0,049	0,030	0,033
28	0,103	0,113	0,103	0,113	0,233	0,233	0,051	0,056	0,034	0,037
32	0,118	0,130	0,118	0,130	0,260	0,260	0,060	0,065	0,040	0,043
36	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
40	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
45	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
50	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043

Attention:
In the case of uncoated milling cutters climb milling is preferred to conventional milling. When using coated milling cutters climb milling is necessary in order to achieve optimum results.

Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor Kf f_z** from the table on → **page 33.**

In general the following is valid:
f_z (milling) = f_z x Kf f_z
f_z (drilling) = f_z (milling) ÷ no. of teeth

Cutting data standard values – Form cutters

Index	v_c (m/min)	50 241 ... Ø DC (mm) = 21–25	28–36	40–45	50 240 ... Ø DC (mm) = 11–16	18–22	25–32	36–45	50–60	v_c (m/min)	50 234 ... Ø DC (mm) = 10–17	19–26	28–33	33–46	50 248 ... Ø DCX (mm) = 8–11	12–24	26–34	46–48	● 1st choice ○ suitable Emulsion	Compressed air	MMS
		f_z (mm)			f_z (mm)						f_z (mm)				f_z (mm)						
P.1.1	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
P.1.2	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
P.1.3	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
P.1.4	22	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	22	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.1.5	22	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	22	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.2.1	22	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	22	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.2.2	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
P.2.3	20	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	20	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.2.4	20	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	20	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.3.1																					
P.3.2																					
P.3.3																					
P.4.1	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●		
P.4.2	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●		
M.1.1	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●		
M.2.1																					
M.3.1																					
K.1.1	28	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	24	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
K.1.2																					
K.2.1	22	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	22	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
K.2.2	20	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	20	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
K.3.1	15	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	15	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
K.3.2	15	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	15	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
N.1.1	100	0,1	0,12	0,15	0,02	0,045	0,045	0,045	0,055	90	0,03	0,04	0,06	0,07	0,035	0,07	0,14	0,15	●		
N.1.2	100	0,1	0,12	0,15	0,02	0,045	0,045	0,045	0,055	90	0,03	0,04	0,06	0,07	0,035	0,07	0,14	0,15	●		
N.2.1	80	0,09	0,11	0,13	0,015	0,04	0,035	0,04	0,045	80	0,03	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.2.2	60	0,09	0,11	0,13	0,015	0,04	0,035	0,04	0,045	60	0,03	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.2.3																					
N.3.1	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03	0,035	25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.3.2	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03		25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.3.3	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03		25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.4.1	70	0,1	0,12	0,15	0,018	0,04	0,03	0,035	0,045	70	0,03	0,035	0,05	0,06	0,025	0,06	0,1	0,12	●		
S.1.1																					
S.1.2																					
S.2.1																					
S.2.2																					
S.2.3																					
S.3.1	20	0,06	0,08	0,1	0,012	0,025	0,025	0,025	0,035	20	0,015	0,025	0,035	0,045	0,02	0,05	0,07	0,09	●		
S.3.2																					
S.3.3																					
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1																					
H.3.1																					
O.1.1	65	0,12	0,15	0,18		0,06	0,055	0,055	0,07	65	0,04	0,05	0,07	0,09	0,045	0,1	0,18	0,18	●		
O.1.2	80	0,12	0,15	0,18		0,06	0,055	0,055	0,07	80	0,04	0,05	0,07	0,09	0,045	0,1	0,18	0,18	●		
O.2.1																					
O.2.2																					
O.3.1																					

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

Cutting data standard values – Form cutters

Index	v_c (m/min)	50 245 ... / 50 246 ... Ø DC (mm) = 16	20	25	v_c (m/min)	50 360 ... Ø DC (mm) = 50	63	80	100	50 362 ... Ø DC (mm) = 40–50	63	80	100	● 1st choice ○ suitable Emulsion	Compressed air	MMS
		a_e = 3,2	a_e = 4	a_e = 5		a_e = 5	a_e = 6,3	a_e = 8	a_e = 10							
		f_z (mm)				f_z (mm)				f_z (mm)						
P.1.1	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.1.2	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.1.3	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.1.4	22	0,01	0,015	0,018	20	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
P.1.5	22	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.2.1	22	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.2.2	28	0,01	0,015	0,018	22	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
P.2.3	20	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.2.4	20	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.3.1																
P.3.2																
P.3.3																
P.4.1	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
P.4.2	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
M.1.1	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
M.2.1																
M.3.1																
K.1.1	24	0,01	0,012	0,015	19	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.1.2					12	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012			
K.2.1	22	0,01	0,012	0,015	15	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.2.2	20	0,01	0,012	0,015	12	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.3.1	15	0,01	0,012	0,015	16	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.3.2	15	0,01	0,012	0,015	13	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
N.1.1	90	0,01	0,015	0,02										●		
N.1.2	90	0,01	0,015	0,02	70	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
N.2.1	80	0,01	0,015	0,02	60	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
N.2.2	60	0,01	0,015	0,02	60	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
N.2.3																
N.3.1	25	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
N.3.2	25	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
N.3.3	25	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
N.4.1	70	0,01	0,015	0,0175	45	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,01	●		
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1	20	0,008	0,01	0,015	20	0,008	0,01	0,012	0,016	0,005	0,007	0,009	0,012	●		
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1	65	0,018	0,02	0,025	60	0,015	0,02	0,025	0,03	0,008	0,012	0,018	0,022	●		
O.1.2	80	0,018	0,02	0,025	65	0,015	0,02	0,025	0,03	0,008	0,012	0,018	0,022	●		
O.2.1																
O.2.2																
O.3.1																

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

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Cutting data – side and face cutters

Index	v_c (m/min)	50 340 ... / 50 349 ... Ø DC (mm) = 50	63	80	100	125	160	Emulsion	Compressed air	MMS
		f (mm)						● 1st choice ○ suitable		
P.1.1	30	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,047–0,055	0,050–0,060	●		
P.1.2	20	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,047–0,055	0,050–0,060	●		
P.1.3	20	0,025–0,035	0,030–0,040	0,035–0,045	0,040–0,050	0,047–0,060	0,050–0,065	●		
P.1.4	15	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
P.1.5	15	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
P.2.1	20	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
P.2.2	20	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
P.2.3	10	0,015–0,020	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	●		
P.2.4	10	0,015–0,020	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	●		
P.3.1	15	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
P.3.2	10	0,015–0,020	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	●		
P.3.3	10	0,015–0,020	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	●		
P.4.1	10	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
P.4.2	10	0,020–0,030	0,025–0,035	0,030–0,040	0,035–0,045	0,040–0,050	0,045–0,100	●		
M.1.1	10	0,015–0,020	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	●		
M.2.1	10	0,015–0,020	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	●		
M.3.1	8	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
K.1.1	20	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
K.1.2	18	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
K.2.1	18	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
K.2.2	15	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
K.3.1	18	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
K.3.2	18	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
N.1.1	150	0,030–0,037	0,037–0,045	0,045–0,050	0,050–0,060	0,060–0,067	0,067–0,075	●		
N.1.2	100	0,030–0,037	0,037–0,045	0,045–0,050	0,050–0,060	0,060–0,067	0,067–0,075	●		
N.2.1	80	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,047–0,055	0,050–0,060	●		
N.2.2	40	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,047–0,055	0,050–0,060	●		
N.2.3										
N.3.1	80	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
N.3.2	30	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,047–0,055	0,050–0,060	●		
N.3.3	30	0,025–0,035	0,030–0,040	0,035–0,045	0,040–0,050	0,047–0,060	0,050–0,065	●		
N.4.1	90	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,047–0,055	0,050–0,060		●	
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1	10	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
S.3.2	10	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1	30	0,040–0,050	0,050–0,060	0,060–0,070	0,070–0,080	0,080–0,090	0,090–0,100	●		
O.1.2	20	0,040–0,050	0,050–0,060	0,060–0,070	0,070–0,080	0,080–0,090	0,090–0,100	●		
O.2.1										
O.2.2										
O.3.1										

Feed correction factor (Kf f_z) for side and face cutters in relation to the cutting depth (a_e)

a_e	Kf f_z
0,05 x DC	1,4
0,1 x DC	1,0
0,15 x DC	0,8
0,2 x DC	0,7
0,25 x DC	0,6

Cutting data – face mills

Index	Kf f_z	50 250 ... / 50 260 ... uncoated v_c (m/min)	54 035 ... / 54 037 ... Ti100 Pro v_c (m/min)	● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1	1,2	25	45	●		
P.1.2	1,2	20	40	●		
P.1.3	1,2	20	40	●		
P.1.4	1,0	15	30	●		
P.1.5	1,0	15	30	●		
P.2.1	1,2	20	40	●		
P.2.2	1,0	20	40	●		
P.2.3	0,8	10	20	●		
P.2.4	0,8	10	20	●		
P.3.1	1,0	15	30	●		
P.3.2	0,8	10	20	●		
P.3.3	0,8	10	20	●		
P.4.1	1,0	10	15	●		
P.4.2	1,0	10	15	●		
M.1.1	1,0	10	15	●		
M.2.1	0,9	7	15	●		
M.3.1	1,0	5	10	●		
K.1.1	1,0	20	30	●		
K.1.2	1,0	18	30	●		
K.2.1	1,0	18	30	●		
K.2.2	1,0	15	25	●		
K.3.1	1,0	18	30	●		
K.3.2	1,0	18	30	●		
N.1.1	1,5	150				
N.1.2	1,5	100				
N.2.1	1,3	80				
N.2.2	1,3	40				
N.2.3						
N.3.1	1,1	80	110	●		
N.3.2	1,2	30	60	●		
N.3.3	1,2	30	60	●		
N.4.1	1,3	90	120		●	
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1	1,0	10	15	●		
S.3.2	1,1	10	15	●		
S.3.3	0,8		10	●		
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1	2,0	30	50	●		
O.1.2	2,0	20	25	●		
O.2.1						
O.2.2						
O.3.1						

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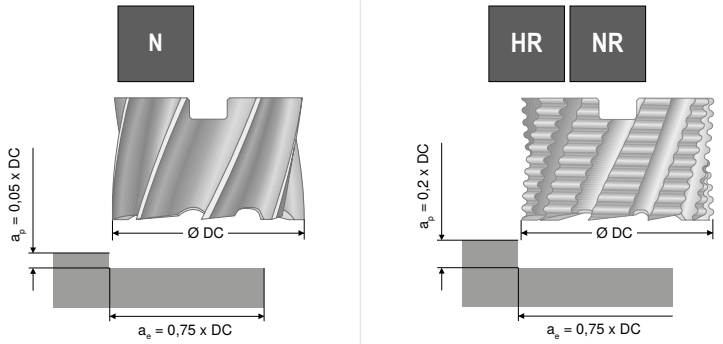
Feed per tooth for HSS face mills

Appoximate values (in mm) for the feed per tooth (f_z)



	f_z in mm		f_z in mm	
Ø DC mm	uncoated	Ti100 Pro	uncoated	Ti100 Pro
40	0,049	0,054	0,064	0,070
50	0,055	0,060	0,071	0,078
63	0,061	0,067	0,079	0,087
80	0,065	0,071	0,084	0,092

Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor Kf f_z** from the table on → **page 33.**

In general the following is valid:
f_z (milling) = f_z x Kf f_z
f_z (drilling) = f_z (milling) ÷ no. of teeth

Formula for cutting data calculation

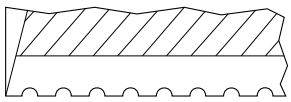
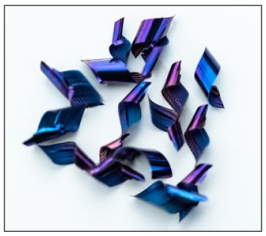
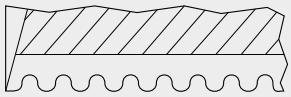
Designation	Abbreviation	Unit	Formula
Number of revolutions	n	min^{-1}	$n = \frac{v_C \times 1000}{DC \times \pi}$
Cutting speed	v_c	m/min	$v_c = \frac{DC \times \pi \times n}{1000}$
Feed per tooth	f_z	mm	$f_z = \frac{v_f}{ZEFP \times n}$ $f_z = h_m \times \sqrt{\frac{DC}{a_e}}$
Feed per revolution	f	mm	$f = f_z \times ZEFP$
Feed rate	v_f	mm/min.	$v_f = f_z \times ZEFP \times n$
Average chip thickness	h_m	mm	$h_m = f_z \times \sqrt{\frac{a_e}{DC}}$

ZEFP = Number of flutes
a_e = cutting width (for side milling cutter cutting depth)
DC = Cutting diameter

Version description

W	For soft materials and non-ferrous metals (aluminium, copper, brass)
N	For machining steel and cast materials, as well as stainless steels
H	For high-strength steels and tempered materials
NF	For machining steel and cast materials, as well as stainless steels – with roughing-finishing profile
HF	For high-strength steels and tempered materials – with roughing-finishing profile
NR	For machining steel and cast materials, as well as stainless steels – with roughing profile
HR	For high-strength steels and tempered materials – with roughing profile

Differences between the milling cutter types

Designation	Type	Shape of the chip breaker	Application description	Chip shape
Rough and finish milling cutters	NF HF	Chip breaker with flat profile 	▲ High chip volume, even on less powerful machines ▲ Surface quality mostly sufficient ▲ Lower cutting pressure compared to smooth-edged milling cutters ▲ Finish machining not needed	
Rough milling cutters	NR HR	Chip breaker with round profile 	▲ Produces very small and short chips ▲ Problem-solver in unstable conditions ▲ High chip volume, even on the weakest machines ▲ Exceptionally well suited to full slot milling ▲ Additional finish machining needed ▲ High feeds possible	

Coating

Ti100 Pro	▲ Ti multilayer coating ▲ $HV_{0.05}$ = 3500 ▲ Coefficient of friction (against steel) = 0.7 ▲ Maximum application temperature: 900°C

13

New products for machining technicians

NEW

MonsterMill – Ball Nosed Cutter

NCR

→ Page 39

Our specialist for 3D milling and machining of nickel-based alloys.

NEW

HPC-UNI end mill 3xDC

N

→ Page 242

New outstanding products in our standard range.

Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters 14

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Shank

Shank type

Length: extra short / short / medium / long / extra long

Axial thro' coolant

Radial thro' coolant

Cutting edge preparation

Sharp

Corner chamfer (CHW = chamfer width in mm)

Corner radius

Full Radius

Application

HPC — High volume machining

HFC — High-feed milling

54–70 HRC — Hard materials

Machining example

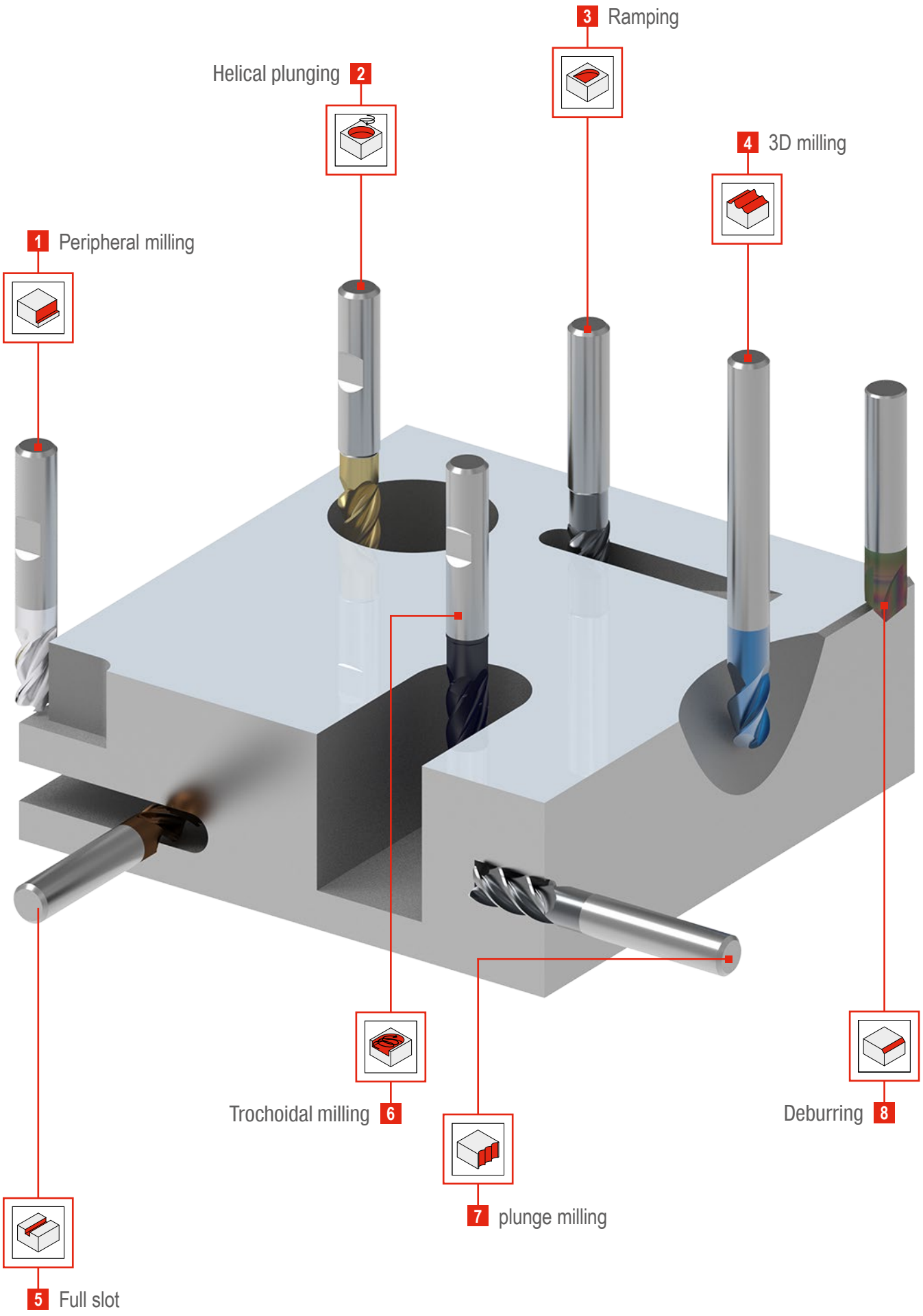
The red arrows describe the possible feed directions

λ_s=48°
γ_s=10°
Cutting geometry
λ_s = Helix Angle
γ_s = Rake Angle

λ_s var. — Variable helix angle

ZEFP = Number of flutes
● = **Main Application**
○ = Extended application

Toolfinder for High Performance Milling Cutters



Toolfinder for high-performance milling cutters – MonsterMill

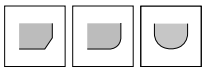
			1 Peripheral milling	2 Helical plunging	3 Ramping	4 3D milling
P	Steel		MonsterMill – SCR MonsterMill – PCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – SCR
M	Stainless steel		MonsterMill – ICR	MonsterMill – ICR	MonsterMill – ICR	MonsterMill – TCR
K	Cast iron		MonsterMill – SCR MonsterMill – PCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – SCR
N	Non-ferrous metals		MonsterMill – PCR	MonsterMill – PCR	MonsterMill – PCR	
S	Heat resistant alloys		MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR	MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR	MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR	MonsterMill – TCR MonsterMill – NCR
H	Tempered steel	< 55 HRC				
		> 55 HRC	MonsterMill – HCR			MonsterMill – HCR
O	Non-metal materials		MonsterMill – FRP / FRP CR	MonsterMill – FRP / FRP CR	MonsterMill – FRP / FRP CR	

MonsterMill – SCR

→ Page 19–26

The specialist for machining steel and cast iron

SCR



ZEFP	Ø DC mm
3–6	3–20

MonsterMill – ICR

→ Page 27+28

The specialist for machining stainless steel

ICR

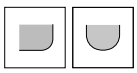
ZEFP	Ø DC mm
3–5	1,5–20

MonsterMill – HCR

→ Page 40–45

The specialist for finish machining tempered steel up to 70 HRC

HCR



ZEFP	Ø DC mm
2–4	0,2–12

MonsterMill – PCR

→ Page 46–50

The specialist for ramping, plunging and helical milling

PCR

ZEFP	Ø DC mm
4	5–20

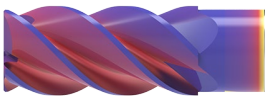
5 Full slot	6 Trochoidal milling	7 plunge milling	8 Deburring
MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – PCR	MonsterMill – PCR	
MonsterMill – ICR			
MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – PCR	MonsterMill – PCR	
MonsterMill – PCR	MonsterMill – PCR	MonsterMill – PCR	
MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR			
MonsterMill – FRP / FRP CR			

MonsterMill – TCR

→ Page 29–33

The specialist for machining titanium and titanium alloys

TCR



ZEFP	Ø DC mm
2–5	2–20

MonsterMill – NCR

→ Page 34–39

The specialist for machining nickel-based alloys

NCR

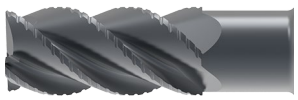
ZEFP	Ø DC mm
4–5	2–20

MonsterMill – MCR

→ Page 51

The specialist for rough machining steel and cast iron

MCR



ZEFP	Ø DC mm
3–4	1–20

MonsterMill – FRP / FRP CR

→ Page 52–56

The specialist for machining carbon fibre-reinforced plastics

FRP

ZEFP	Ø DC mm
1–8	6–12,7

14

Toolfinder for high-performance milling cutters

			1 Peripheral milling	2 Helical plunging	3 Ramping	4 3D milling
P	Steel		SilverLine S-Cut Micro-milling tools MultiLock / MultiChange	MultiLock / MultiChange		3D Finish SilverLine Micro-milling tools MultiLock / MultiChange
M	Stainless steel		SilverLine S-Cut Micro-milling tools			3D Finish SilverLine Micro-milling tools
K	Cast iron		SilverLine S-Cut Micro-milling tools MultiLock / MultiChange	MultiLock / MultiChange	MultiLock / MultiChange	3D Finish SilverLine Micro-milling tools MultiLock / MultiChange
N	Non-ferrous metals		AluLine PCD milling tools Micro-milling tools MultiChange	AluLine PCD milling tools MultiChange	AluLine PCD milling tools MultiChange	3D Finish AluLine PCD milling tools Micro-milling tools MultiChange
S	Heat resistant alloys		Micro-milling tools MultiLock	MultiLock	MultiLock	3D Finish Micro-milling tools MultiLock
H	Tempered steel	< 55 HRC	BlueLine Micro-milling tools	BlueLine	BlueLine	BlueLine Micro-milling tools
		> 55 HRC				
O	Non-metal materials		PCD milling tools Micro-milling tools	PCD milling tools	PCD milling tools	3D Finish PCD milling tools Micro-milling tools

CircularLine

→ Page 57–76

The specialist for trochoidal machining

CCR

ZEFP: 4–6

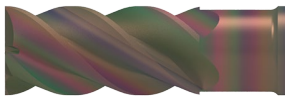
Ø DC mm: 6–20

AluLine

→ Page 77–115

The specialist for machining non-ferrous metals

W / WF / WR



ZEFP: 2–6

Ø DC mm: 2–25

S-Cut

→ Page 151–155

The all-rounder with soft cut and low power consumption

SC UNI

ZEFP: 4–5

Ø DC mm: 3–25

3D Finish

→ Page 156–160

The specialist for 3D finish machining

N

ZEFP: 2–4

Ø DC mm: 4–16

MultiLock

→ Page 193–196

The sustainable exchangeable head system

N

ZEFP: 4–6

Ø DC mm: 12–25

MultiChange

→ Page 197–202

The exchangeable head system for the highest demands and a wide range of applications

PCR W N

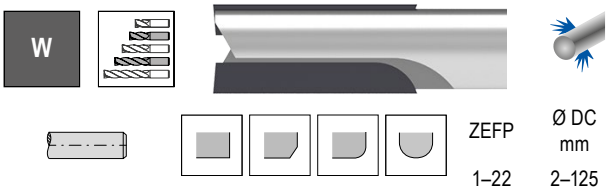
ZEFP: 3–6

Ø DC mm: 8–20

	5 Full slot	6 Trochoidal milling	7 plunge milling	8 Deburring
	S-Cut SilverLine Micro-milling tools MultiLock / MultiChange	CircularLine		SilverLine MultiLock MultiChange
	S-Cut SilverLine Micro-milling tools	CircularLine		SilverLine
	S-Cut SilverLine Micro-milling tools MultiLock / MultiChange	CircularLine		SilverLine MultiLock MultiChange
	AluLine PCD milling tools Micro-milling tools MultiChange	CircularLine	PCD milling tools	AluLine MultiChange
	Micro-milling tools MultiLock	CircularLine		SilverLine
	BlueLine Micro-milling tools	CircularLine		BlueLine
		CircularLine		BlueLine
	PCD milling tools Micro-milling tools		PCD milling tools	AluLine

PCD milling tools
→ Page 116–128

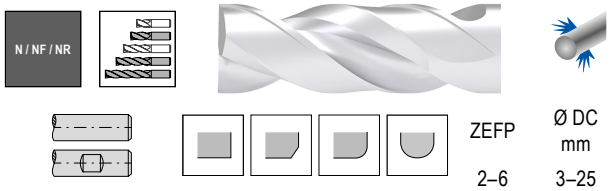
The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics



ZEFP	Ø DC mm
1–22	2–125

SilverLine
→ Page 129–150

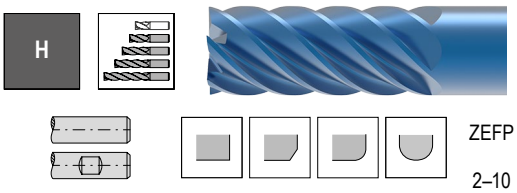
The all-rounder for universal application



ZEFP	Ø DC mm
2–6	3–25

BlueLine
→ Page 161–185

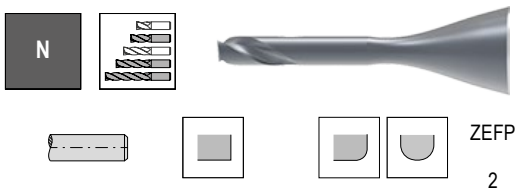
The all-rounder for machining tempered steel



ZEFP	Ø DC mm
2–10	0,1–20

Micro-milling tools
→ Page 186–192

The universal milling cutter for micro-cutting



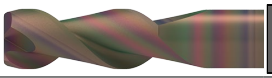
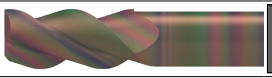
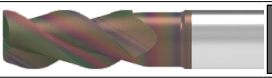
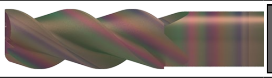
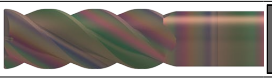
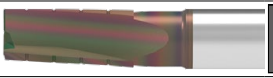
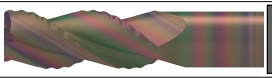
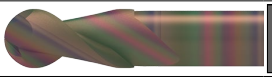
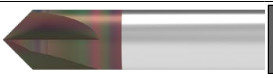
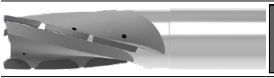
ZEFP	Ø DC mm
2	0,2–2,0

14

Overview High Performance Milling Cutters

Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Performance
MonsterMill																			
SCR	4–6	3–20	●	○	●	○	○	○	○			■		■	HPC		■		19–24
SCR	3–4	3–16	●	○	●	○	○	○	○				■	■	HPC		■		25
SCR	4	3–16	●		●				○			■		■	HPC HFC	■	■		26
ICR	3–5	1,5–20	○	●	○	○	●	○	○		■			■	HPC	■	■		27+28
TCR	4–5	4–20	○	○			●					■		■	HPC		■		29–31
TCR	4	2–16	○	○			●						■	■			■		32
TCR	2–5	2–16	○	○			●					■		■	HPC HFC		■		33
NCR	4–5	4–20		○			●					■		■	HPC		■		34–38
NCR	4	2–16		○			●						■	■			■		39
HCR	2–4	0,2–12	○					●				■		■			■		40–42
HCR	2–4	0,2–12	○					●					■	■			■		43–45
PCR UNI	4	5–20	●	○	●							■		■	HPC		■		46–48
PCR ALU	4	5–20				●						■		■	HPC		■		49+50
MCR	3–4	1–20	●	○	●	○	○	○			■			■	HPC		■		51
FRP CR		6,0–12,7							●		■			■			■		52+53
FRP	8	6,0–12,7							●		■			■			■		54–56
CircularLine																			
CCR UNI	5–6	6–20	●	○	●		○				■	■		■	HPC		■		57–66
CCR VA	5–6	6–20	○	●			●					■		■	HPC		■		67+68
CCR AL	4	6–20				●					■	■		■			■		69–74
CCR Ti	5	6–20	○	○			●					■		■	HPC		■		75
CCR H	6	6–20						●				■		■			■		76

Overview High Performance Milling Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Performance
AluLine																				
	W	2	2–20				●													77–82
	W	3	2–20				●													83–90
	W	3	2–20				●									HPC				91–97
	W	3	6–20				●													98–100
	W	4	2–25				●													101–106
	WF	3	3–20				●													107
	WR	3	6–20				●									HPC				108+109
	W	6	6–20				●									HPC				110
	W	2	3–20				●			○										111–113
	W	4	4–16				●			●										114+115
PCD milling tools																				
	W	1–4	2–20				●			●										116–118
	W	1–2	2–20				●			●										119
	W	1–2	2–20				●			●										120+121
	W	4–10	10–32				●			●						HPC				122
	W	3	16–25				●			●										123
	W	2–3	10–25				●			●										124
	W	2–6	10–32				●			●										125
	W	4–10	10–32				●			●						HPC				126
	W	2–3	10–16				●			●										127
	W	10–22	40–125				●			●										128

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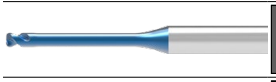
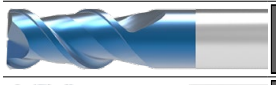
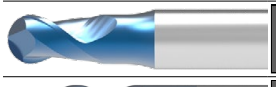
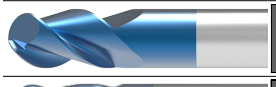
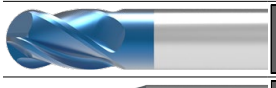
Overview High Performance Milling Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Performance
SilverLine																				
	N	2	3–20	●	●	●	○	●			■	■			■	HPC		■		129+130
	N	3	3–20	●	●	●	○	●			■	■	■		■	HPC		■		131–133
	N	4	3–20	●	●	●	○	●				■			■	HPC		■		134–136
	N	4	6–20	●	●	●	○	●				■			■	HPC	■	■		137
	N	4–5	3–20	●	●	●	○	●				■	■		■	HPC		■		138–142
	NF	4	3–20	●	●	●	○	●				■			■	HPC		■		143
	NR	4	3–20	●	●	●	○	●				■			■	HPC		■		144
	N	6	6–25	●	●	○	○	●			■				■			■		145
	N	2	3–20	●		●	○		○					■	■			■		146
	N	4	4–20	●	○	●	○							■	■			■		147
	N	4	6–20	●	○	●	○		○				■		■	HPC HFC		■		148
	N	5	4–16	●	●	●		●										■	□	149+150
S-Cut																				
	SC UNI	4	3–25	●	●	●	○	○	○		■	■	■		■	HPC		■		151–153
	SC UNI	5	6–20	●	●	●		○				■			■	HPC		■		154
	SC NR	4	3–20	●	●	●	○	○	○			■			■	HPC		■		155
3D Finish																				
	N	4	10	●	●	●	●	●	○	●					■			■		156
	N	3–4	6–16	●	●	●	●	●	○	●					■			■		157
	N	3	6–16	●	●	●	●	●	○	●					■			■		158
	N	2	10	●	●	●	●	●	○	●					■			■		159
	N	3	4–12	●	●	●	●	●							■			■		160

Overview High Performance Milling Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Performance
BlueLine																				
	H	2	0,2–3	●					●		■				■			■		161–163
	H	2	0,2–3	●					●					■	■			■		164–166
	H	2	0,4–3	●					●				■		■			■		167–169
	H	2	0,5–20	●					●			■			■			■		170
	H	4–6	1–20	●					●				■		■			■		171–173
	H	4–10	2–20	●					●		■		■		■			■		174+175
	H	2	0,1–20	○					●					■	■			■		176–179
	H	3	3–12	●					●					■	■			■		180
	H	4	2–20	○					●					■	■			■		181
	H	2	0,5–16	○					●				■		■			■		182–184
	H	5–8	4–16	●					●						■			■		185
Micro-milling tools																				
	N	2	0,2–2	●	●	●	●	●	○	○	■				■			■		186+187
	N	2	0,2–2	●	●	●	●	●	○	○				■	■			■		188–190
	N	2	0,5–2	●	●	●	●	●	○	○			■		■			■		191+192

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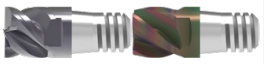
Overview High Performance Milling Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Performance
MultiLock – exchangeable head system																				
	N	4	12–25	●	○	●	○	●						◡					☐	193
	N	4–6	12–25	●	○	●	○	●					◡				✓		☐	193
	N	5–6	12–25	●	○	●		●					◡			HFC	✓		☐	194
	N	4	12–16	●	○	●	○												☐	194
MultiLock – Adapters and holders																				
																				195+196
MultiChange – exchangeable head system																				
	PCR	4	10–20	●	○	●	●						◡			HPC			☐	198
	W	3	10–20				●						◡						☐	198
	N	3–4	8–20	●		●						◡				HPC			☐	199
	N	4–6	8–20	●	○	●	●					◡							☐	199
	N	6	8–20	●	○	●					◡								☐	200
	N	4	10–20	●	○	●	●			○				◡					☐	200
	N	4	8–20	●	○	●	●			○			◡						☐	200
	N	6	8–20	●	○	●							◡			HFC	✓		☐	201
	N	4	8–20	●	○	●	●												☐	201
	N	4–6	10–20	●	○	●	●												☐	202

End Mills Overview

Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Standard
End Mills with Finishing Geometry																			
W	2	0,2–6,0				●					■			■			■		203+204
W	2	2,7–25				●			●	■	■	■		■	HPC			■	205–211
W	3	3–25				●				■		■		■	HPC			■	212–214
W	4	6–20				●				■				■	HPC			■	215+216
W	5–7	6–20				●				■				■	HPC			■	217
N	2	0,2–20	●	○	●	○	○	○	○	■	■			■			■	■	218–225
N	3	3–20	○	●	○	○	●		○	■				■				■	226
N	3	0,5–20	●	●	●	●	●	○	●	■	■			■			■	■	227–233
N	4	1,5–25	●	○	●	○	○	○	○	■	■			■	HPC		■	■	234–237
N	4	2–12	○	●	○	●	●		●			■		■	HPC		■		238
N	4	3–20	●	○	●	○	○	○	○			■		■			■		239
N	4	3–20	●	●	●	○	●			■	■	■		■	HPC		■		240–245
N	6–8	4–32	●	●	●	●	●		●	■	■	■		■			■	■	246–249
N	8–16	6–20	○	●	○	●	●		●	■				■			■		250
H	4	4–20	●					●			■	■		■			■		251
H	6–8	4–25	●	●	○	●	●	●	●	■	■			■			■		252+253
End Mills with Roughing and Finishing Geometry																			
WF	4	5–20				●	○		●		■			■			■		254
NTR	3–4	6–20	●	○	●	○					■			■			■		255

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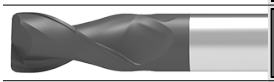
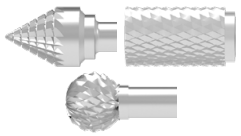
Overview of end milling, ball-nosed and torus cutters

Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Standard
End Mills with Roughing Geometry																			
NR	4–6	4–25	●	●	●	○	●		○		■			■	HPC	■	■		256–258
HR	4–5	6–25	●	●	●						■			■		■	■		259–261
Ball Nosed End Mills with Finishing Geometry																			
W	2	0,5–12				●	○		●				■	■				■	262
W	2	0,2–6				●							■	■			■		263+264
W	2	3–20				●							■	■	HPC			■	265
W	2	0,5–12				●			●				■	■			■		266+267
N	2	0,1–20	●	○	●	○	○	○	○				■	■			■	■	268–273
N	2	1–12	●	○	●	○	○	○	○				■	■			■		274
N	2	3–20	●	●	○	●	○						■	■	HPC		■		275
N	4	3–20	●	●	●	●	●	○	●				■	■	HPC		■		276–278
H	2	0,2–20	●	○	●	○	○	○	○				■	■			■		279–280
Torus Milling Cutters with Finishing Geometry																			
W	2	0,2–12				●						■		■			■		281–284
 W	2	2–12				●			●			■		■			■		285
W	4	4–12				●			●			■		■			■		286+287
N	2	0,5–16	●	○	●	○	○	○	○			■		■			■		288
H	2	0,4–12	●	○	●	○	○	○	○			■		■			■		289–292
H	4–8	3–16	●		○			●				■		■			■		293

Overview Special Milling Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Standard
Intermediate Size Torus End Mills																				
	H	4	7–17	○	●	○	●	●		●			■		■			■		294
Form / Chamfering and Die Sinking / Deburring Cutters																				
	W	1	3–6	○	○	○	●	○		●									□	295
	N	4	4–12	●	○	●	○	○	○	●								■	□	296
	N	4	3–12	●	○	●	○	○	○	●								■	□	297
	N	4	6–10	●	○	●	○	○	○	●								■		298
	N	6–10	11–40	●	○	●												■		299
			3–16																□	300+301
Circular saw blades																				
		24–160	15–200	●	●	●	●	●		●								■		302–304
		20–80	15–200	●	●	●	●	●		●								■		305–307
Cylindrical shank adapter for circular saw blades																				
																				308

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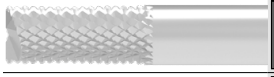
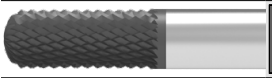
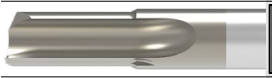
Overview Special Milling Cutters

Plastics-GFK-CFK- Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Standard
	W		2–20							●									☐	310
	W		2–20							●									☐	311
	W		2–20							●								☐		312
	W		5–16							●	☐							☐		313
	W		6–24							●	☐							☐		314
	W	2	2–12				●			●								☐		315
	W	1	1,5–16,0				●			●									☐	316
	W	1	1,5–12,0				●			●								☐		317
	W	2	2–12				●			●								☐		318
	W	3	3–12				●			●				☐				☐		319
	N	2	2–12	●	○	●	○	○		●									☐	320

MonsterMill – End milling cutter

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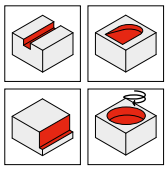
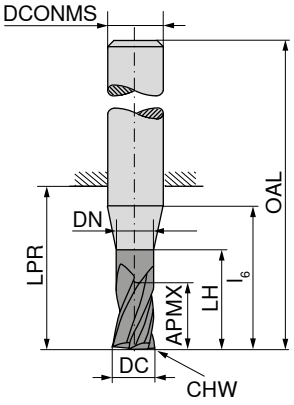
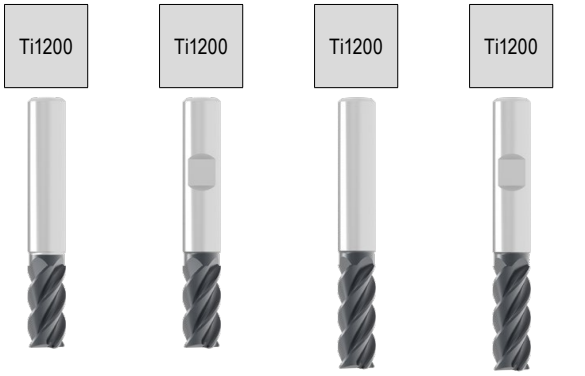
SCR | λ_s = 35° 38° γ_s = 7° | HPC







DIN 6527 | DIN 6527 | DIN 6527 | DIN 6527

DC $_{f8}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	CHW mm	ZEFP	52 600 ...	52 601 ...	52 602 ...	52 603 ...
3,0	5	2,9	9	14	14	50	6	0,07	4	030	030		
3,0	8	2,9	14	20	22	58	6	0,07	4			030	030
3,5	5	3,4	9	14	14	50	6	0,07	4	035	035		
3,5	8	3,4	14	20	22	58	6	0,07	4			035	035
4,0	8	3,8	12	18	18	54	6	0,07	4	040	040		
4,0	11	3,8	18	20	22	58	6	0,07	4			040	040
4,5	9	4,3	12	18	18	54	6	0,07	4	045	045		
4,5	13	4,3	18	20	22	58	6	0,07	4			045	045
5,0	9	4,8	16	18	18	54	6	0,07	4	050	050		
5,0	13	4,8	19	20	22	58	6	0,07	4			050	050
5,5	9	5,3	16	18	18	54	6	0,07	4	055	055		
5,5	13	5,3	19	20	22	58	6	0,07	4			055	055
6,0	10	5,8		16	18	54	6	0,07	4	060	060		
6,0	13	5,8		20	22	58	6	0,07	4			060	060
6,5	12	6,3	18	20	23	59	8	0,07	4	065	065		
6,5	19	6,3	23	25	28	64	8	0,07	4			065	065
7,0	12	6,8	18	20	23	59	8	0,07	4	070	070		
7,0	19	6,8	23	25	28	64	8	0,07	4			070	070
7,5	12	7,3	18	20	23	59	8	0,12	4	075	075		
7,5	19	7,3	23	25	28	64	8	0,12	4			075	075
8,0	12	7,7		20	23	59	8	0,12	4	080	080		
8,0	19	7,7		25	28	64	8	0,12	4			080	080
8,5	15	8,2	22	24	27	67	10	0,20	4	085	085		
8,5	22	8,2	28	30	33	73	10	0,20	4			085	085
9,0	15	8,7	22	24	27	67	10	0,20	4	090	090		
9,0	22	8,7	28	30	33	73	10	0,20	4			090	090
9,5	15	9,2	22	24	27	67	10	0,20	4	095	095		
9,5	22	9,2	28	30	33	73	10	0,20	4			095	095
10,0	15	9,5		24	27	67	10	0,20	4	100	100		
10,0	22	9,5		30	33	73	10	0,20	4			100	100
11,0	18	10,5	24	26	28	73	12	0,20	4	110	110		
11,0	26	10,5	32	35	39	84	12	0,20	4			110	110
11,5	18	11,0	24	26	28	73	12	0,20	4	115	115		
11,5	26	11,0	32	35	39	84	12	0,20	4			115	115
12,0	18	11,5		26	28	73	12	0,20	4	120	120		
12,0	26	11,5		35	39	84	12	0,20	4			120	120
14,0	21	13,5		28	30	75	14	0,20	4	140	140		
14,0	26	13,5		35	39	84	14	0,20	4			140	140
15,0	24	14,5	30	32	35	83	16	0,20	4	150	150		
15,0	32	14,5	38	40	45	93	16	0,20	4			150	150
P										●	●	●	●
M										○	○	○	○
K										●	●	●	●
N										○	○	○	○
S										○	○	○	○
H										○	○	○	○
O										○	○	○	○

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1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

→ v_c/f_z Page 322+323

Continued on next page

MonsterMill – End milling cutter

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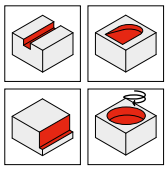
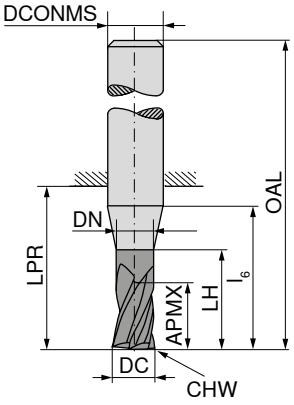
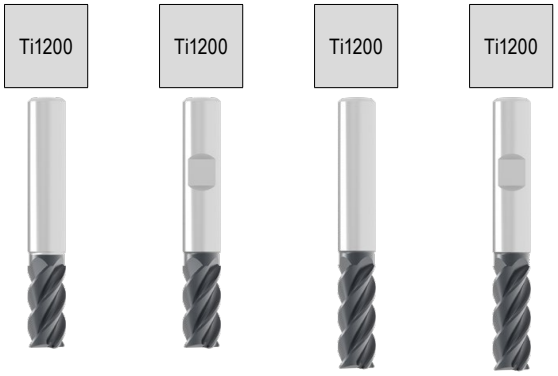
SCR | λ_s = 35° 38° γ_s = 7° | HPC







DIN 6527 | DIN 6527 | DIN 6527 | DIN 6527

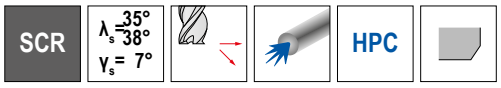
DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	52 600 ...	52 601 ...	52 602 ...	52 603 ...
16,0	24	15,5		32	35	83	16	0,20	4	**160**	**160**		
16,0	24	15,5		32	35	83	16	0,20	5	**161** [1]	**161** [1]		
16,0	32	15,5		40	45	93	16	0,20	5			**161** [1]	**161** [1]
16,0	32	15,5		40	45	93	16	0,20	4			**160**	**160**
17,0	32	16,5	48	50	52	100	18	0,20	4				**170**
18,0	27	17,5		34	37	85	18	0,20	5	**181** [1]	**181** [1]		
18,0	27	17,5		34	37	85	18	0,20	4	**180**	**180**		
18,0	32	17,5		50	52	100	18	0,20	5			**181** [1]	**181** [1]
18,0	32	17,5		50	52	100	18	0,20	4			**180**	**180**
19,0	38	18,5	48	50	54	104	20	0,30	4				**190**
19,5	38	19,0	48	50	54	104	20	0,30	4				**195**
20,0	30	19,5		40	43	93	20	0,30	5	**201** [1]	**201** [1]		
20,0	30	19,5		40	43	93	20	0,30	4	**200**	**200**		
20,0	38	19,5		50	54	104	20	0,30	4			**200**	**200**
20,0	38	19,5		50	54	104	20	0,30	5			**201** [1]	**201** [1]
P										●	●	●	●
M										○	○	○	○
K										●	●	●	●
N										○	○	○	○
S										○	○	○	○
H										○	○	○	○
O										○	○	○	○

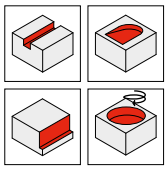
1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

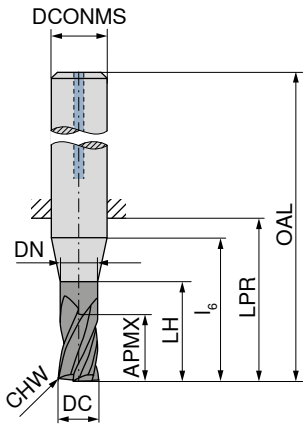
→ v_c/f_z Page 322+323

MonsterMill – End milling cutter

The specialist for machining steel and cast iron







Ti1200

DIN 6527

52 606 ...

DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	
3	8	2,9	14	20	22	58	6	0,07	4	**030**
4	11	3,8	18	20	22	58	6	0,07	4	**040**
5	13	4,8	19	20	22	58	6	0,07	4	**050**
6	13	5,8		20	22	58	6	0,07	4	**060**
8	19	7,7		25	28	64	8	0,12	4	**080**
10	22	9,5		30	33	73	10	0,20	4	**100**
12	26	11,5		35	39	84	12	0,20	4	**120**
16	32	15,5		40	45	93	16	0,20	4	**160**
20	38	19,5		50	54	104	20	0,30	4	**200**

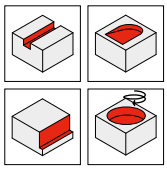
P	●
M	○
K	●
N	○
S	○
H	○
O	○

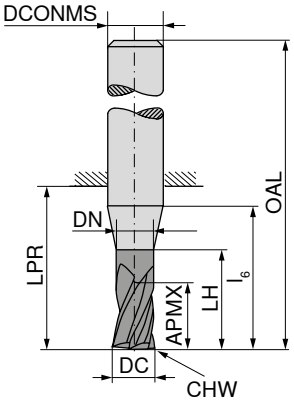
→ v_c/f_z Page 322+323

MonsterMill – End milling cutter

The specialist for machining steel and cast iron

SCR | λ_s = 35° 38° γ_s = 7° | HPC





Factory standard

Factory standard

DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	52 604 ...	52 605 ...
3	5	2,9	14	20	22	58	6	0,07	4	**030**	
3	5	2,9	19	23	26	62	6	0,07	4		**030**
4	8	3,8	18	20	22	58	6	0,07	4	**040**	
4	8	3,8	23	25	26	62	6	0,07	4		**040**
5	9	4,8	19	20	22	58	6	0,07	4	**050**	
5	9	4,8	24	25	26	62	6	0,07	4		**050**
6	10	5,8		20	22	58	6	0,07	4	**060**	
6	10	5,8		25	26	62	6	0,07	4		**060**
8	12	7,7		25	28	64	8	0,12	4	**080**	
8	12	7,7		30	32	68	8	0,12	4		**080**
10	15	9,5		30	33	73	10	0,20	4	**100**	
10	15	9,5		35	40	80	10	0,20	4		**100**
12	18	11,5		35	39	84	12	0,20	4	**120**	
12	18	11,5		45	48	93	12	0,20	4		**120**
14	21	13,5		35	39	84	14	0,20	4	**140**	
14	21	13,5		50	54	99	14	0,20	4		**140**
16	24	15,5		40	45	93	16	0,20	4	**160**	
16	24	15,5		40	45	93	16	0,20	5	**161** [1]	
16	24	15,5		55	60	108	16	0,20	4		**160**
16	24	15,5		55	60	108	16	0,20	5		**161** [1]
18	27	17,5		50	52	100	18	0,20	4	**180**	
18	27	17,5		50	52	100	18	0,20	5	**181** [1]	
18	27	17,5		60	66	114	18	0,20	4		**180**
18	27	17,5		60	66	114	18	0,20	5		**181** [1]
20	30	19,5		50	54	104	20	0,30	4	**200**	
20	30	19,5		50	54	104	20	0,30	5	**201** [1]	
20	30	19,5		70	76	126	20	0,30	4		**200**
20	30	19,5		70	76	126	20	0,30	5		**201** [1]
P										●	●
M										○	○
K										●	●
N										○	○
S										○	○
H										○	○
O										○	○

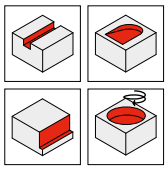
1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

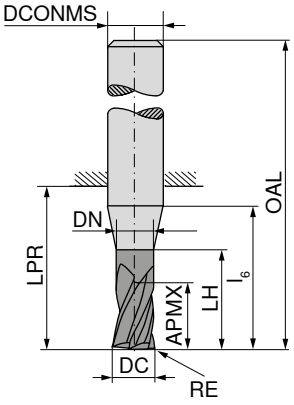
→ v_c/f_z Page 322–325

MonsterMill – End milling cutter with corner radius

The specialist for machining steel and cast iron

SCR | λ_s = 35° 38° γ_s = 7° | HPC





Ti1200

Factory standard

52 607 ...

DC $_{f8}$ mm	RE $_{\pm 0,01}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP	
3	0,10	8	2,9	14	20	22	58	6	4	**030**
3	0,30	8	2,9	14	20	22	58	6	4	**031**
3	0,50	8	2,9	14	20	22	58	6	4	**032**
4	0,10	11	3,8	18	20	22	58	6	4	**040**
4	0,40	11	3,8	18	20	22	58	6	4	**041**
4	0,50	11	3,8	18	20	22	58	6	4	**042**
5	0,10	13	4,8	19	20	22	58	6	4	**050**
5	0,50	13	4,8	19	20	22	58	6	4	**051**
5	1,00	13	4,8	19	20	22	58	6	4	**052**
6	0,10	13	5,8		20	22	58	6	4	**060**
6	0,50	13	5,8		20	22	58	6	4	**061**
6	1,00	13	5,8		20	22	58	6	4	**062**
8	0,15	19	7,7		25	28	64	8	4	**080**
8	0,50	19	7,7		25	28	64	8	4	**081**
8	1,00	19	7,7		25	28	64	8	4	**082**
8	2,00	19	7,7		25	28	64	8	4	**083**
10	0,15	22	9,5		30	33	73	10	4	**100**
10	0,50	22	9,5		30	33	73	10	4	**101**
10	1,00	22	9,5		30	33	73	10	4	**102**
10	1,50	22	9,5		30	33	73	10	4	**103**
10	2,00	22	9,5		30	33	73	10	4	**104**
12	0,20	26	11,5		35	39	84	12	4	**120**
12	0,50	26	11,5		35	39	84	12	4	**121**
12	1,00	26	11,5		35	39	84	12	4	**122**
12	1,50	26	11,5		35	39	84	12	4	**123**
12	2,00	26	11,5		35	39	84	12	4	**124**
14	1,00	26	13,5		35	39	84	14	4	**140**
16	0,30	32	15,5		40	45	93	16	4	**160**
16	0,50	32	15,5		40	45	93	16	4	**161**
16	1,00	32	15,5		40	45	93	16	4	**162**
16	2,00	32	15,5		40	45	93	16	4	**163**
16	4,00	32	15,5		40	45	93	16	4	**164**
20	0,30	38	19,5		50	54	104	20	4	**200**
20	0,50	38	19,5		50	54	104	20	4	**201**
20	1,00	38	19,5		50	54	104	20	4	**202**
20	2,00	38	19,5		50	54	104	20	4	**203**

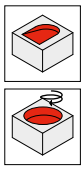
P	●
M	○
K	●
N	○
S	○
H	○
O	○

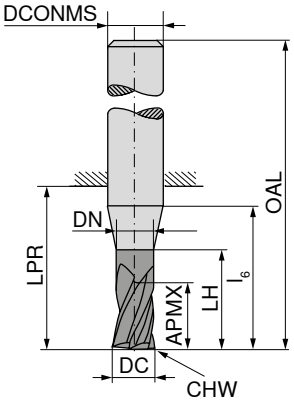
→ v_c/f_z Page 322+323

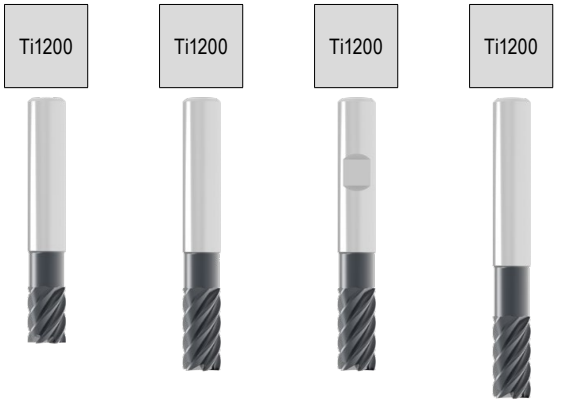
MonsterMill – End milling cutter

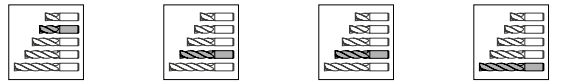
The specialist for machining steel and cast iron

SCR | λ_s = 35° 38° γ_s = 7° | HPC









										DIN 6527	DIN 6527	DIN 6527	Factory standard
										52 608 ...	52 608 ...	52 608 ...	52 608 ...
DC $_{f8}$ **mm**	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	CHW mm	ZEFP				
5	9	4,8	16	18	18	54	6	0,12	6	**050**			
5	13	4,8	19	20	22	58	6	0,12	6		**051**		
5	13	4,8	24	25	26	62	6	0,12	6				**052**
6	10	5,8		16	18	54	6	0,12	6	**060**			
6	13	5,8		20	22	58	6	0,12	6		**061**		
6	13	5,8		25	26	62	6	0,12	6				**062**
8	12	7,7		20	23	59	8	0,12	6	**080**			
8	19	7,7		25	28	64	8	0,12	6		**081**		
8	19	7,7		30	32	68	8	0,12	6				**082**
10	15	9,5		24	27	67	10	0,20	6	**100**			
10	22	9,5		30	33	73	10	0,20	6		**101**	**103**	
10	22	9,5		35	40	80	10	0,20	6				**102**
12	18	11,5		26	28	73	12	0,20	6	**120**			
12	26	11,5		35	39	84	12	0,20	6		**121**	**123**	
12	26	11,5		45	48	93	12	0,20	6				**122**
16	24	15,5		32	35	83	16	0,20	6	**160**			
16	32	15,5		40	45	93	16	0,20	6		**161**	**163**	
16	32	15,5		55	60	108	16	0,20	6				**162**
20	30	19,5		40	43	93	20	0,30	6	**200**			
20	38	19,5		50	54	104	20	0,30	6		**201**	**203**	
20	38	19,5		70	76	126	20	0,30	6				**202**
P										●	●	●	●
M										○	○	○	○
K										●	●	●	●
N										○	○	○	○
S										○	○	○	○
H										○	○	○	○
O										○	○	○	○

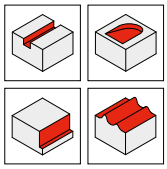
→ v_c/f_z Page 322–325

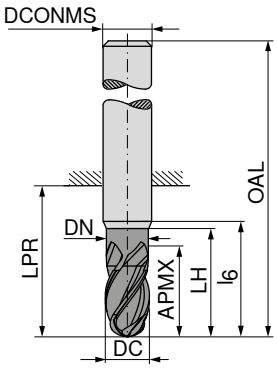
MonsterMill – Ball Nosed Cutter

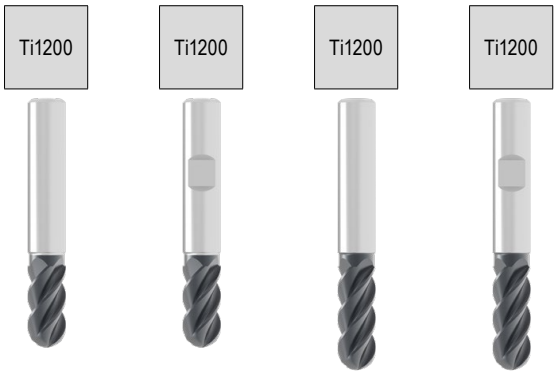
The specialist for machining steel and cast iron

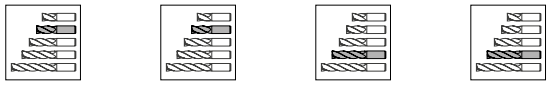
▲ Radius accuracy: - 0,015 mm for Ø ≤ 6,0 mm / - 0,02 mm for Ø > 6,0 mm

SCR | λ_s = 35° γ_s = 38° γ_s = 7° | HPC









DIN 6527 | DIN 6527 | DIN 6527 | DIN 6527

									52 611 ...		52 611 ...		52 612 ...		52 612 ...	
DC $_{f8}$ **mm**	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP								
3	5	2,9	9	14	14	50	6	3		**030**						
3	8	2,9	14	20	22	58	6	3						**030**		
4	8	3,8	12	18	18	54	6	3		**040**						
4	11	3,8	18	20	22	58	6	3						**040**		
5	9	4,8	16	18	18	54	6	3		**050**						
5	13	4,8	19	20	22	58	6	3						**050**		
6	10	5,8		16	18	54	6	4		**060**		**061**				
6	13	5,8		20	22	58	6	4						**060**		**061**
8	12	7,7		20	23	59	8	4		**080**		**081**				
8	19	7,7		25	28	64	8	4						**080**		**081**
10	15	9,5		24	27	67	10	4		**100**		**101**				
10	22	9,5		30	33	73	10	4						**100**		**101**
12	18	11,5		26	28	73	12	4		**120**		**121**				
12	26	11,5		35	39	84	12	4						**120**		**121**
16	24	15,5		32	35	83	16	4		**160**		**161**				
16	32	15,5		40	45	93	16	4						**160**		**161**

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

→ v_c/f_z Page 322+323

14

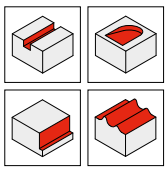
MonsterMill – Torus Face Milling Cutter

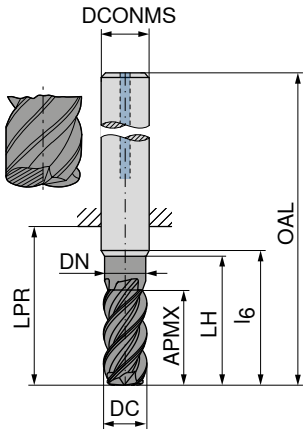
The specialist for machining steel and cast iron

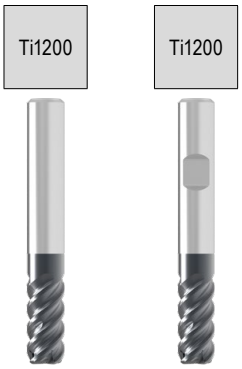
▲ r_{3D} = programmed corner radius

▲ For HFC machining: APMX does not correspond to the maximum cutting depth

SCR | λ_s=45° γ_s= 7° | HFC | HPC | ≤ 60 HRC







DIN 6527 | DIN 6527

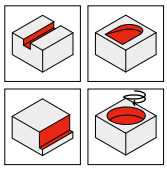
DC -0.04 mm	r_{3D} mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	l_6 mm	DCONMS h5 mm	T max. mm	ZEFP	52 609 ...		52 609 ...	
3	0,4	3	2,9	14,00	21	57	20	6	0,10	4	**030**		**031**	
4	0,5	4	3,8	18,00	21	57	20	6	0,15	4	**040**		**041**	
5	0,6	5	4,8	18,00	21	57	20	6	0,20	4	**050**		**051**	
6	0,8	13	5,8	19,90	21	57	20	6	0,20	4	**060**		**061**	
8	1,0	19	7,7	24,85	27	63	25	8	0,30	4	**080**		**081**	
10	1,2	22	9,5	29,75	32	72	30	10	0,40	4	**100**		**101**	
12	1,6	26	11,5	34,75	38	83	35	12	0,40	4	**120**		**121**	
16	2,2	32	15,5	39,75	44	92	40	16	0,50	4	**160**		**161**	
P											●		●	
M														
K											●		●	
N														
S														
H											○		○	
O														

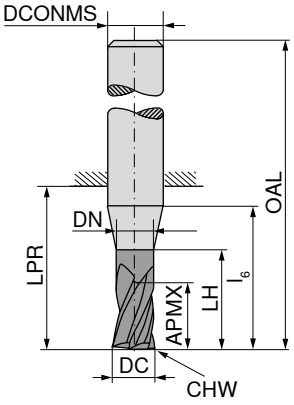
→ v_c/f_z Page 326–328

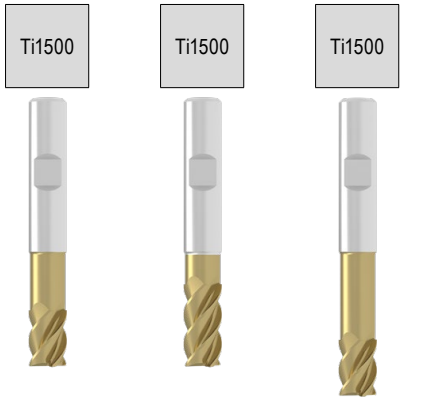
MonsterMill – End milling cutter

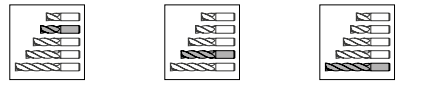
The specialist for machining stainless steel

ICR | λ_s=40° α_s=38° γ_s=10° | HPC









	DIN 6527	Factory standard	Factory standard
	52 784 ...	52 784 ...	52 784 ...

DC $_{e8}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP			
1,5	2,3	1,4	6	14	21	57	6	0,04	3	**017**		
2,0	3,0	1,9	8	15	21	57	6	0,04	3	**022**		
2,5	3,8	2,4	10	16	21	57	6	0,07	3	**027**		
3,0	5,0	2,9	14	18	21	57	6	0,07	3	**032**		
3,0	8,0	2,9	14	18	21	57	6	0,07	3		**034**	
3,0	5,0	2,9	19	23	26	62	6	0,07	3			**036**
4,0	8,0	3,8	18	20	21	57	6	0,07	3	**042**		
4,0	11,0	3,8	18	20	21	57	6	0,07	3		**044**	
4,0	8,0	3,8	23	25	26	62	6	0,07	3			**046**
5,0	9,0	4,8	19	20	21	57	6	0,12	3	**052**		
5,0	13,0	4,8	19	20	21	57	6	0,12	3		**054**	
5,0	9,0	4,8	24	25	26	62	6	0,12	3			**056**
6,0	10,0	5,8	20		21	57	6	0,12	4	**062**		
6,0	13,0	5,8	20		21	57	6	0,12	4		**064**	
6,0	10,0	5,8	25		26	62	6	0,12	4			**066**
8,0	12,0	7,7	25		27	63	8	0,12	4	**082**		
8,0	19,0	7,7	25		27	63	8	0,12	4		**084**	
8,0	12,0	7,7	30		32	68	8	0,12	4			**086**
10,0	15,0	9,5	30		32	72	10	0,20	4	**102**		
10,0	22,0	9,5	30		32	72	10	0,20	4		**104**	
10,0	15,0	9,5	35		40	80	10	0,20	4			**106**
12,0	18,0	11,5	35		38	83	12	0,20	4	**122**		
12,0	26,0	11,5	35		38	83	12	0,20	4		**124**	
12,0	18,0	11,5	45		48	93	12	0,20	4			**126**
14,0	21,0	13,5	35		38	83	14	0,20	4	**142**		
14,0	26,0	13,5	35		38	83	14	0,20	4		**144**	
14,0	21,0	13,5	50		54	99	14	0,20	4			**146**
16,0	24,0	15,5	40		44	92	16	0,20	4	**161**		
16,0	24,0	15,5	40		44	92	16	0,20	5	**162** [1]		
16,0	32,0	15,5	40		44	92	16	0,20	4		**163**	
16,0	32,0	15,5	40		44	92	16	0,20	5		**164** [1]	
16,0	24,0	15,5	55		60	108	16	0,20	4			**165**
16,0	24,0	15,5	55		60	108	16	0,20	5			**166** [1]
18,0	27,0	17,5	40		44	92	18	0,20	4	**181**		
18,0	27,0	17,5	40		44	92	18	0,20	5	**182** [1]		
18,0	32,0	17,5	40		44	92	18	0,20	4		**183**	
18,0	32,0	17,5	40		44	92	18	0,20	5		**184** [1]	
18,0	27,0	17,5	60		66	114	18	0,20	4			**185**
18,0	27,0	17,5	60		66	114	18	0,20	5			**186** [1]
20,0	30,0	19,5	50		54	104	20	0,30	4	**201**		
20,0	30,0	19,5	50		54	104	20	0,30	5	**202** [1]		
20,0	38,0	19,5	50		54	104	20	0,30	4		**203**	
20,0	38,0	19,5	50		54	104	20	0,30	5		**204** [1]	
20,0	30,0	19,5	70		76	126	20	0,30	4			**205**
20,0	30,0	19,5	70		76	126	20	0,30	5			**206** [1]
P										○	○	○
M										●	●	●
K										○	○	○
N										○	○	○
S										●	●	●
H										○	○	○
O										○	○	○

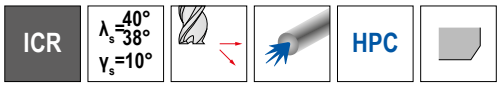
1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

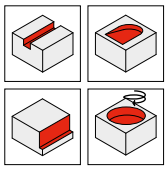
→ v_c/f_z Page 330–335

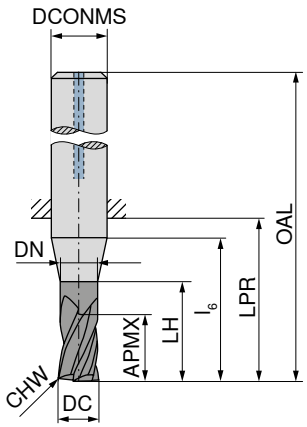
14

MonsterMill – End milling cutter

The specialist for machining stainless steel







Ti1500

DIN 6527

52 786 ...

DC e8 mm	APMX mm	DN mm	LH mm	l6 mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
3	8	2,9	14	18	21	57	6	0,07	3	**034**
4	11	3,8	18	20	21	57	6	0,07	3	**044**
5	13	4,8	19	20	21	57	6	0,12	3	**054**
6	13	5,8	20		21	57	6	0,12	4	**064**
8	19	7,7	25		27	63	8	0,12	4	**084**
10	22	9,5	30		32	72	10	0,20	4	**104**
12	26	11,5	35		38	83	12	0,20	4	**124**
14	26	13,5	35		38	83	14	0,20	4	**144**
16	32	15,5	40		44	92	16	0,20	4	**163**
16	32	15,5	40		44	92	16	0,20	5	**164** 1)
18	32	17,5	40		44	92	18	0,20	4	**183**
18	32	17,5	40		44	92	18	0,20	5	**184** 1)
20	38	19,5	50		54	104	20	0,30	4	**203**
20	38	19,5	50		54	104	20	0,30	5	**204** 1)

P	○
M	●
K	○
N	○
S	●
H	○
O	○

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

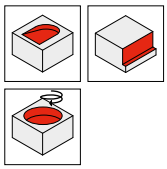
→ v_c/f_z Page 331–333

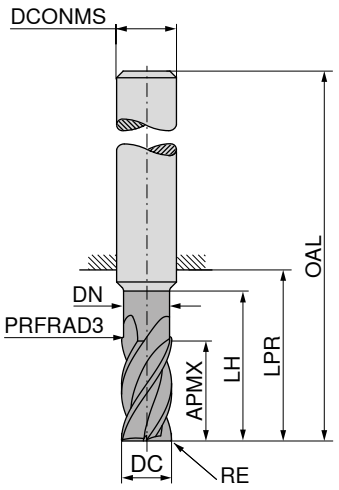
MonsterMill – End milling cutter with corner radius

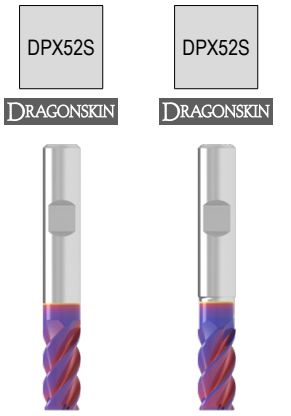
The specialist for machining titanium and titanium alloys

▲ PRFRAD3 = 1 mm

TCR | λ_s=40° γ_s=10° | HPC







Factory standard

Factory standard

DC $_{e8}$ mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP	52 504 ...	52 506 ...
4	0,1	11		14	21	57	6	4	**04000**	
4	0,1	11	3,8	17	21	57	6	5		**04000**[1)]
5	0,1	13		16	21	57	6	4	**05000**	
5	0,1	13	4,8	19	21	57	6	5		**05000**[1)]
6	0,1	13			21	57	6	4	**06000**	
6	0,1	13	5,8	19	21	57	6	5		**06000**[1)]
8	0,2	21			27	63	8	4	**08000**	
8	0,2	21	7,7	25	27	63	8	5		**08000**[1)]
10	0,2	22			32	72	10	4	**10000**	
10	0,2	22	9,7	30	32	72	10	5		**10000**[1)]
12	0,2	26			38	83	12	4	**12000**	
12	0,2	26	11,6	36	38	83	12	5		**12000**[1)]
16	0,3	36			44	92	16	4	**16000**	
16	0,3	36	15,5	42	44	92	16	5		**16000**[1)]
20	0,3	41			54	104	20	4	**20000**	
20	0,3	41	19,5	52	54	104	20	5		**20000**[1)]

P	○	○
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O		

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

→ v_c/f_z Page 336+337

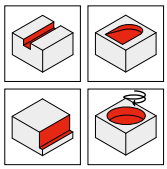
14

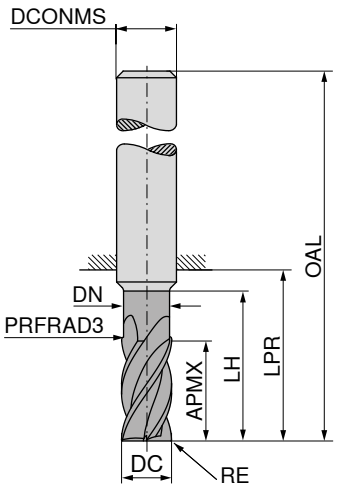
MonsterMill – End milling cutter with corner radius

The specialist for machining titanium and titanium alloys

▲ PRFRAD3 = 1 mm

TCR | λ_s=40° γ_s=10° | HPC





Factory standard | Factory standard

DC e8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	52 508 ...	52 508 ...
4	0,4	8,5	3,8	20	26	62	6	4		04104
4	0,5	8,5	3,8	20	26	62	6	4		04105
4	0,8	8,5	3,8	20	26	62	6	4		04108
4	0,2	11,0		14	21	57	6	4	04002	
4	0,4	11,0		14	21	57	6	4	04004	
4	0,5	11,0		14	21	57	6	4	04005	
5	0,5	10,5	4,8	25	34	70	6	4		05105
5	0,8	10,5	4,8	25	34	70	6	4		05108
5	0,5	13,0		16	21	57	6	4	05005	
5	1,0	13,0		16	21	57	6	4	05010	
6	0,4	13,0			21	57	6	4	06004	
6	0,5	13,0			21	57	6	4	06005	
6	0,6	13,0			21	57	6	4	06006	
6	0,6	13,0	5,8	30	34	70	6	4		06106
6	0,8	13,0			21	57	6	4	06008	
6	0,8	13,0	5,8	30	34	70	6	4		06108
6	1,0	13,0			21	57	6	4	06010	
6	1,0	13,0	5,8	30	34	70	6	4		06110
6	1,5	13,0			21	57	6	4	06015	
8	0,8	17,0	7,7	40	44	80	8	4		08108
8	1,0	17,0	7,7	40	44	80	8	4		08110
8	1,5	17,0	7,7	40	44	80	8	4		08115
8	2,0	17,0	7,7	40	44	80	8	4		08120
8	0,5	21,0			27	63	8	4	08005	
8	0,8	21,0			27	63	8	4	08008	
8	1,0	21,0			27	63	8	4	08010	
8	1,2	21,0			27	63	8	4	08012	
8	1,5	21,0			27	63	8	4	08015	
8	2,0	21,0			27	63	8	4	08020	
10	0,5	21,0	9,7	50	54	94	10	4		10105
10	1,0	21,0	9,7	50	54	94	10	4		10110
10	1,5	21,0	9,7	50	54	94	10	4		10115
10	2,0	21,0	9,7	50	54	94	10	4		10120
10	0,5	22,0			32	72	10	4	10005	
10	1,0	22,0			32	72	10	4	10010	
10	1,2	22,0			32	72	10	4	10012	
10	1,5	22,0			32	72	10	4	10015	
10	1,6	22,0			32	72	10	4	10016	
10	2,0	22,0			32	72	10	4	10020	
12	0,5	25,0	11,6	60	65	110	12	4		12105
12	1,0	25,0	11,6	60	65	110	12	4		12110

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→ v_c/f_z Page 336+337

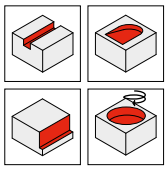
Continued on next page

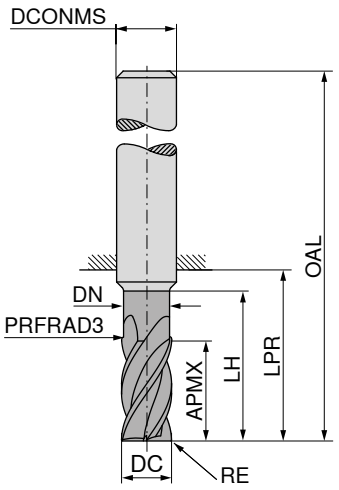
MonsterMill – End milling cutter with corner radius

The specialist for machining titanium and titanium alloys

▲ PRFRAD3 = 1 mm

TCR | λ_s=40° γ_s=10° | HPC





Factory standard | Factory standard

DC e8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	52 508 ...	52 508 ...
12	1,5	25,0	11,6	60	65	110	12	4		12115
12	2,0	25,0	11,6	60	65	110	12	4		12120
12	3,0	25,0	11,6	60	65	110	12	4		12130
12	4,0	25,0	11,6	60	65	110	12	4		12140
12	0,5	26,0			38	83	12	4	12005	
12	1,0	26,0			38	83	12	4	12010	
12	1,2	26,0			38	83	12	4	12012	
12	1,5	26,0			38	83	12	4	12015	
12	1,6	26,0			38	83	12	4	12016	
12	2,0	26,0			38	83	12	4	12020	
12	2,5	26,0			38	83	12	4	12025	
12	3,0	26,0			38	83	12	4	12030	
14	1,0	29,0	13,6	70	75	120	14	4		14110
14	2,0	29,0	13,6	70	75	120	14	4		14120
14	3,0	29,0	13,6	70	75	120	14	4		14130
14	4,0	29,0	13,6	70	75	120	14	4		14140
16	1,0	33,0	15,5	80	84	132	16	4		16110
16	2,0	33,0	15,5	80	84	132	16	4		16120
16	3,0	33,0	15,5	80	84	132	16	4		16130
16	4,0	33,0	15,5	80	84	132	16	4		16140
16	1,0	36,0			44	92	16	4	16010	
16	1,6	36,0			44	92	16	4	16016	
16	2,0	36,0			44	92	16	4	16020	
16	2,5	36,0			44	92	16	4	16025	
16	3,0	36,0			44	92	16	4	16030	
16	3,2	36,0			44	92	16	4	16032	
16	4,0	36,0			44	92	16	4	16040	
18	1,0	38,0	17,5	90	94	142	18	4		18110
18	2,0	38,0	17,5	90	94	142	18	4		18120
18	3,0	38,0	17,5	90	94	142	18	4		18130
18	4,0	38,0	17,5	90	94	142	18	4		18140
20	2,0	41,0			54	104	20	4	20020	
20	3,0	41,0			54	104	20	4	20030	
20	4,0	41,0			54	104	20	4	20040	
20	5,0	41,0			54	104	20	4	20050	
20	6,3	41,0			54	104	20	4	20063	
20	1,0	42,0	19,5	100	104	154	20	4		20110
20	2,0	42,0	19,5	100	104	154	20	4		20120
20	3,0	42,0	19,5	100	104	154	20	4		20130
20	4,0	42,0	19,5	100	104	154	20	4		20140

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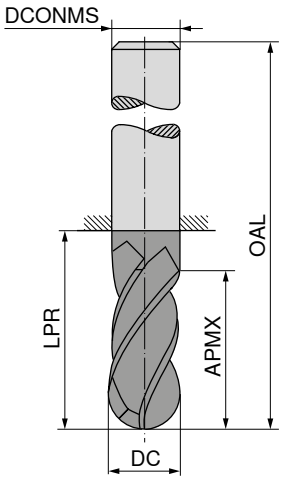
→ v_c/f_z Page 336+337

14

MonsterMill – Ball Nosed Cutter

The specialist for machining titanium and titanium alloys

TCR | λ_s=40° γ_s=10°



DPX52S DRAGONSKIN

DPX52S DRAGONSKIN

Factory standard

Factory standard

DC $_{e8}$ mm	APMX mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP	52 514 ...	52 514 ...
2	4	18	54	6	4	**02000**	
2	4	44	80	6	4		**02100**
3	5	18	54	6	4	**03000**	
3	5	44	80	6	4		**03100**
4	8	18	54	6	4	**04000**	
4	8	44	80	6	4		**04100**
5	9	18	54	6	4	**05000**	
5	9	44	80	6	4		**05100**
6	10	18	54	6	4	**06000**	
6	10	44	80	6	4		**06100**
8	12	22	58	8	4	**08000**	
8	12	64	100	8	4		**08100**
10	14	26	66	10	4	**10000**	
10	14	60	100	10	4		**10100**
12	16	28	73	12	4	**12000**	
12	16	55	100	12	4		**12100**
16	20	34	82	16	4	**16000**	
16	20	52	100	16	4		**16100**
P						○	○
M						○	○
K							
N							
S						●	●
H							
O							

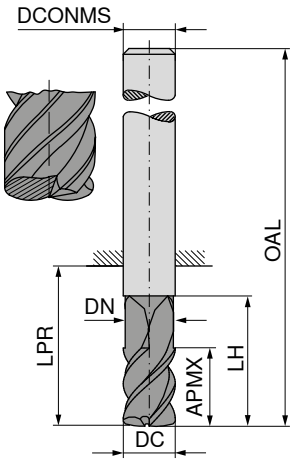
→ v_c/f_z Page 338+339

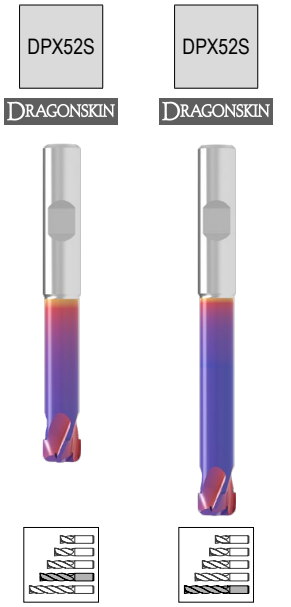
MonsterMill – Torus Face Milling Cutter

The specialist for machining titanium and titanium alloys

▲ r_{3D} = programmed corner radius
▲ APMX does not correspond to the maximum cutting depth

TCR | λ_s=15° γ_s=10° | HFC | HPC





DIN 6527 | DIN 6527

DC e8 mm	r_{3D} mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	52 512 ...	52 512 ...
2	0,3	1,5	1,7	13	18	54	6	2	02000	
2	0,3	1,5	1,7	18	39	75	6	2		02100
3	0,3	1,5	2,7	15	18	54	6	2	03000	
3	0,3	1,5	2,7	20	39	75	6	2		03100
4	0,5	2,5	3,6	16	22	58	6	2	04000	
4	0,5	2,5	3,6	24	49	85	6	2		04100
5	0,5	3,5	4,6	18	29	65	6	4	05000	
5	0,5	3,5	4,6	28	64	100	6	4		05100
6	1,0	3,5	5,2	20	29	65	6	4	06000	
6	1,0	3,5	5,2	28	64	100	6	4		06100
8	1,5	4,8	7,0	24	34	70	8	5	08000	
8	1,5	4,8	7,0	40	64	100	8	5		08100
10	2,0	5,8	9,0	26	45	85	10	5	10000	
10	2,0	5,8	9,0	48	60	100	10	5		10100
12	2,0	6,8	11,0	30	48	93	12	5	12000	
12	2,0	6,8	11,0	56	75	120	12	5		12100
16	2,5	8,8	14,5	35	52	100	16	5	16000	
16	2,5	8,8	14,5	65	102	150	16	5		16100
P									○	○
M									○	○
K										
N										
S									●	●
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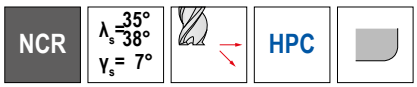
O										

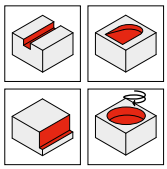
→ v_c/f_z Page 338

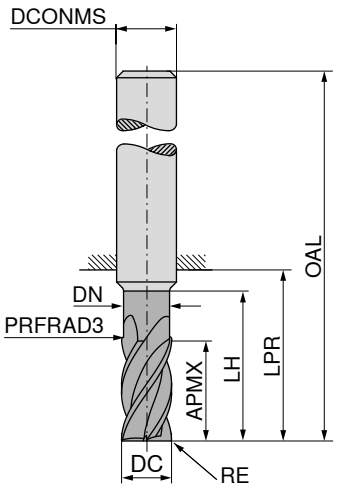
MonsterMill – End milling cutter with corner radius

The specialist for machining nickel-based alloys

▲ PRFRAD3 = 1 mm







DPA52S

DRAGONSKIN

Factory standard

53 030 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	
4	0,1	11	3,8	17	21	57	6	4	**04201**
4	0,2	11	3,8	17	21	57	6	4	**04202**
4	0,4	11	3,8	17	21	57	6	4	**04204**
4	0,5	11	3,8	17	21	57	6	4	**04205**
5	0,1	13	4,8	19	21	57	6	4	**05201**
5	0,5	13	4,8	19	21	57	6	4	**05205**
5	1,0	13	4,8	19	21	57	6	4	**05210**
6	0,1	13	5,8	19	21	57	6	4	**06201**
6	0,4	13	5,8	19	21	57	6	4	**06204**
6	0,5	13	5,8	19	21	57	6	4	**06205**
6	0,6	13	5,8	19	21	57	6	4	**06206**
6	0,8	13	5,8	19	21	57	6	4	**06208**
6	1,0	13	5,8	19	21	57	6	4	**06210**
6	1,5	13	5,8	19	21	57	6	4	**06215**
8	0,2	19	7,7	25	27	63	8	4	**08202**
8	0,5	21	7,7	25	27	63	8	4	**08205**
8	0,8	21	7,7	25	27	63	8	4	**08208**
8	1,0	21	7,7	25	27	63	8	4	**08210**
8	1,2	21	7,7	25	27	63	8	4	**08212**
8	1,5	21	7,7	25	27	63	8	4	**08215**
8	2,0	21	7,7	25	27	63	8	4	**08220**
10	0,2	22	9,7	30	32	72	10	4	**10202**
10	0,5	22	9,7	30	32	72	10	4	**10205**
10	1,0	22	9,7	30	32	72	10	4	**10210**
10	1,2	22	9,7	30	32	72	10	4	**10212**
10	1,5	22	9,7	30	32	72	10	4	**10215**
10	1,6	22	9,7	30	32	72	10	4	**10216**
10	2,0	22	9,7	30	32	72	10	4	**10220**
12	0,2	26	11,6	36	38	83	12	4	**12202**
12	0,5	26	11,6	36	38	83	12	4	**12205**
12	1,0	26	11,6	36	38	83	12	4	**12210**
12	1,2	26	11,6	36	38	83	12	4	**12212**
12	1,5	26	11,6	36	38	83	12	4	**12215**
12	1,6	26	11,6	36	38	83	12	4	**12216**
12	2,0	26	11,6	36	38	83	12	4	**12220**
12	2,5	26	11,6	36	38	83	12	4	**12225**
12	3,0	26	11,6	36	38	83	12	4	**12230**

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→ v_c/f_z Page 340+341

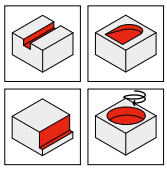
Continued on next page

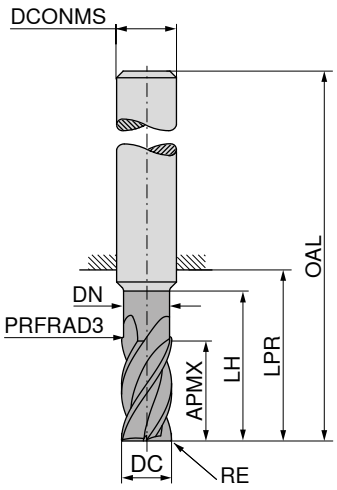
MonsterMill – End milling cutter with corner radius

The specialist for machining nickel-based alloys

▲ PRFRAD3 = 1 mm

NCR | λ_s=35° α_s=38° γ_s= 7° | HPC





DPA52S

DRAGONSKIN

Factory standard

53 030 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	
16	0,3	36	15,5	42	44	92	16	4	**16203**
16	1,0	36	15,5	42	44	92	16	4	**16210**
16	1,6	36	15,5	42	44	92	16	4	**16216**
16	2,0	36	15,5	42	44	92	16	4	**16220**
16	2,5	36	15,5	42	44	92	16	4	**16225**
16	3,0	36	15,5	42	44	92	16	4	**16230**
16	3,2	36	15,5	42	44	92	16	4	**16232**
16	4,0	36	15,5	42	44	92	16	4	**16240**
20	0,3	41	19,5	52	54	104	20	4	**20203**
20	1,0	41	19,5	52	54	104	20	4	**20210**
20	2,0	41	19,5	52	54	104	20	4	**20220**
20	3,0	41	19,5	52	54	104	20	4	**20230**
20	4,0	41	19,5	52	54	104	20	4	**20240**
20	5,0	41	19,5	52	54	104	20	4	**20250**
20	6,3	41	19,5	52	54	104	20	4	**20263**

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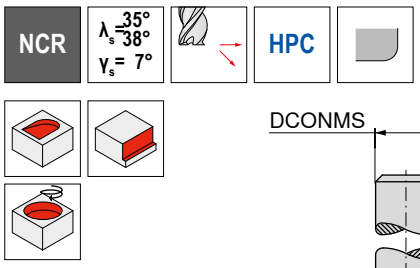
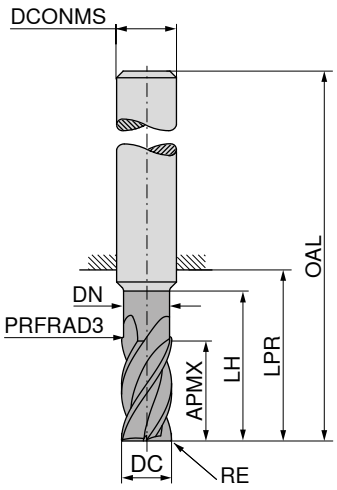
→ v_c/f_z Page 340+341

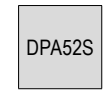
MonsterMill – End milling cutter with corner radius

The specialist for machining nickel-based alloys

▲ PRFRAD3 = 1 mm







DRAGONSKIN

Factory standard

53 030 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	
4	0,1	8,5	3,8	20	26	62	6	4	**04401**
4	0,2	8,5	3,8	20	26	62	6	4	**04402**
4	0,4	8,5	3,8	20	26	62	6	4	**04404**
4	0,5	8,5	3,8	20	26	62	6	4	**04405**
5	0,1	10,5	4,8	25	34	70	6	4	**05401**
5	0,5	10,5	4,8	25	34	70	6	4	**05405**
5	1,0	10,5	4,8	25	34	70	6	4	**05410**
6	0,1	13,0	5,8	30	34	70	6	4	**06401**
6	0,4	13,0	5,8	30	34	70	6	4	**06404**
6	0,5	13,0	5,8	30	34	70	6	4	**06405**
6	0,6	13,0	5,8	30	34	70	6	4	**06406**
6	0,8	13,0	5,8	30	34	70	6	4	**06408**
6	1,0	13,0	5,8	30	34	70	6	4	**06410**
6	1,5	13,0	5,8	30	34	70	6	4	**06415**
8	0,2	17,0	7,7	40	44	80	8	4	**08402**
8	0,5	17,0	7,7	40	44	80	8	4	**08405**
8	0,8	17,0	7,7	40	44	80	8	4	**08408**
8	1,0	17,0	7,7	40	44	80	8	4	**08410**
8	1,2	17,0	7,7	40	44	80	8	4	**08412**
8	1,5	17,0	7,7	40	44	80	8	4	**08415**
8	2,0	17,0	7,7	40	44	80	8	4	**08420**
10	0,2	21,0	9,7	50	54	94	10	4	**10402**
10	0,5	21,0	9,7	50	54	94	10	4	**10405**
10	1,0	21,0	9,7	50	54	94	10	4	**10410**
10	1,2	21,0	9,7	50	54	94	10	4	**10412**
10	1,5	21,0	9,7	50	54	94	10	4	**10415**
10	1,6	21,0	9,7	50	54	94	10	4	**10416**
10	2,0	21,0	9,7	50	54	94	10	4	**10420**
12	0,2	25,0	11,6	60	65	110	12	4	**12402**
12	0,5	25,0	11,6	60	65	110	12	4	**12405**
12	1,0	25,0	11,6	60	65	110	12	4	**12410**
12	1,2	25,0	11,6	60	65	110	12	4	**12412**
12	1,5	25,0	11,6	60	65	110	12	4	**12415**
12	1,6	25,0	11,6	60	65	110	12	4	**12416**
12	2,0	25,0	11,6	60	65	110	12	4	**12420**
12	2,5	25,0	11,6	60	65	110	12	4	**12425**
12	3,0	25,0	11,6	60	65	110	12	4	**12430**

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→ v_c/f_z Page 342+343

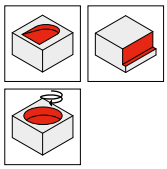
Continued on next page

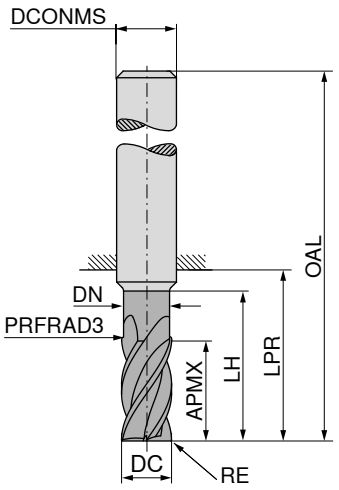
MonsterMill – End milling cutter with corner radius

The specialist for machining nickel-based alloys

▲ PRFRAD3 = 1 mm

NCR | λ_s=35° γ_s= 7° | HPC





DPA52S

DRAGONSKIN

Factory standard

53 030 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	
16	0,3	33,0	15,5	80	84	132	16	4	**16403**
16	1,0	33,0	15,5	80	84	132	16	4	**16410**
16	1,6	33,0	15,5	80	84	132	16	4	**16416**
16	2,0	33,0	15,5	80	84	132	16	4	**16420**
16	2,5	33,0	15,5	80	84	132	16	4	**16425**
16	3,0	33,0	15,5	80	84	132	16	4	**16430**
16	3,2	33,0	15,5	80	84	132	16	4	**16432**
16	4,0	33,0	15,5	80	84	132	16	4	**16440**
20	0,3	42,0	19,5	100	104	154	20	4	**20403**
20	1,0	42,0	19,5	100	104	154	20	4	**20410**
20	2,0	42,0	19,5	100	104	154	20	4	**20420**
20	3,0	42,0	19,5	100	104	154	20	4	**20430**
20	4,0	42,0	19,5	100	104	154	20	4	**20440**
20	5,0	42,0	19,5	100	104	154	20	4	**20450**
20	6,3	42,0	19,5	100	104	154	20	4	**20463**

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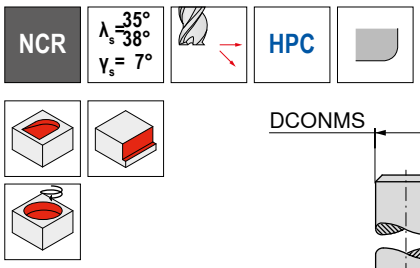
→ v_c/f_z Page 342+343

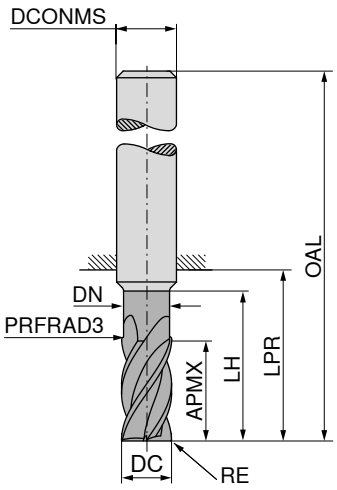
MonsterMill – End milling cutter with corner radius

The specialist for machining nickel-based alloys

▲ PRFRAD3 = 1 mm

NCR | λ_s=35° γ_s= 7° | HPC





DPA52S

DRAGONSKIN

Factory standard

53 031 ...

DC $_{f8}$ mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP	
6	0,1	13	5,8	19	21	57	6	5	**06201**
6	0,4	13	5,8	19	21	57	6	5	**06204**
6	0,5	13	5,8	19	21	57	6	5	**06205**
6	0,6	13	5,8	19	21	57	6	5	**06206**
6	0,8	13	5,8	19	21	57	6	5	**06208**
6	1,0	13	5,8	19	21	57	6	5	**06210**
6	1,5	13	5,8	19	21	57	6	5	**06215**
8	0,2	19	7,7	25	27	63	8	5	**08202**
8	0,5	21	7,7	25	27	63	8	5	**08205**
8	0,8	21	7,7	25	27	63	8	5	**08208**
8	1,0	21	7,7	25	27	63	8	5	**08210**
8	1,2	21	7,7	25	27	63	8	5	**08212**
8	1,5	21	7,7	25	27	63	8	5	**08215**
8	2,0	21	7,7	25	27	63	8	5	**08220**
10	0,2	22	9,7	30	32	72	10	5	**10202**
10	0,5	22	9,7	30	32	72	10	5	**10205**
10	1,0	22	9,7	30	32	72	10	5	**10210**
10	1,2	22	9,7	30	32	72	10	5	**10212**
10	1,5	22	9,7	30	32	72	10	5	**10215**
10	1,6	22	9,7	30	32	72	10	5	**10216**
10	2,0	22	9,7	30	27	72	10	5	**10220**
12	0,2	26	11,6	36	38	83	12	5	**12202**
12	0,5	26	11,6	36	38	83	12	5	**12205**
12	1,0	26	11,6	36	38	83	12	5	**12210**
12	1,2	26	11,6	36	38	83	12	5	**12212**
12	1,5	26	11,6	36	38	83	12	5	**12215**
12	1,6	26	11,6	36	38	83	12	5	**12216**
12	2,0	26	11,6	36	38	83	12	5	**12220**
12	2,5	26	11,6	36	38	83	12	5	**12225**
12	3,0	26	11,6	36	38	83	12	5	**12230**
16	0,3	36	15,5	42	44	92	16	5	**16203**
16	1,0	36	15,5	42	44	92	16	5	**16210**
16	1,6	36	15,5	42	44	92	16	5	**16216**
16	2,0	36	15,5	42	44	92	16	5	**16220**
16	2,5	36	15,5	42	44	92	16	5	**16225**
16	3,0	36	15,5	42	44	92	16	5	**16230**
16	3,2	36	15,5	42	44	92	16	5	**16232**
16	4,0	36	15,5	42	44	92	16	5	**16240**
20	0,3	41	19,5	52	54	104	20	5	**20203**
20	2,0	41	19,5	52	54	104	20	5	**20220**
20	3,0	41	19,5	52	54	104	20	5	**20230**
20	4,0	41	19,5	52	54	104	20	5	**20240**
20	5,0	41	19,5	52	54	104	20	5	**20250**
20	6,3	41	19,5	52	54	104	20	5	**20263**

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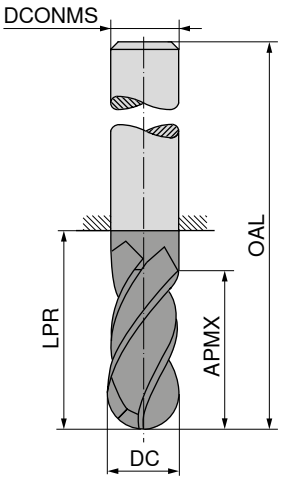
→ v_c/f_z Page 340

MonsterMill – Ball Nosed Cutter

The specialist for machining nickel-based alloys

NCR

λ_s = 35°
38°
γ_s = 7°



NEW DPA52S DRAGONSKIN

Factory standard

53 032 ...

NEW DPA52S DRAGONSKIN

Factory standard

53 033 ...

DC ±0,01 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	53 032 ...	53 033 ...
2	4	18	54	6	4	02210	
2	4	44	80	6	4		02410
3	5	18	54	6	4	03215	
3	5	44	80	6	4		03415
4	8	18	54	6	4	04220	
4	8	44	80	6	4		04420
5	9	18	54	6	4	05225	
5	9	44	80	6	4		05425
6	10	18	54	6	4	06230	
6	10	44	80	6	4		06430
8	12	22	58	8	4	08240	
8	12	64	100	8	4		08440
10	14	26	66	10	4	10250	
10	14	60	100	10	4		10450
12	16	28	73	12	4	12260	
12	16	55	100	12	4		12460
16	20	34	82	16	4	16280	
16	20	52	100	16	4		16480
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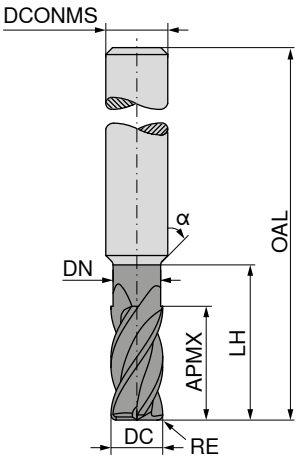
14

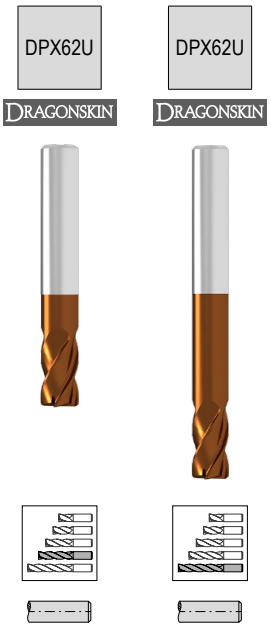
MonsterMill – Finish milling cutter with corner radius

The specialist for finish machining tempered steel up to 70 HRC

- ▲ Radius accuracy ± 0.005 mm
- ▲ T_x = maximum depth of cut
- ▲ DC Tolerance
  up to Ø 6 mm: 0/ -0.01 mm
  from Ø 6 mm: 0/ -0.02 mm

HCR | λ_s=30° γ_s=–3° | 54–70 HRC





DC mm	RE mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 603 ...	53 604 ...
0,2	0,05	0,5		0,5	30	48	4	2,5 x DC	2	**30205**	
0,2	0,05	0,5	0,18	1,0	30	48	4	5 x DC	2	**40205**	
0,3	0,05	0,6	0,27	1,0	30	48	4	3,3 x DC	2	**30305**	
0,3	0,05	0,6	0,27	2,0	30	48	4	6,7 x DC	2	**40305**	
0,4	0,05	0,7	0,35	1,0	30	48	4	2,5 x DC	2	**30405**	
0,4	0,05	0,7	0,35	2,0	30	48	4	5 x DC	2	**40405**	
0,4	0,05	0,7	0,35	3,0	30	48	4	7,5 x DC	2	**50405**	
0,5	0,05	0,7	0,45	1,0	30	48	4	2 x DC	2	**30505**	
0,5	0,05	0,7	0,45	2,0	30	48	4	4 x DC	2	**40505**	
0,5	0,05	0,7	0,45	2,5	30	48	4	5 x DC	2	**50505**	
0,5	0,05	0,7	0,45	3,0	30	48	4	6 x DC	2	**60505**	
0,5	0,05	0,7	0,45	4,0	30	48	4	8 x DC	2	**70505**	
0,6	0,05	0,8	0,55	2,0	30	48	4	3,3 x DC	2	**30605**	
0,6	0,05	0,8	0,55	3,0	30	48	4	5 x DC	2	**40605**	
0,6	0,05	0,8	0,55	4,5	30	48	4	7,5 x DC	2	**50605**	
0,6	0,05	0,8	0,55	6,0	30	48	4	10 x DC	2		**30605**
0,8	0,05	1,0	0,75	2,0	30	48	4	2,5 x DC	2	**30805**	
0,8	0,05	1,0	0,75	4,0	30	48	4	5 x DC	2	**40805**	
0,8	0,05	1,0	0,75	6,0	30	48	4	7,5 x DC	2	**50805**	
0,8	0,05	1,0	0,75	8,0	30	48	4	10 x DC	2		**30805**
0,8	0,05	1,0	0,75	10,0	30	48	4	12,5 x DC	2		**40805**
1,0	0,10	1,5	0,95	2,0	30	48	4	2 x DC	4	**31001**	
1,0	0,10	1,5	0,95	4,0	30	48	4	4 x DC	4	**41001**	
1,0	0,10	1,5	0,95	6,0	30	48	4	6 x DC	4	**51001**	
1,0	0,10	1,5	0,95	8,0	30	48	4	8 x DC	4	**61001**	
1,0	0,10	1,5	0,95	10,0	30	48	4	10 x DC	4		**31001**
1,0	0,10	1,5	0,95	14,0	30	48	4	14 x DC	4		**41001**
1,5	0,10	2,0	1,45	4,0	30	48	4	2,7 x DC	4	**31501**	
1,5	0,10	2,0	1,45	6,0	30	48	4	4 x DC	4	**41501**	
1,5	0,10	2,0	1,45	10,0	30	48	4	6,7 x DC	4	**51501**	
1,5	0,10	2,0	1,45	12,0	30	48	4	8 x DC	4	**61501**	
1,5	0,10	2,0	1,45	15,0	30	60	4	10 x DC	4		**31501**
1,5	0,10	2,0	1,45	20,0	30	60	4	13,3 x DC	4		**41501**
2,0	0,20	2,5	1,90	4,0	30	48	4	2 x DC	4	**32002**	
2,0	0,20	2,5	1,90	6,0	30	48	4	3 x DC	4	**42002**	
2,0	0,20	2,5	1,90	8,0	30	48	4	4 x DC	4	**52002**	
2,0	0,20	2,5	1,90	10,0	30	48	4	5 x DC	4	**62002**	
2,0	0,20	2,5	1,90	12,0	30	48	4	6 x DC	4	**72002**	
2,0	0,20	2,5	1,90	16,0	30	60	4	8 x DC	4	**82002**	
2,0	0,20	2,5	1,90	20,0	30	60	4	10 x DC	4		**32002**
2,0	0,20	2,5	1,90	25,0	30	60	4	12,5 x DC	4		**42002**
3,0	0,20	3,5	2,90	8,0	30	60	6	2,7 x DC	4	**33002**	

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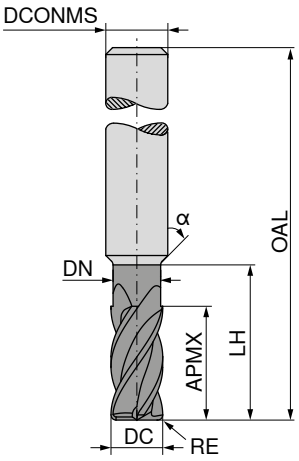
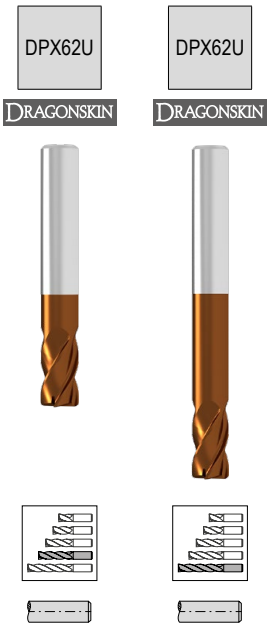
MonsterMill – Finish milling cutter with corner radius

The specialist for finish machining tempered steel up to 70 HRC

- ▲ Radius accuracy ± 0.005 mm
- ▲ T_x = maximum depth of cut
- ▲ DC Tolerance
  up to Ø 6 mm: 0/ -0.01 mm
  from Ø 6 mm: 0/ -0.02 mm

HCR | λ_s=30° γ_s=–3° | 54–70 HRC





DC mm	RE mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 603 ...	53 604 ...
3,0	0,20	3,5	2,90	12,0	30	60	6	4 x DC	4	**43002**	
3,0	0,20	3,5	2,90	16,0	30	60	6	5,3 x DC	4	**53002**	
3,0	0,20	3,5	2,90	20,0	30	70	6	6,7 x DC	4	**63002**	
3,0	0,20	3,5	2,90	24,0	30	70	6	8 x DC	4	**73002**	
4,0	0,20	4,5	3,90	8,0	30	60	6	2 x DC	4	**34002**	
4,0	0,20	4,5	3,90	12,0	30	60	6	3 x DC	4	**44002**	
4,0	0,20	4,5	3,90	16,0	30	60	6	4 x DC	4	**54002**	
4,0	0,20	4,5	3,90	20,0	30	70	6	5 x DC	4	**64002**	
4,0	0,20	4,5	3,90	24,0	30	70	6	6 x DC	4	**74002**	
4,0	0,20	4,5	3,90	28,0	30	70	6	7 x DC	4	**84002**	
4,0	0,50	4,5	3,90	8,0	30	60	6	2 x DC	4	**34005**	
4,0	0,50	4,5	3,90	12,0	30	60	6	3 x DC	4	**44005**	
4,0	0,50	4,5	3,90	16,0	30	60	6	4 x DC	4	**54005**	
4,0	0,50	4,5	3,90	20,0	30	70	6	5 x DC	4	**64005**	
4,0	0,50	4,5	3,90	24,0	30	70	6	6 x DC	4	**74005**	
4,0	0,50	4,5	3,90	28,0	30	70	6	7 x DC	4	**84005**	
4,0	1,00	4,5	3,90	8,0	30	60	6	2 x DC	4	**34010**	
4,0	1,00	4,5	3,90	12,0	30	60	6	3 x DC	4	**44010**	
4,0	1,00	4,5	3,90	16,0	30	60	6	4 x DC	4	**54010**	
4,0	1,00	4,5	3,90	20,0	30	70	6	5 x DC	4	**64010**	
4,0	1,00	4,5	3,90	24,0	30	70	6	6 x DC	4	**74010**	
4,0	1,00	4,5	3,90	28,0	30	70	6	7 x DC	4	**84010**	
6,0	0,20	6,5	5,90	12,0		60	6	2 x DC	4	**36002**	
6,0	0,20	6,5	5,90	16,0		60	6	2,7 x DC	4	**46002**	
6,0	0,20	6,5	5,90	20,0		60	6	3,3 x DC	4	**56002**	
6,0	0,50	6,5	5,90	12,0		60	6	2 x DC	4	**36005**	
6,0	0,50	6,5	5,90	16,0		60	6	2,7 x DC	4	**46005**	
6,0	0,50	6,5	5,90	20,0		60	6	3,3 x DC	4	**56005**	
6,0	1,00	6,5	5,90	12,0		60	6	2 x DC	4	**36010**	
6,0	1,00	6,5	5,90	16,0		60	6	2,7 x DC	4	**46010**	
6,0	1,00	6,5	5,90	20,0		60	6	3,3 x DC	4	**56010**	
8,0	0,50	8,5	7,90	16,0		60	8	2 x DC	4	**38005**	
8,0	0,50	8,5	7,90	40,0		80	8	5 x DC	4	**48005**	
8,0	1,00	8,5	7,90	16,0		60	8	2 x DC	4	**38010**	
8,0	1,00	8,5	7,90	40,0		80	8	5 x DC	4	**48010**	
10,0	0,50	10,5	9,90	20,0		70	10	2 x DC	4	**10005**	
10,0	0,50	10,5	9,90	40,0		90	10	4 x DC	4	**10105**	
10,0	1,00	10,5	9,90	20,0		70	10	2 x DC	4	**10010**	
10,0	1,00	10,5	9,90	40,0		90	10	4 x DC	4	**10110**	
12,0	1,00	12,5	11,90	24,0		70	12	2 x DC	4	**12010**	
12,0	1,00	12,5	11,90	40,0		90	12	3,3 x DC	4	**12110**	

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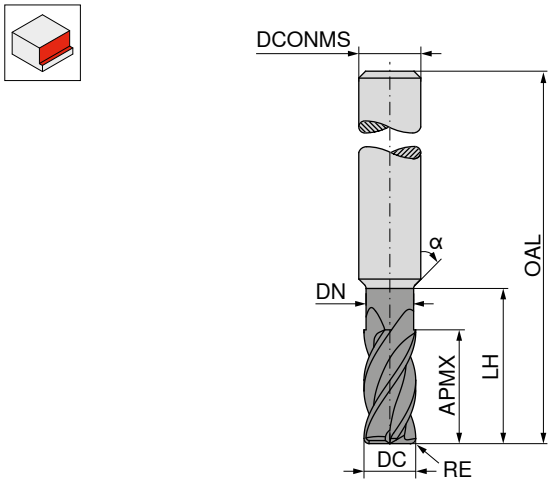
14

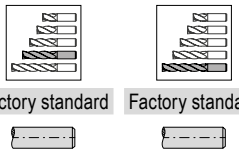
MonsterMill – Finish milling cutter with corner radius

The specialist for finish machining tempered steel up to 70 HRC

- ▲ Radius accuracy ± 0.005 mm
- ▲ T_x = maximum depth of cut
- ▲ DC Tolerance
  up to Ø 6 mm: 0/-0.01 mm
  from Ø 6 mm: 0/ -0.02 mm

HCR | λ_s = 50° γ_s = –15° | 54–70 HRC





DC mm	RE mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 605 ...	53 606 ...
1	0,03	2			30	48	4	2 x DC	4	**410**	
1	0,03	3	0,95	4	30	48	4	3 x DC	4		**410**
2	0,03	4			30	48	4	2 x DC	4	**420**	
2	0,03	6	1,90	8	30	48	4	3 x DC	4		**420**
3	0,03	6			30	60	6	2 x DC	4	**030**	
3	0,03	9	2,90	12	30	60	6	3 x DC	4		**030**
4	0,05	8			30	60	6	2 x DC	4	**040**	
4	0,05	12	3,90	16	30	60	6	3 x DC	4		**040**
6	0,05	12				60	6	2 x DC	4	**060**	
6	0,05	18	5,90	24		60	6	3 x DC	4		**060**
8	0,05	16				60	8	2 x DC	4	**080**	
8	0,05	24	7,90	32		70	8	3 x DC	4		**080**
10	0,05	20				70	10	2 x DC	4	**100**	
10	0,05	30	9,90	40		80	10	3 x DC	4		**100**
12	0,05	24				70	12	2 x DC	4	**120**	
12	0,05	36	11,90	44		90	12	3 x DC	4		**120**
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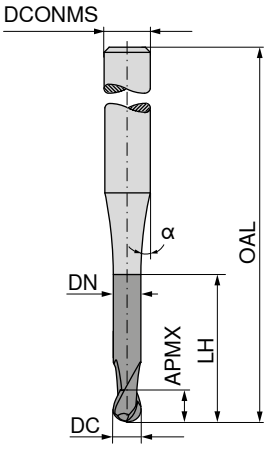
MonsterMill – Ball Nosed Cutter

The specialist for finish machining tempered steel up to 70 HRC

- ▲ Radius accuracy: ± 0.005 mm
- ▲ T_x = maximum depth of cut
- ▲ DC Tolerance
  up to Ø 6 mm: 0/ -0.01 mm
  from Ø 6 mm: 0/ -0.02 mm

HCR | λ_s=30° γ_s=–3° | 54–70 HRC



Factory standard | Factory standard

DC mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 600 ...	53 601 ...
0,2	0,5		0,5	15	48	4	2,5 x DC	2	**302**	
0,2	0,5	0,18	1,0	15	48	4	5 x DC	2	**402**	
0,3	0,5	0,27	1,0	15	48	4	3,3 x DC	2	**303**	
0,3	0,5	0,27	2,0	15	48	4	6,7 x DC	2	**403**	
0,4	0,5	0,35	1,0	15	48	4	2,5 x DC	2	**304**	
0,4	0,5	0,35	2,0	15	48	4	5 x DC	2	**404**	
0,4	0,5	0,35	3,0	15	48	4	7,5 x DC	2	**504**	
0,5	0,5	0,45	1,0	15	48	4	2 x DC	2	**305**	
0,5	0,5	0,45	2,0	15	48	4	4 x DC	2	**405**	
0,5	0,5	0,45	2,5	15	48	4	5 x DC	2	**505**	
0,5	0,5	0,45	3,0	15	48	4	6 x DC	2	**605**	
0,5	0,5	0,45	4,0	15	48	4	8 x DC	2	**705**	
0,6	0,6	0,55	2,0	15	48	4	3,3 x DC	2	**306**	
0,6	0,6	0,55	3,0	15	48	4	5 x DC	2	**406**	
0,6	0,6	0,55	4,5	15	48	4	7,5 x DC	2	**506**	
0,6	0,6	0,55	6,0	15	48	4	10 x DC	2		**306**
0,8	1,0	0,75	2,0	15	48	4	2,5 x DC	2	**308**	
0,8	1,0	0,75	4,0	15	48	4	5 x DC	2	**408**	
0,8	1,0	0,75	6,0	15	48	4	7,5 x DC	2	**508**	
0,8	1,0	0,75	8,0	15	48	4	10 x DC	2		**308**
0,8	1,0	0,75	10,0	15	48	4	12,5 x DC	2		**408**
1,0	1,5	0,95	2,0	15	48	4	2 x DC	2	**310**	
1,0	1,5	0,95	4,0	15	48	4	4 x DC	2	**410**	
1,0	1,5	0,95	6,0	15	48	4	6 x DC	2	**510**	
1,0	1,5	0,95	8,0	15	48	4	8 x DC	2	**610**	
1,0	1,5	0,95	10,0	15	48	4	10 x DC	2		**310**
1,0	1,5	0,95	14,0	15	48	4	14 x DC	2		**410**
1,5	1,5	1,45	4,0	15	48	4	2,7 x DC	2	**315**	
1,5	1,5	1,45	6,0	15	48	4	4 x DC	2	**415**	
1,5	1,5	1,45	8,0	15	48	4	5,3 x DC	2	**515**	
1,5	1,5	1,45	10,0	15	48	4	6,7 x DC	2	**615**	
1,5	1,5	1,45	15,0	15	60	4	10 x DC	2		**315**

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MonsterMill – Ball Nosed Cutter

The specialist for finish machining tempered steel up to 70 HRC

- ▲ Radius accuracy: ± 0.005 mm
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- ▲ DC Tolerance
  up to Ø 6 mm: 0/ -0.01 mm
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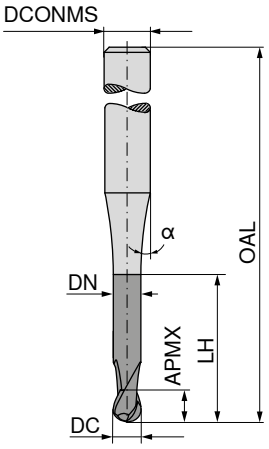
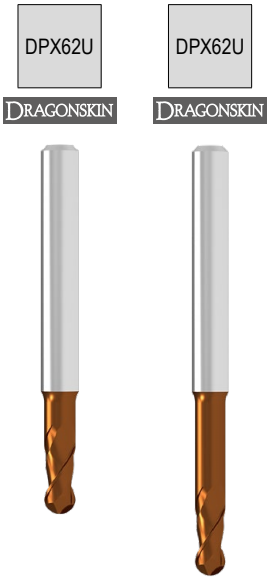
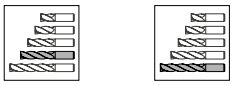
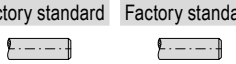
HCR | λ_s=30° γ_s=–3° | 54–70 HRC







Factory standard | Factory standard



DC mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 600 ...	53 601 ...
1,5	1,5	1,45	20,0	15	60	4	13,3 x DC	2		**415**
2,0	2,5	1,90	4,0	15	48	4	2 x DC	2	**320**	
2,0	2,5	1,90	6,0	15	48	4	3 x DC	2	**420**	
2,0	2,5	1,90	8,0	15	48	4	4 x DC	2	**520**	
2,0	2,5	1,90	10,0	15	48	4	5 x DC	2	**620**	
2,0	2,5	1,90	12,0	15	48	4	6 x DC	2	**720**	
2,0	2,5	1,90	16,0	15	60	4	8 x DC	2	**820**	
2,0	2,5	1,90	20,0	15	60	4	10 x DC	2		**320**
2,0	2,5	1,90	25,0	15	60	4	12,5 x DC	2		**420**
3,0	3,5	2,90	8,0	15	60	6	2,7 x DC	2	**330**	
3,0	3,5	2,90	12,0	15	60	6	4 x DC	2	**430**	
3,0	3,5	2,90	16,0	15	60	6	5,3 x DC	2	**530**	
3,0	3,5	2,90	20,0	15	70	6	6,7 x DC	2	**630**	
3,0	3,5	2,90	24,0	15	70	6	8 x DC	2	**730**	
4,0	4,5	3,90	8,0	15	60	6	2 x DC	2	**340**	
4,0	4,5	3,90	12,0	15	60	6	3 x DC	2	**440**	
4,0	4,5	3,90	16,0	15	60	6	4 x DC	2	**540**	
4,0	4,5	3,90	20,0	15	70	6	5 x DC	2	**640**	
4,0	4,5	3,90	24,0	15	70	6	6 x DC	2	**740**	
4,0	4,5	3,90	28,0	15	70	6	7 x DC	2	**840**	
6,0	6,5	5,90	12,0		60	6	2 x DC	2	**360**	
6,0	6,5	5,90	16,0		60	6	2,7 x DC	2	**460**	
6,0	6,5	5,90	20,0		60	6	3,3 x DC	2	**560**	
8,0	8,5	7,90	16,0		60	8	2 x DC	2	**380**	
8,0	8,5	7,90	40,0		80	8	5 x DC	2	**480**	
10,0	10,5	9,90	20,0	15	70	10	2 x DC	2	**100**	
10,0	10,5	9,90	40,0		90	10	4 x DC	2	**101**	
12,0	12,5	11,90	24,0		75	12	2 x DC	2	**120**	
12,0	12,5	11,90	40,0		90	12	3,3 x DC	2	**121**	

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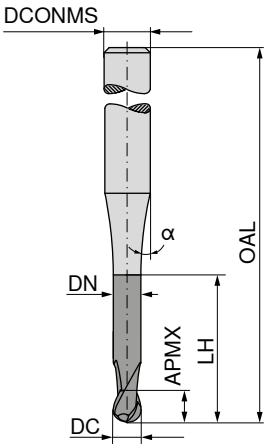
→ v_c/f_z Page 352+353

MonsterMill – Ball Nosed Cutter

The specialist for finish machining tempered steel up to 70 HRC

▲ Radius accuracy: ± 0,01 mm

HCR | λ_s=30° γ_s=–3° | 54–70 HRC



DPX62U

DRAGONSKIN

Factory standard

53 602 ...

DC mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_X	ZEFP	
3	3,5	2,9	8	15	60	6	2,7 x DC	4	**330**
3	3,5	2,9	12	15	60	6	4 x DC	4	**430**
3	3,5	2,9	16	15	60	6	5,3 x DC	4	**530**
3	3,5	2,9	20	15	70	6	6,7 x DC	4	**630**
3	3,5	2,9	24	15	70	6	8 x DC	4	**730**
4	4,5	3,9	8	15	60	6	2 x DC	4	**340**
4	4,5	3,9	12	15	60	6	3 x DC	4	**440**
4	4,5	3,9	16	15	60	6	4 x DC	4	**540**
4	4,5	3,9	20	15	70	6	5 x DC	4	**640**
4	4,5	3,9	24	15	70	6	6 x DC	4	**740**
4	4,5	3,9	28	15	70	6	7 x DC	4	**840**
6	6,5	5,9	12		60	6	2 x DC	4	**360**
6	6,5	5,9	16		60	6	2,7 x DC	4	**460**
6	6,5	5,9	20		60	6	3,3 x DC	4	**560**
8	8,5	7,9	16		60	8	2 x DC	4	**380**
8	8,5	7,9	40		80	8	5 x DC	4	**480**
10	10,5	9,9	20		70	10	2 x DC	4	**100**
10	10,5	9,9	40		90	10	4 x DC	4	**101**
12	12,5	11,9	24		75	12	2 x DC	4	**120**
12	12,5	11,9	40		90	12	3,3 x DC	4	**121**

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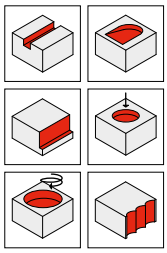
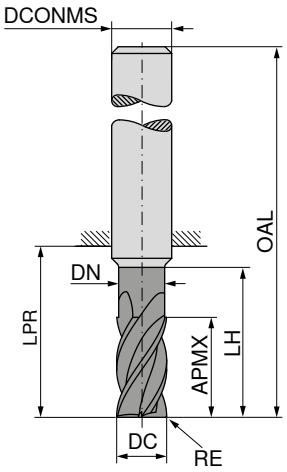
→ v_c/f_z Page 351

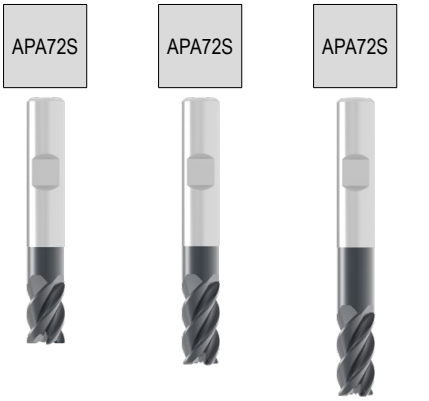
MonsterMill – Plunge milling cutter with corner radius

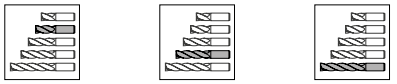
The specialist for ramping, plunging and helical milling

PCR UNI | λ_s = 36° 38° | γ_s = 8° | HPC

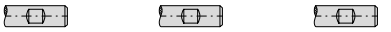








DIN 6527 | DIN 6527 | DIN 6527



DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 613 ...	52 614 ...	52 615 ...
5,0	0,20	9			18	54	6	4	05000		
5,0	0,20	13	4,8	19	21	57	6	4		05000	
5,0	0,20	13	4,8	24	26	62	6	4			05000
5,7	0,20	10			18	54	6	4	057		
5,7	0,20	13	5,5	19	21	57	6	4		057	
5,7	0,20	13	5,5	24	26	62	6	4			057
6,0	0,20	10			18	54	6	4	060		
6,0	0,20	13	5,8	19	21	57	6	4		060	
6,0	0,20	13	5,8	24	26	62	6	4			060
6,7	0,20	11			22	58	8	4	067		
6,7	0,20	16	6,5	25	27	63	8	4		067	
6,7	0,20	16	6,4	30	32	68	8	4			067
7,0	0,20	11			22	58	8	4	070		
7,0	0,20	16	6,8	25	27	63	8	4		070	
7,0	0,20	16	6,7	30	32	68	8	4			070
7,7	0,20	12			22	58	8	4	077		
7,7	0,20	19	7,5	25	27	63	8	4		077	
7,7	0,20	21	7,4	30	32	68	8	4			077
8,0	0,20	12			22	58	8	4	080		
8,0	0,20	19	7,8	25	27	63	8	4		080	
8,0	0,20	21	7,7	30	32	68	8	4			080
8,7	0,32	13			26	66	10	4	087		
8,7	0,32	19	8,5	30	32	72	10	4		087	
8,7	0,32	22	8,4	38	40	80	10	4			087
9,0	0,32	13			26	66	10	4	090		
9,0	0,32	19	8,8	30	32	72	10	4		090	
9,0	0,32	22	8,7	38	40	80	10	4			090
9,7	0,32	14			26	66	10	4	097		
9,7	0,32	22	9,5	30	32	72	10	4		097	
9,7	0,32	22	9,4	38	40	80	10	4			097
10,0	0,32	14			26	66	10	4	100		
10,0	0,32	22	9,8	30	32	72	10	4		100	
10,0	0,32	22	9,7	38	40	80	10	4			100
11,7	0,32	16			28	73	12	4	117		
11,7	0,32	26	11,5	36	38	83	12	4		117	
11,7	0,32	26	11,3	46	48	93	12	4			117
12,0	0,32	16			28	73	12	4	120		
12,0	0,32	26	11,8	36	38	83	12	4		120	
12,0	0,32	26	11,6	46	48	93	12	4			120
P									●	●	●
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→ v_c/f_z Page 354+355

Continued on next page

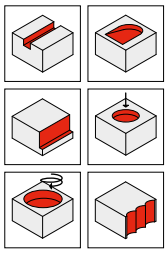
MonsterMill – Plunge milling cutter with corner radius

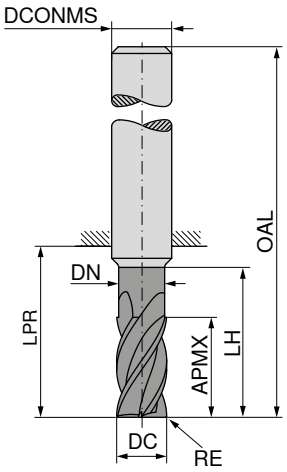
The specialist for ramping, plunging and helical milling

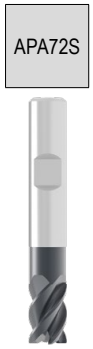
PCR
UNI

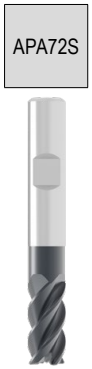
λ_s = 36°
38°
γ_s = 8°

HPC









DIN 6527 | DIN 6527 | DIN 6527

DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 613 ...	52 614 ...	52 615 ...
13,7	0,32	18			30	75	14	4	137		
13,7	0,32	26	13,5	36	38	83	14	4		137	
13,7	0,32	26	13,3	52	54	99	14	4			137
14,0	0,32	18			30	75	14	4	140		
14,0	0,32	26	13,8	36	38	83	14	4		140	
14,0	0,32	26	13,6	52	54	99	14	4			140
15,5	0,32	22			34	82	16	4	155		
15,5	0,32	32	15,3	42	44	92	16	4		155	
15,5	0,32	36	15,0	58	60	108	16	4			155
16,0	0,32	22			34	82	16	4	160		
16,0	0,32	32	15,8	42	44	92	16	4		160	
16,0	0,32	36	15,5	58	60	108	16	4			160
17,5	0,32	24			36	84	18	4	175		
17,5	0,32	32	17,3	42	44	92	18	4		175	
17,5	0,32	36	17,0	67	69	117	18	4			175
18,0	0,32	24			36	84	18	4	180		
18,0	0,32	32	17,8	42	44	92	18	4		180	
18,0	0,32	36	17,5	67	69	117	18	4			180
19,5	0,50	26			42	92	20	4	195		
19,5	0,50	38	19,3	52	54	104	20	4		195	
19,5	0,50	41	19,0	74	76	126	20	4			195
20,0	0,50	26			42	92	20	4	200		
20,0	0,50	38	19,8	52	54	104	20	4		200	
20,0	0,50	41	19,5	74	76	126	20	4			200
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14

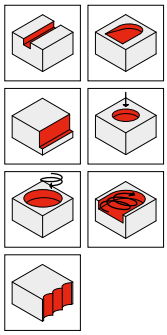
→ v_c/f_z Page 354+355

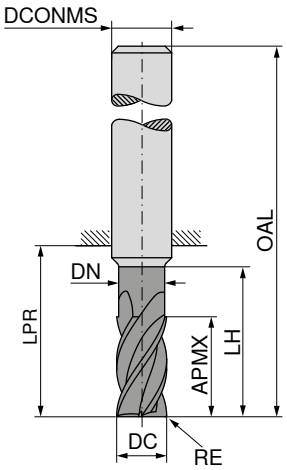
MonsterMill – Plunge milling cutter with corner radius

The specialist for ramping, plunging and helical milling

▲ suitable for trochoidal milling
▲ Chip breaker 0.9 x DC

PCR UNI | λ_s=36° γ_s=10° | HPC





APA72S

DIN 6527

52 619 ...

DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
5	0,20	17	4,8	24	26	62	6	4	**05202**
6	0,20	17	5,8	25	26	62	6	4	**06202**
8	0,20	24	7,7	30	32	68	8	4	**08202**
10	0,32	30	9,7	35	40	80	10	4	**10203**
12	0,32	36	11,6	45	48	93	12	4	**12203**
14	0,32	42	13,6	50	54	99	14	4	**14203**
16	0,32	48	15,5	56	60	108	16	4	**16203**
18	0,32	54	17,5	67	69	117	18	4	**18203**
20	0,50	60	19,5	70	76	126	20	4	**20205**

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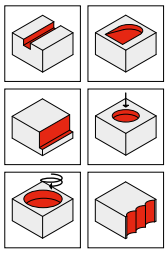
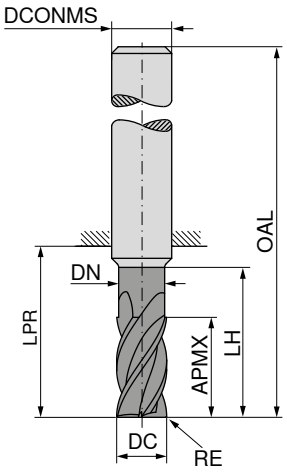
→ v_c/f_z Page 356+357

MonsterMill – Plunge milling cutter with corner radius

The specialist for ramping, plunging and helical milling

PCR ALU | λ_s=36° γ_s=13° | HPC





DLC DRAGONSKIN | DLC DRAGONSKIN

DIN 6527 | DIN 6527

DC f8	RE ±0,03	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	52 616 ...	52 617 ...
mm	mm	mm	mm	mm	mm	mm	mm			
5,0	0,20	13	4,8	19	21	57	6	4	050	
5,0	0,20	13	4,8	24	26	62	6	4		050
5,7	0,20	13	5,5	19	21	57	6	4	057	
5,7	0,20	13	5,5	24	26	62	6	4		057
6,0	0,20	13	5,8	19	21	57	6	4	060	
6,0	0,20	13	5,8	24	26	62	6	4		060
7,7	0,20	19	7,5	25	27	63	8	4	077	
7,7	0,20	21	7,4	30	32	68	8	4		077
8,0	0,20	19	7,8	25	27	63	8	4	080	
8,0	0,20	21	7,7	30	32	68	8	4		080
9,0	0,32	19	8,8	30	32	72	10	4	090	
9,0	0,32	22	8,7	38	40	80	10	4		090
9,7	0,32	22	9,5	30	32	72	10	4	097	
9,7	0,32	22	9,4	38	40	80	10	4		097
10,0	0,32	22	9,8	30	32	72	10	4	100	
10,0	0,32	22	9,7	38	40	80	10	4		100
11,7	0,32	26	11,5	36	38	83	12	4	117	
11,7	0,32	26	11,3	46	48	93	12	4		117
12,0	0,32	26	11,8	36	38	83	12	4	120	
12,0	0,32	26	11,6	46	48	93	12	4		120
13,7	0,32	26	13,5	36	38	83	14	4	137	
13,7	0,32	26	13,3	52	54	99	14	4		137
14,0	0,32	26	13,8	36	38	83	14	4	140	
14,0	0,32	26	13,6	52	54	99	14	4		140
15,5	0,32	32	15,3	42	44	92	16	4	155	
15,5	0,32	36	15,0	58	60	108	16	4		155
16,0	0,32	32	15,8	42	44	92	16	4	160	
16,0	0,32	36	15,5	58	60	108	16	4		160
17,5	0,32	32	17,3	42	44	92	18	4	175	
17,5	0,32	36	17,0	67	69	117	18	4		175
18,0	0,32	32	17,8	42	44	92	18	4	180	
18,0	0,32	36	17,5	67	69	117	18	4		180
19,5	0,50	38	19,3	52	54	104	20	4	195	
19,5	0,50	41	19,0	74	76	126	20	4		195
20,0	0,50	38	19,8	52	54	104	20	4	200	
20,0	0,50	41	19,5	74	76	126	20	4		200

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→ v_c/f_z Page 358+359

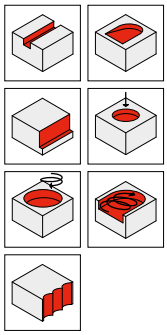
14

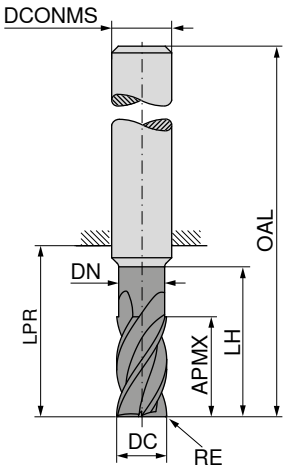
MonsterMill – Plunge milling cutter with corner radius

The specialist for ramping, plunging and helical milling

▲ suitable for trochoidal milling
▲ Chip breaker 0.9 x DC

PCR ALU | λ_s=36° γ_s=13° | HPC





DLC
DRAGONSKIN

DIN 6527

52 618 ...

DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
5	0,20	17	4,8	24	26	62	6	4	**05202**
6	0,20	18	5,8	25	26	62	6	4	**06202**
8	0,20	24	7,7	30	32	68	8	4	**08202**
10	0,32	30	9,7	35	40	80	10	4	**10203**
12	0,32	36	11,6	45	48	93	12	4	**12203**
14	0,32	42	13,6	50	54	99	14	4	**14203**
16	0,32	48	15,5	56	60	108	16	4	**16203**
18	0,32	54	17,5	67	69	117	18	4	**18203**
20	0,50	60	19,5	70	76	126	20	4	**20205**

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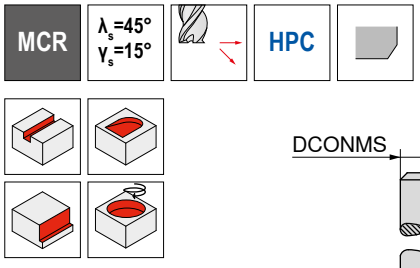
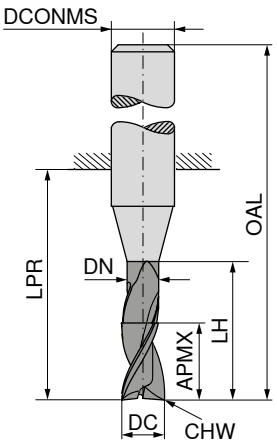
→ v_c/f_z Page 358–361

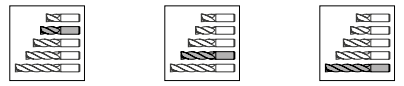
MonsterMill – Rough milling cutter

The specialist for rough machining steel and cast iron

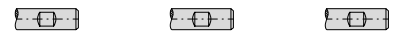
▲ Cutting edges with irregular pitch
▲ With round cord profile







Factory standard | Factory standard | Factory standard



DC h11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 752 ...	52 752 ...	52 752 ...
1	1,5	0,9	3	10	38	3	0,09	3	010 [1]		
2	3,0	1,9	8	21	57	6	0,17	3	020		
3	5,0	2,9	14	21	57	6	0,17	3	030		
3	8,0	2,9	14	21	57	6	0,17	3		031	
3	5,0	2,9	19	26	62	6	0,17	3			032
4	8,0	3,8	18	21	57	6	0,17	3	040		
4	11,0	3,8	18	21	57	6	0,17	3		041	
4	8,0	3,8	23	26	62	6	0,17	3			042
5	9,0	4,8	19	21	57	6	0,17	3	050		
5	13,0	4,8	19	21	57	6	0,17	3		051	
5	9,0	4,8	24	26	62	6	0,17	3			052
6	10,0	5,8	20	21	57	6	0,17	4	060		
6	13,0	5,8	20	21	57	6	0,17	4		061	
6	10,0	5,8	25	26	62	6	0,17	4			062
8	12,0	7,7	25	27	63	8	0,28	4	080		
8	19,0	7,7	25	27	63	8	0,28	4		081	
8	12,0	7,7	30	32	68	8	0,28	4			082
10	15,0	9,5	30	32	72	10	0,28	4	100		
10	22,0	9,5	30	32	72	10	0,28	4		101	
10	15,0	9,5	35	40	80	10	0,28	4			102
12	18,0	11,5	35	38	83	12	0,28	4	120		
12	26,0	11,5	35	38	83	12	0,28	4		121	
12	18,0	11,5	45	48	93	12	0,28	4			122
14	21,0	13,5	35	38	83	14	0,28	4	140		
14	26,0	13,5	35	38	83	14	0,28	4		141	
14	21,0	13,5	50	54	99	14	0,28	4			142
16	24,0	15,5	40	44	92	16	0,43	4	160		
16	32,0	15,5	40	44	92	16	0,43	4		161	
16	24,0	15,5	55	60	108	16	0,43	4			162
20	30,0	19,5	50	54	104	20	0,43	4	200		
20	38,0	19,5	50	54	104	20	0,43	4		201	
20	30,0	19,5	70	76	126	20	0,43	4			202
P									●	●	●
M									○	○	○
K									●	●	●
N									○	○	○
S									○	○	○
H									○	○	○
O											

1) DIN 6535 HA Shank

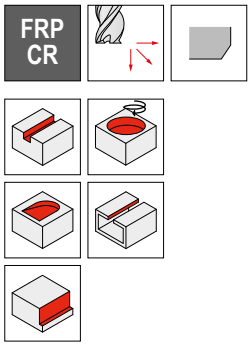
→ v_c/f_z Page 362–365

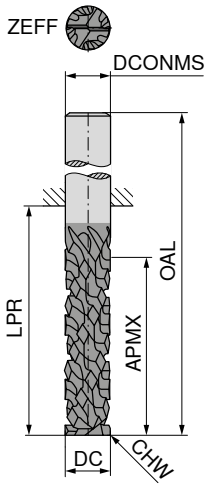
14

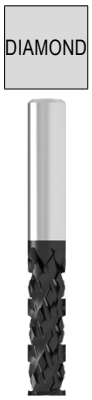
MonsterMill – FRP CR fine pitched

The specialist for machining carbon fibre-reinforced plastics

- ▲ Compression zone across the entire cutting length
- ▲ right-hand cutting
- ▲ fine cross-pitched version
- ▲ Two effective end cutting edges







Factory standard

52 598 ...

DC h11 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFF	
6,000	18	23,5	60	6,000	0,1	2	**06000**
6,350	18	23,5	60	6,350	0,1	2	**06350**
8,000	26	33,0	70	8,000	0,1	2	**08000**
9,525	30	40,0	80	9,525	0,1	2	**09525**
10,000	30	40,0	80	10,000	0,1	2	**10000**
12,000	30	41,0	85	12,000	0,1	2	**12000**
12,700	30	41,0	85	12,700	0,1	2	**12700**

P	
M	
K	
N	
S	
H	
O	●

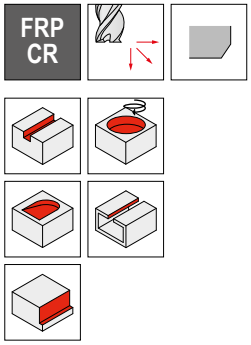
→ v_c/f Page 329

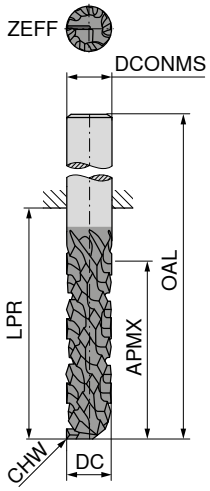
For the MonsterMill FRP CR cutters, the feed rate must be selected in mm/rev.

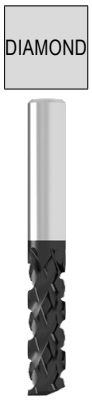
MonsterMill – FRP CR coarse pitched

The specialist for machining carbon fibre-reinforced plastics

- ▲ Compression zone across the entire cutting length
- ▲ right-hand cutting
- ▲ coarse cross-pitched version
- ▲ One effective end cutting edge







Factory standard

52 599 ...

DC h11 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFF	
6,000	18	23,5	60	6,000	0,1	1	**06000**
6,350	18	23,5	60	6,350	0,1	1	**06350**
8,000	26	33,0	70	8,000	0,1	1	**08000**
9,525	30	40,0	80	9,525	0,1	1	**09525**
10,000	30	40,0	80	10,000	0,1	1	**10000**
12,000	30	41,0	85	12,000	0,1	1	**12000**
12,700	30	41,0	85	12,700	0,1	1	**12700**

P	
M	
K	
N	
S	
H	
O	●

→ v_c/f Page 329

For the MonsterMill FRP CR cutters, the feed rate must be selected in mm/rev.

14

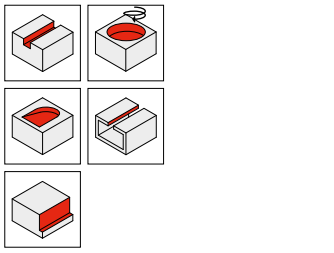
MonsterMill – FRP

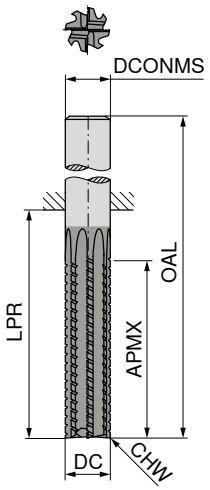
The specialist for machining carbon fibre-reinforced plastics

- ▲ optimal removal of CFRP dust
- ▲ right-hand cutting
- ▲ straight-fluted, neutral cut
- ▲ Four end cutting edges / two central cutting edges

FRP

λ_s=0°
γ_s=0°





DIAMOND

Factory standard

52 595 ...

DC h11 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
6,000	25	35	70	6,000	0,1	8	**06000**
6,350	25	35	70	6,350	0,1	8	**06350**
8,000	30	40	80	8,000	0,1	8	**08000**
9,525	32	44	85	9,525	0,1	8	**09525**
10,000	32	45	85	10,000	0,1	8	**10000**
12,000	32	46	95	12,000	0,1	8	**12000**
12,700	32	46	95	12,700	0,1	8	**12700**

P	
M	
K	
N	
S	
H	
O	●

→ v_c/f_z Page 329

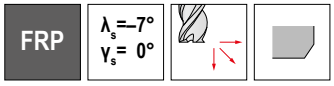
MonsterMill – FRP left-hand helix

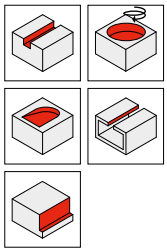
The specialist for machining carbon fibre-reinforced plastics

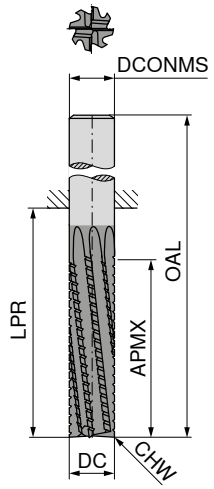
- ▲ optimal removal of CFRP dust
- ▲ right-hand cutting
- ▲ slightly left-fluted, pushing cut
- ▲ Four end cutting edges / two central cutting edges

FRP

λ_s=–7°
γ_s= 0°







DIAMOND

Factory standard

52 596 ...

DC h11 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
6,000	25	38	70	6,000	0,1	8	**06000**
6,350	25	39	70	6,350	0,1	8	**06350**
8,000	30	43	80	8,000	0,1	8	**08000**
9,525	32	48	85	9,525	0,1	8	**09525**
10,000	32	49	85	10,000	0,1	8	**10000**
12,000	32	53	95	12,000	0,1	8	**12000**
12,700	32	54	95	12,700	0,1	8	**12700**

P	
M	
K	
N	
S	
H	
O	●

→ v_c/f_z Page 329

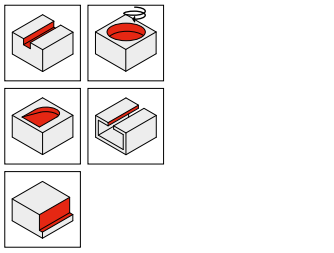
MonsterMill – FRP right-hand helix

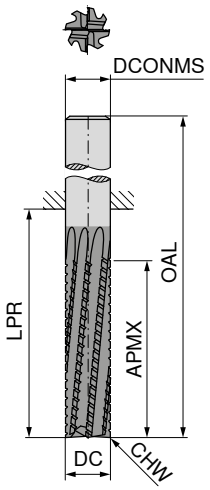
The specialist for machining carbon fibre-reinforced plastics

- ▲ optimal removal of CFRP dust
- ▲ right-hand cutting
- ▲ slightly right-fluted, pulling cut
- ▲ Four end cutting edges / two central cutting edges

FRP

λ_s=7°
γ_s=0°





DIAMOND

Factory standard

52 597 ...

DC h11 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
6,000	25	35	70	6,000	0,1	8	**06000**
6,350	25	35	70	6,350	0,1	8	**06350**
8,000	30	40	80	8,000	0,1	8	**08000**
9,525	32	44	85	9,525	0,1	8	**09525**
10,000	32	45	85	10,000	0,1	8	**10000**
12,000	32	49	95	12,000	0,1	8	**12000**
12,700	32	49	95	12,700	0,1	8	**12700**

P	
M	
K	
N	
S	
H	
O	●

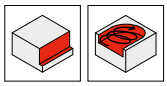
→ v_c/f_z Page 329

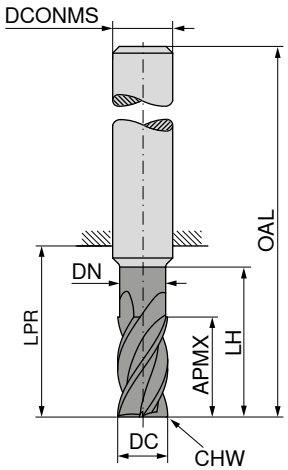
CircularLine – End milling cutter

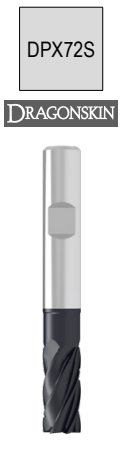
The specialist for trochoidal machining

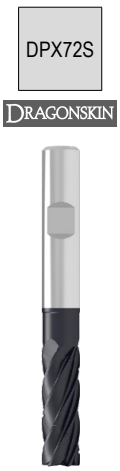
- ▲ Chip breaker 0.9 x DC
- ▲ 53 585 ... Cutting depth: 2 x DC
- ▲ 53 587 ... Cutting depth: 3 x DC

CCR UNI | λ_s 30° 31° | γ_s = 8° | HPC









Factory standard | Factory standard

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 585 ...	53 587 ...
6	13	5,8	19	21	57	6	0,2	6	060	
6	19	5,8	25	27	63	6	0,2	6		060
8	21	7,7	25	27	63	8	0,2	6	080	
8	25	7,7	33	35	71	8	0,2	6		080
10	22	9,7	30	32	72	10	0,2	6	100	
10	31	9,7	41	43	83	10	0,2	6		100
12	26	11,6	36	38	83	12	0,2	6	120	
12	37	11,6	47	49	94	12	0,2	6		120
14	26	13,6	36	38	83	14	0,2	6	14000	
14	43	13,6	55	59	104	14	0,2	6		14000
16	36	15,5	42	44	92	16	0,2	6	160	
16	49	15,5	61	63	111	16	0,2	6		160
18	36	17,5	42	44	92	18	0,2	6	18000	
18	55	17,5	69	73	121	18	0,2	6		18000
20	41	19,5	52	54	104	20	0,2	6	200	
20	61	19,5	75	77	127	20	0,2	6		200
P									●	●
M									○	○
K									●	●
N										
S									○	○
H										
O										

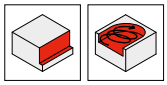
→ v_c/f_z Page 366+367

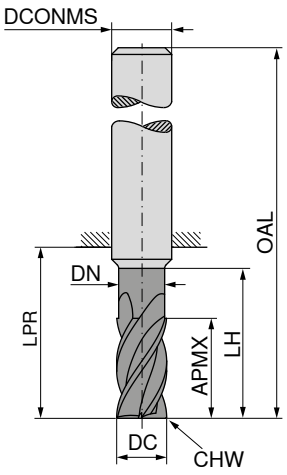
CircularLine – End milling cutter

The specialist for trochoidal machining

▲ Chip breaker 0,9 x DC
▲ Cutting depth: 4 x DC

CCR UNI | λ_s=35° γ_s= 36° 8° | HPC





DPX72S

DRAGONSKIN

Factory standard

53 589 ...

DC $_{e8}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	
6	25	5,8	29	31	67	6	0,2	5	**060**
8	33	7,7	38	40	76	8	0,2	5	**080**
10	41	9,7	47	49	89	10	0,2	5	**100**
12	49	11,6	55	57	102	12	0,2	5	**120**
14	57	13,6	64	68	113	14	0,2	5	**14000**
16	65	15,5	73	75	123	16	0,2	5	**160**
18	73	17,5	82	86	134	18	0,2	5	**18000**
20	82	19,5	91	93	143	20	0,2	5	**200**

P	●
M	○
K	●
N	
S	○
H	
O	

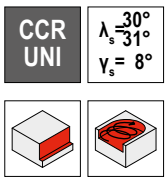
→ v_c/f_z Page 368+369

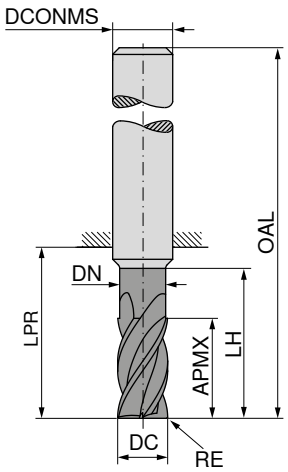
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 2 x DC

CCR UNI | λ_s=30° γ_s= 8° | HPC





DPX72S

DRAGONSKIN

Factory standard

53 586 ...

DC $_{e8}$ mm	RE $_{\pm 0,05}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
6	0,2	13	5,8	19	21	57	6	6	**06002**
6	1,0	13	5,8	19	21	57	6	6	**06010**
6	1,5	13	5,8	19	21	57	6	6	**06015**
8	0,2	21	7,7	25	27	63	8	6	**08002**
8	1,0	21	7,7	25	27	63	8	6	**08010**
8	1,5	21	7,7	25	27	63	8	6	**08015**
8	2,0	21	7,7	25	27	63	8	6	**08020**
10	0,2	22	9,7	30	32	72	10	6	**10002**
10	1,0	22	9,7	30	32	72	10	6	**10010**
10	1,5	22	9,7	30	32	72	10	6	**10015**
10	1,6	22	9,7	30	32	72	10	6	**10016**
10	2,0	22	9,7	30	32	72	10	6	**10020**
12	0,2	26	11,6	36	38	83	12	6	**12002**
12	1,0	26	11,6	36	38	83	12	6	**12010**
12	1,5	26	11,6	36	38	83	12	6	**12015**
12	1,6	26	11,6	36	38	83	12	6	**12016**
12	2,0	26	11,6	36	38	83	12	6	**12020**
12	3,0	26	11,6	36	38	83	12	6	**12030**
14	0,2	26	13,6	36	38	83	14	6	**14002**
14	1,0	26	13,6	36	38	83	14	6	**14010**
14	1,5	26	13,6	36	38	83	14	6	**14015**
14	1,6	26	13,6	36	38	83	14	6	**14016**
14	2,0	30	13,6	36	38	83	14	6	**14020**
14	3,0	26	13,6	36	38	83	14	6	**14030**
16	0,2	36	15,5	42	44	92	16	6	**16002**
16	1,0	36	15,5	42	44	92	16	6	**16010**
16	1,5	36	15,5	42	44	92	16	6	**16015**
16	1,6	36	15,5	42	44	92	16	6	**16016**
16	2,0	36	15,5	42	44	92	16	6	**16020**
16	3,0	36	15,5	42	44	92	16	6	**16030**
16	4,0	36	15,5	42	44	92	16	6	**16040**
18	0,2	36	17,5	42	44	92	18	6	**18002**
18	1,0	36	17,5	42	44	92	18	6	**18010**
18	1,5	36	17,5	42	44	92	18	6	**18015**
18	1,6	36	17,5	42	44	92	18	6	**18016**
18	2,0	36	17,5	42	44	92	18	6	**18020**

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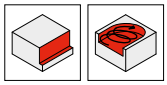
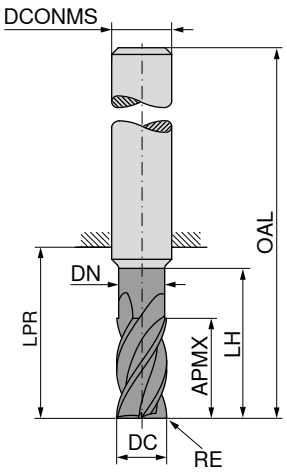
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 2 x DC

CCR UNI | λ_s=30° γ_s= 31° 8° | HPC





DPX72S

DRAGONSKIN

Factory standard

53 586 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
18	3,0	36	17,5	42	44	92	18	6	**18030**
18	4,0	36	17,5	42	44	92	18	6	**18040**
20	0,2	41	19,5	52	54	104	20	6	**20002**
20	1,0	41	19,5	52	54	104	20	6	**20010**
20	1,5	41	19,5	52	54	104	20	6	**20015**
20	1,6	41	19,5	52	54	104	20	6	**20016**
20	2,0	41	19,5	52	54	104	20	6	**20020**
20	3,0	41	19,5	52	54	104	20	6	**20030**
20	4,0	41	19,5	52	54	104	20	6	**20040**

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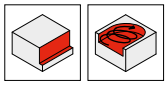
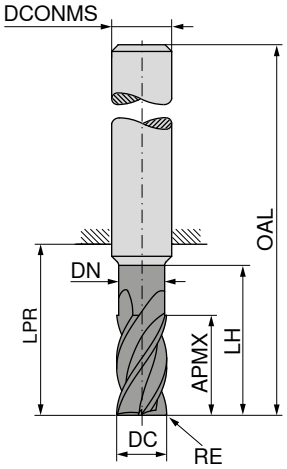
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 3 x DC

CCR UNI | λ_s=30° λ_s=31° γ_s= 8° | HPC





DPX72S
DRAGONSKIN

Factory standard

53 642 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
6	0,2	19	5,8	25	27	63	6	6	**06202**
6	1,0	19	5,8	25	27	63	6	6	**06210**
6	1,5	19	5,8	25	27	63	6	6	**06215**
8	0,2	25	7,7	33	35	71	8	6	**08202**
8	1,0	25	7,7	33	35	71	8	6	**08210**
8	1,5	25	7,7	33	35	71	8	6	**08215**
8	2,0	25	7,7	33	35	71	8	6	**08220**
10	0,2	31	9,7	41	43	83	10	6	**10202**
10	1,0	31	9,7	41	43	83	10	6	**10210**
10	1,5	31	9,7	41	43	83	10	6	**10215**
10	1,6	31	9,7	41	43	83	10	6	**10216**
10	2,0	31	9,7	41	43	83	10	6	**10220**
12	0,2	37	11,6	47	49	94	12	6	**12202**
12	1,0	37	11,6	47	49	94	12	6	**12210**
12	1,5	37	11,6	47	49	94	12	6	**12215**
12	1,6	37	11,6	47	49	94	12	6	**12216**
12	2,0	37	11,6	47	49	94	12	6	**12220**
12	3,0	37	11,6	47	49	94	12	6	**12230**
14	0,2	43	13,6	55	59	104	14	6	**14202**
14	1,0	43	13,6	55	59	104	14	6	**14210**
14	1,5	43	13,6	55	59	104	14	6	**14215**
14	1,6	43	13,6	55	59	104	14	6	**14216**
14	2,0	43	13,6	55	59	104	14	6	**14220**
14	3,0	43	13,6	55	59	104	14	6	**14230**
16	0,2	49	15,5	61	63	111	16	6	**16202**
16	1,0	49	15,5	61	63	111	16	6	**16210**
16	1,5	49	15,5	61	63	111	16	6	**16215**
16	1,6	49	15,5	61	63	111	16	6	**16216**
16	2,0	49	15,5	61	63	111	16	6	**16220**
16	3,0	49	15,5	61	63	111	16	6	**16230**
16	4,0	49	15,5	61	63	111	16	6	**16240**
18	0,2	55	17,5	69	73	121	18	6	**18202**
18	1,0	55	17,5	69	73	121	18	6	**18210**
18	1,5	55	17,5	69	73	121	18	6	**18215**
18	1,6	55	17,5	69	73	121	18	6	**18216**
18	2,0	55	17,5	69	73	121	18	6	**18220**

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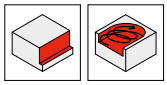
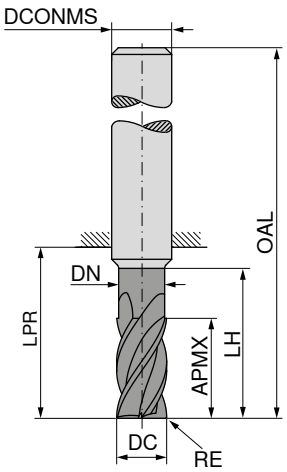
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 3 x DC

CCR UNI | λ_s=30° γ_s= 8° | HPC





DPX72S

DRAGONSKIN

Factory standard

53 642 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
18	3,0	55	17,5	69	73	121	18	6	**18230**
18	4,0	55	17,5	69	73	121	18	6	**18240**
20	0,2	61	19,5	75	77	127	20	6	**20202**
20	1,0	61	19,5	75	77	127	20	6	**20210**
20	1,5	61	19,5	75	77	127	20	6	**20215**
20	1,6	61	19,5	75	77	127	20	6	**20216**
20	2,0	61	19,5	75	77	127	20	6	**20220**
20	3,0	61	19,5	75	77	127	20	6	**20230**
20	4,0	61	19,5	75	77	127	20	6	**20240**

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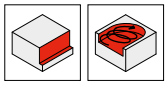
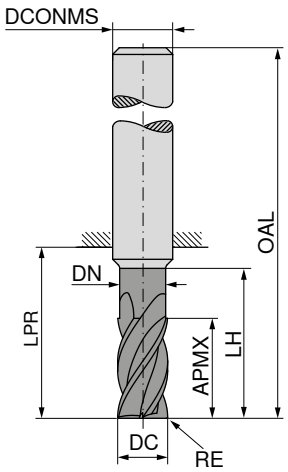
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 4 x DC

CCR UNI | λ_s=35° γ_s= 36° 9° | HPC





DPX72S

DRAGONSKIN

Factory standard

53 593 ...

DC e8 mm	RE ±0.05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
6	0,2	25	5,8	29	31	67	6	5	**06002**
6	1,0	25	5,8	29	31	67	6	5	**06010**
6	1,5	25	5,8	29	31	67	6	5	**06015**
8	0,2	33	7,7	38	40	76	8	5	**08002**
8	1,0	33	7,7	38	40	76	8	5	**08010**
8	1,5	33	7,7	38	40	76	8	5	**08015**
8	2,0	33	7,7	38	40	76	8	5	**08020**
10	0,2	41	9,7	47	49	89	10	5	**10002**
10	1,0	41	9,7	47	49	89	10	5	**10010**
10	1,5	41	9,7	47	49	89	10	5	**10015**
10	1,6	41	9,7	47	49	89	10	5	**10016**
10	2,0	41	9,7	47	49	89	10	5	**10020**
12	0,2	49	11,6	55	57	102	12	5	**12002**
12	1,0	49	11,6	55	57	102	12	5	**12010**
12	1,5	49	11,6	55	57	102	12	5	**12015**
12	1,6	49	11,6	55	57	102	12	5	**12016**
12	2,0	49	11,6	55	57	102	12	5	**12020**
12	3,0	49	11,6	55	57	102	12	5	**12030**
14	0,2	57	13,6	64	68	113	14	5	**14002**
14	1,0	57	13,6	64	68	113	14	5	**14010**
14	1,5	57	13,6	64	68	113	14	5	**14015**
14	1,6	57	13,6	64	68	113	14	5	**14016**
14	2,0	57	13,6	64	68	113	14	5	**14020**
14	3,0	57	13,6	64	68	113	14	5	**14030**
16	0,2	65	15,5	73	75	123	16	5	**16002**
16	1,0	65	15,5	73	75	123	16	5	**16010**
16	1,5	65	15,5	73	75	123	16	5	**16015**
16	1,6	65	15,5	73	75	123	16	5	**16016**
16	2,0	65	15,5	73	75	123	16	5	**16020**
16	3,0	65	15,5	73	75	123	16	5	**16030**
16	4,0	65	15,5	73	75	123	16	5	**16040**
18	0,2	73	17,5	82	86	134	18	5	**18002**
18	1,0	73	17,5	82	86	134	18	5	**18010**
18	1,5	73	17,5	82	86	134	18	5	**18015**
18	1,6	73	17,5	82	86	134	18	5	**18016**
18	2,0	73	17,5	82	86	134	18	5	**18020**

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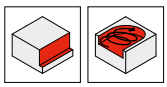
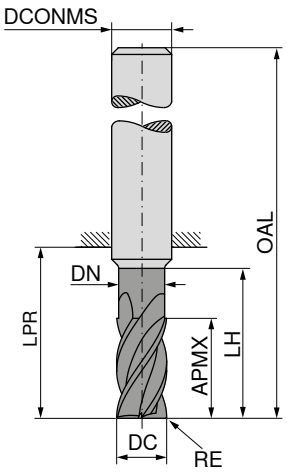
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 4 x DC

CCR UNI | λ_s=35° γ_s= 36° 9° | HPC





DPX72S

DRAGONSKIN

Factory standard

53 593 ...

DC e8 mm	RE ±0.05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
18	3,0	73	17,5	82	86	134	18	5	**18030**
18	4,0	73	17,5	82	86	134	18	5	**18040**
20	0,2	82	19,5	91	93	143	20	5	**20002**
20	1,0	82	19,5	91	93	143	20	5	**20010**
20	1,5	82	19,5	91	93	143	20	5	**20015**
20	1,6	82	19,5	91	93	143	20	5	**20016**
20	2,0	82	19,5	91	93	143	20	5	**20020**
20	3,0	82	19,5	91	93	143	20	5	**20030**
20	4,0	82	19,5	91	93	143	20	5	**20040**

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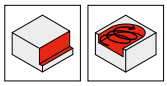
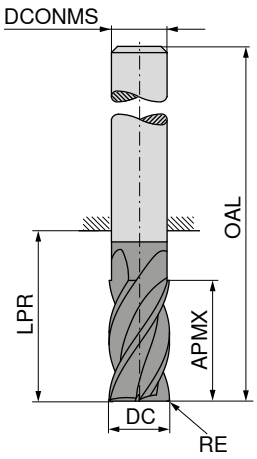
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 5 x DC

CCR UNI | λ_s=35° α_s=36° γ_s= 9° | HPC





DPX72S

DRAGONSKIN

Factory standard

53 593 ...

DC e8 mm	RE ±0,05 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
6,0	0,2	31	39	75	6	5	**06402**
6,0	1,0	31	39	75	6	5	**06410**
6,0	1,5	31	39	75	6	5	**06415**
8,0	0,2	41	49	85	8	5	**08402**
8,0	1,0	41	49	85	8	5	**08410**
8,0	1,5	41	49	85	8	5	**08415**
8,0	2,0	41	49	85	8	5	**08420**
10,0	0,2	51	60	100	10	5	**10402**
10,0	1,0	51	60	100	10	5	**10410**
10,0	1,5	51	60	100	10	5	**10415**
10,0	1,6	51	60	100	10	5	**10416**
10,0	2,0	51	60	100	10	5	**10420**
12,0	0,2	61	70	115	12	5	**12402**
12,0	1,0	61	70	115	12	5	**12410**
12,0	1,5	61	70	115	12	5	**12415**
12,0	1,6	61	70	115	12	5	**12416**
12,0	2,0	61	70	115	12	5	**12420**
12,0	3,0	61	70	115	12	5	**12430**
14,0	0,2	71	81	126	14	5	**14402**
14,0	1,0	71	81	126	14	5	**14410**
14,0	1,5	71	81	126	14	5	**14415**
14,0	1,6	71	81	126	14	5	**14416**
14,0	2,0	71	81	126	14	5	**14420**
14,0	3,0	71	81	126	14	5	**14430**
16,0	0,2	81	92	140	16	5	**16402**
16,0	1,0	81	92	140	16	5	**16410**
16,0	1,5	81	92	140	16	5	**16415**
16,0	1,6	81	92	140	16	5	**16416**
16,0	2,0	81	92	140	16	5	**16420**
16,0	3,0	81	92	140	16	5	**16430**
16,0	4,0	81	92	140	16	5	**16440**
18,0	0,2	91	102	150	18	5	**18402**
18,0	1,0	91	102	150	18	5	**18410**
18,0	1,5	91	102	150	18	5	**18415**
18,0	1,6	91	102	150	18	5	**18416**
18,0	2,0	91	102	150	18	5	**18420**

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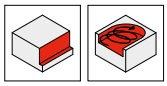
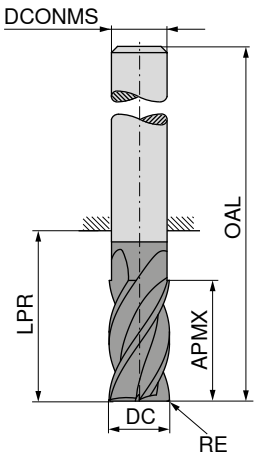
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 5 x DC

CCR UNI | λ_s=35° α_s=36° γ_s= 9° | HPC





DPX72S

DRAGONSKIN

Factory standard

53 593 ...

DC e8 mm	RE ±0,05 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
18,0	3,0	91	102	150	18	5	**18430**
18,0	4,0	91	102	150	18	5	**18440**
20,0	0,2	102	113	163	20	5	**20402**
20,0	1,0	102	113	163	20	5	**20410**
20,0	1,5	102	113	163	20	5	**20415**
20,0	1,6	102	113	163	20	5	**20416**
20,0	2,0	102	113	163	20	5	**20420**
20,0	3,0	102	113	163	20	5	**20430**
20,0	4,0	102	113	163	20	5	**20440**

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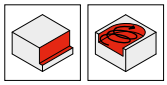
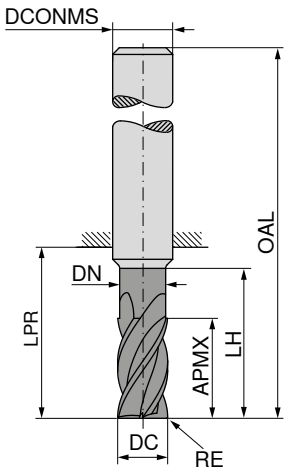
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 3 x DC

CCR VA | λ_s=30° γ_s= 8° | HPC





DPX22S

DRAGONSKIN

Factory standard

53 643 ...

DC $_{e8}$ mm	RE $_{\pm 0,05}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
6	0,2	19	5,8	25	27	63	6	6	**06202**
6	1,0	19	5,8	25	27	63	6	6	**06210**
6	1,5	19	5,8	25	27	63	6	6	**06215**
8	0,2	25	7,7	33	35	71	8	6	**08202**
8	1,0	25	7,7	33	35	71	8	6	**08210**
8	1,5	25	7,7	33	35	71	8	6	**08215**
8	2,0	25	7,7	33	35	71	8	6	**08220**
10	0,2	31	9,7	41	43	83	10	6	**10202**
10	1,0	31	9,7	41	43	83	10	6	**10210**
10	1,5	31	9,7	41	43	83	10	6	**10215**
10	2,0	31	9,7	41	43	83	10	6	**10220**
12	0,2	37	11,6	47	49	94	12	6	**12202**
12	1,0	37	11,6	47	49	94	12	6	**12210**
12	1,5	37	11,6	47	49	94	12	6	**12215**
12	2,0	37	11,6	47	49	94	12	6	**12220**
12	3,0	37	11,6	47	49	94	12	6	**12230**
14	0,2	43	13,6	55	59	104	14	6	**14202**
14	1,0	43	13,6	55	59	104	14	6	**14210**
14	1,5	43	13,6	55	59	104	14	6	**14215**
14	2,0	43	13,6	55	59	104	14	6	**14220**
14	3,0	43	13,6	55	59	104	14	6	**14230**
16	0,2	49	15,5	61	63	111	16	6	**16202**
16	1,0	49	15,5	61	63	111	16	6	**16210**
16	1,5	49	15,5	61	63	111	16	6	**16215**
16	2,0	49	15,5	61	63	111	16	6	**16220**
16	3,0	49	15,5	61	63	111	16	6	**16230**
16	4,0	49	15,5	61	63	111	16	6	**16240**
18	0,2	55	17,5	69	73	121	18	6	**18202**
18	1,0	55	17,5	69	73	121	18	6	**18210**
18	1,5	55	17,5	69	73	121	18	6	**18215**
18	2,0	55	17,5	69	73	121	18	6	**18220**
18	3,0	55	17,5	69	73	121	18	6	**18230**
18	4,0	55	17,5	69	73	121	18	6	**18240**
20	0,2	61	19,5	75	77	127	20	6	**20202**
20	1,0	61	19,5	75	77	127	20	6	**20210**
20	1,5	61	19,5	75	77	127	20	6	**20215**
20	2,0	61	19,5	75	77	127	20	6	**20220**
20	3,0	61	19,5	75	77	127	20	6	**20230**
20	4,0	61	19,5	75	77	127	20	6	**20040**

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→ v_c/f_z Page 370+371

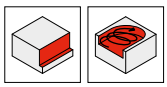
14

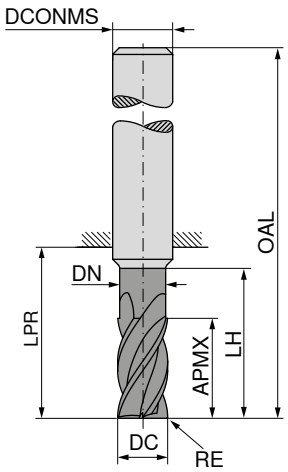
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 4 x DC

CCR VA | λ_s=35° γ_s= 36° 9° | HPC





DPX22S

DRAGONSKIN

Factory standard

53 644 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
6	0,2	25	5,8	29	31	67	6	5	**06002**
6	1,0	25	5,8	29	31	67	6	5	**06010**
6	1,5	25	5,8	29	31	67	6	5	**06015**
8	0,2	33	7,7	38	40	76	8	5	**08002**
8	1,0	33	7,7	38	40	76	8	5	**08010**
8	1,5	33	7,7	38	40	76	8	5	**08015**
8	2,0	33	7,7	38	40	76	8	5	**08020**
10	0,2	41	9,7	47	49	89	10	5	**10002**
10	1,0	41	9,7	47	49	89	10	5	**10010**
10	1,5	41	9,7	47	49	89	10	5	**10015**
10	2,0	41	9,7	47	49	89	10	5	**10020**
12	0,2	49	11,6	55	57	102	12	5	**12002**
12	1,0	49	11,6	55	57	102	12	5	**12010**
12	1,5	49	11,6	55	57	102	12	5	**12015**
12	2,0	49	11,6	55	57	102	12	5	**12020**
12	3,0	49	11,6	55	57	102	12	5	**12030**
14	0,2	57	13,6	64	68	113	14	5	**14002**
14	1,0	57	13,6	64	68	113	14	5	**14010**
14	1,5	57	13,6	64	68	113	14	5	**14015**
14	2,0	57	13,6	64	68	113	14	5	**14020**
14	3,0	57	13,6	64	68	113	14	5	**14030**
16	0,2	65	15,5	73	75	123	16	5	**16002**
16	1,0	65	15,5	73	75	123	16	5	**16010**
16	1,5	65	15,5	73	75	123	16	5	**16015**
16	2,0	65	15,5	73	75	123	16	5	**16020**
16	3,0	65	15,5	73	75	123	16	5	**16030**
16	4,0	65	15,5	73	75	123	16	5	**16040**
18	0,2	73	17,5	82	86	134	18	5	**18002**
18	1,0	73	17,5	82	86	134	18	5	**18010**
18	1,5	73	17,5	82	86	134	18	5	**18015**
18	2,0	73	17,5	82	86	134	18	5	**18020**
18	3,0	73	17,5	82	86	134	18	5	**18030**
18	4,0	73	17,5	82	86	134	18	5	**18040**
20	0,2	82	19,5	91	93	143	20	5	**20002**
20	1,0	82	19,5	91	93	143	20	5	**20010**
20	1,5	82	19,5	91	93	143	20	5	**20015**
20	2,0	82	19,5	91	93	143	20	5	**20020**
20	3,0	82	19,5	91	93	143	20	5	**20030**
20	4,0	82	19,5	91	93	143	20	5	**20040**

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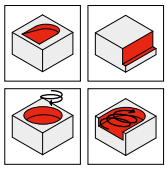
→ v_c/f_z Page 372+373

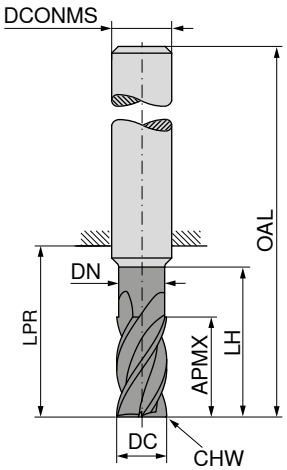
CircularLine – End milling cutter

The specialist for trochoidal machining

- ▲ Chip breaker 1.8 x DC
- ▲ 53 590 ... Cutting depth: 3 x DC
- ▲ 53 591 ... Cutting depth: 4 x DC

CCR AL | λ_s=45° γ_s= 8°





Factory standard | Factory standard

DC $_{e8}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	53 590 ...	53 591 ...
6	19	5,8	24	30	66	6	0,2	4	**060**	
6	25	5,8	30	35	71	6	0,2	4		**060**
8	25	7,7	32	37	73	8	0,2	4	**080**	
8	33	7,7	40	44	80	8	0,2	4		**080**
10	31	9,7	40	49	89	10	0,2	4	**100**	
10	41	9,7	50	55	95	10	0,2	4		**100**
12	37	11,6	48	56	101	12	0,2	4	**120**	
12	49	11,6	60	64	109	12	0,2	4		**120**
14	43	13,0	56	60	105	14	0,2	4	**14000**	
14	57	13,0	70	74	119	14	0,2	4		**14000**
16	49	15,5	64	72	120	16	0,2	4	**160**	
16	65	15,5	80	84	132	16	0,2	4		**160**
18	56	17,0	72	76	124	18	0,2	4	**18000**	
18	74	17,0	90	94	142	18	0,2	4		**18000**
20	62	19,5	80	84	134	20	0,2	4	**200**	
20	82	19,5	100	104	154	20	0,2	4		**200**

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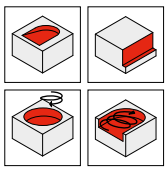
→ v_c/f_z Page 374+375

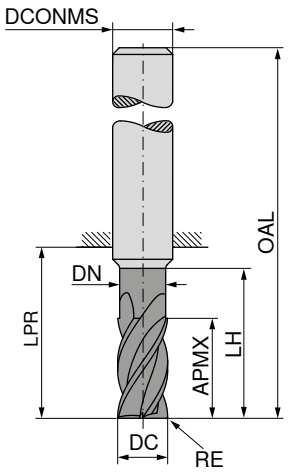
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 1.8 x DC
▲ Cutting depth: 3 x DC

CCR AL | λ_s=45° γ_s= 8°





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DRAGONSKIN

Factory standard

53 594 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
6	0,2	19	5,8	24	30	66	6	4	**06002**
6	1,0	19	5,8	24	30	66	6	4	**06010**
6	1,5	19	5,8	24	30	66	6	4	**06015**
8	0,2	25	7,7	32	37	73	8	4	**08002**
8	1,0	25	7,7	32	37	73	8	4	**08010**
8	1,5	25	7,7	32	37	73	8	4	**08015**
8	2,0	25	7,7	32	37	73	8	4	**08020**
10	0,2	31	9,7	40	49	89	10	4	**10002**
10	1,0	31	9,7	40	49	89	10	4	**10010**
10	1,5	31	9,7	40	49	89	10	4	**10015**
10	1,6	31	9,7	40	49	89	10	4	**10016**
10	2,0	31	9,7	40	49	89	10	4	**10020**
12	0,2	37	11,6	48	56	101	12	4	**12002**
12	1,0	37	11,6	48	56	101	12	4	**12010**
12	1,5	37	11,6	48	56	101	12	4	**12015**
12	1,6	37	11,6	48	56	101	12	4	**12016**
12	2,0	37	11,6	48	56	101	12	4	**12020**
12	3,0	37	11,6	48	56	101	12	4	**12030**
14	0,2	43	13,0	56	60	105	14	4	**14002**
14	1,0	43	13,0	56	60	105	14	4	**14010**
14	1,5	43	13,0	56	60	105	14	4	**14015**
14	1,6	43	13,0	56	60	105	14	4	**14016**
14	2,0	43	13,0	56	60	105	14	4	**14020**
14	3,0	43	13,0	56	60	105	14	4	**14030**
16	0,2	49	15,5	64	72	120	16	4	**16002**
16	1,0	49	15,5	64	72	120	16	4	**16010**
16	1,5	49	15,5	64	72	120	16	4	**16015**
16	1,6	49	15,5	64	72	120	16	4	**16016**
16	2,0	49	15,5	64	72	120	16	4	**16020**
16	3,0	49	15,5	64	72	120	16	4	**16030**
16	4,0	49	15,5	64	72	120	16	4	**16040**
18	0,2	56	17,0	72	76	124	18	4	**18002**
18	1,0	56	17,0	72	76	124	18	4	**18010**
18	1,5	56	17,0	72	76	124	18	4	**18015**
18	1,6	56	17,0	72	76	124	18	4	**18016**
18	2,0	56	17,0	72	76	124	18	4	**18020**

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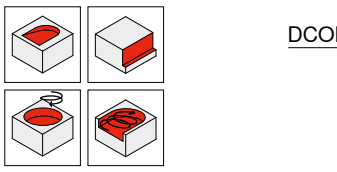
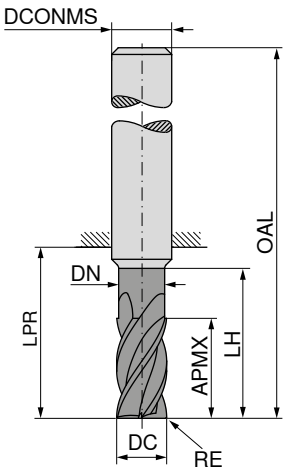
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 1.8 x DC
▲ Cutting depth: 3 x DC

CCR AL | λ_s=45° γ_s= 8°





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DRAGONSKIN

Factory standard

53 594 ...

DC $_{e8}$ mm	RE $_{\pm 0,05}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
18	3,0	56	17,0	72	76	124	18	4	**18030**
18	4,0	56	17,0	72	76	124	18	4	**18040**
20	0,2	62	19,5	80	84	134	20	4	**20002**
20	1,0	62	19,5	80	84	134	20	4	**20010**
20	1,5	62	19,5	80	84	134	20	4	**20015**
20	1,6	62	19,5	80	84	134	20	4	**20016**
20	2,0	62	19,5	80	84	134	20	4	**20020**
20	3,0	62	19,5	80	84	134	20	4	**20030**
20	4,0	62	19,5	80	84	134	20	4	**20040**

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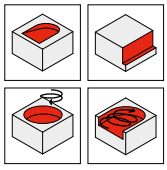
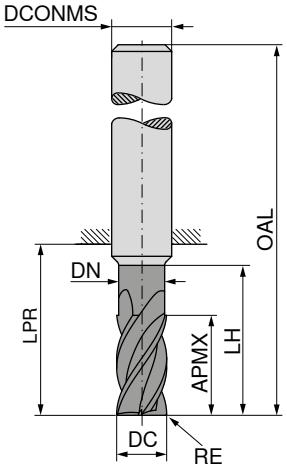
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 1.8 x DC
▲ Cutting depth: 4 x DC

CCR AL | λ_s=45° γ_s= 8°





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DRAGONSKIN

Factory standard

53 595 ...

DC $_{e8}$ mm	RE $_{\pm 0.05}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
6	0,2	25	5,8	30	35	71	6	4	**06002**
6	1,0	25	5,8	30	35	71	6	4	**06010**
6	1,5	25	5,8	30	35	71	6	4	**06015**
8	0,2	33	7,7	40	44	80	8	4	**08002**
8	1,0	33	7,7	40	44	80	8	4	**08010**
8	1,5	33	7,7	40	44	80	8	4	**08015**
8	2,0	33	7,7	40	44	80	8	4	**08020**
10	0,2	41	9,7	50	55	95	10	4	**10002**
10	1,0	41	9,7	50	55	95	10	4	**10010**
10	1,5	41	9,7	50	55	95	10	4	**10015**
10	1,6	41	9,7	50	55	95	10	4	**10016**
10	2,0	41	9,7	50	55	95	10	4	**10020**
12	0,2	49	11,6	60	64	109	12	4	**12002**
12	1,0	49	11,6	60	64	109	12	4	**12010**
12	1,5	49	11,6	60	64	109	12	4	**12015**
12	1,6	49	11,6	60	64	109	12	4	**12016**
12	2,0	49	11,6	60	64	109	12	4	**12020**
12	3,0	49	11,6	60	64	109	12	4	**12030**
14	0,2	57	13,0	70	74	119	14	4	**14002**
14	1,0	57	13,0	70	74	119	14	4	**14010**
14	1,5	57	13,0	70	74	119	14	4	**14015**
14	1,6	57	13,0	70	74	119	14	4	**14016**
14	2,0	57	13,0	70	74	119	14	4	**14020**
14	3,0	57	13,0	70	74	119	14	4	**14030**
16	0,2	65	15,5	80	84	132	16	4	**16002**
16	1,0	65	15,5	80	84	132	16	4	**16010**
16	1,5	65	15,5	80	84	132	16	4	**16015**
16	1,6	65	15,5	80	84	132	16	4	**16016**
16	2,0	65	15,5	80	84	132	16	4	**16020**
16	3,0	65	15,5	80	84	132	16	4	**16030**
16	4,0	65	15,5	80	84	132	16	4	**16040**
18	0,2	74	17,0	90	94	142	18	4	**18002**
18	1,0	74	17,0	90	94	142	18	4	**18010**
18	1,5	74	17,0	90	94	142	18	4	**18015**
18	1,6	74	17,0	90	94	142	18	4	**18016**
18	2,0	74	17,0	90	94	142	18	4	**18020**

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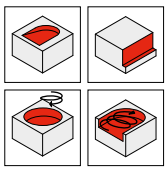
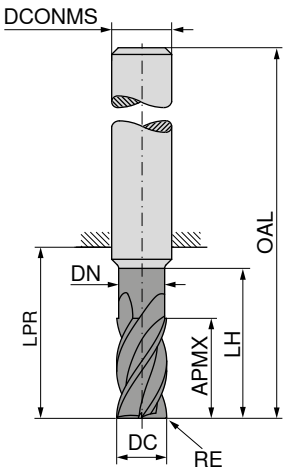
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 1.8 x DC
▲ Cutting depth: 4 x DC

CCR AL | λ_s=45° γ_s= 8°





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DRAGONSKIN

Factory standard

53 595 ...

DC $_{e8}$ mm	RE $_{\pm 0,05}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
18	3,0	74	17,0	90	94	142	18	4	**18030**
18	4,0	74	17,0	90	94	142	18	4	**18040**
20	0,2	82	19,5	100	104	154	20	4	**20002**
20	1,0	82	19,5	100	104	154	20	4	**20010**
20	1,5	82	19,5	100	104	154	20	4	**20015**
20	1,6	82	19,5	100	104	154	20	4	**20016**
20	2,0	82	19,5	100	104	154	20	4	**20020**
20	3,0	82	19,5	100	104	154	20	4	**20030**
20	4,0	82	19,5	100	104	154	20	4	**20040**

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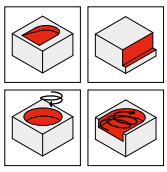
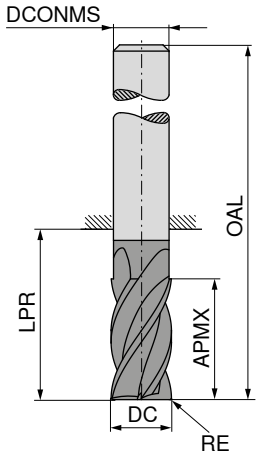
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 1.8 x DC
▲ Cutting depth: 5 x DC

CCR AL | λ_s=45° γ_s= 8°





DLC
DRAGONSKIN

Factory standard

53 641 ...

DC h8 mm	RE ±0,05 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
6	0,2	31	40	76	6	4	**06002**
6	1,0	31	40	76	6	4	**06010**
6	1,5	31	40	76	6	4	**06015**
8	0,2	41	50	86	8	4	**08002**
8	1,0	41	50	86	8	4	**08010**
8	1,5	41	50	86	8	4	**08015**
8	2,0	41	50	86	8	4	**08020**
10	0,2	51	61	101	10	4	**10002**
10	1,0	51	61	101	10	4	**10010**
10	1,5	51	61	101	10	4	**10015**
10	2,0	51	61	101	10	4	**10020**
12	0,2	61	71	116	12	4	**12002**
12	1,0	61	71	116	12	4	**12010**
12	1,5	61	71	116	12	4	**12015**
12	2,0	61	71	116	12	4	**12020**
14	0,2	71	82	127	14	4	**14002**
14	1,0	71	82	127	14	4	**14010**
14	1,5	71	82	127	14	4	**14015**
14	2,0	71	82	127	14	4	**14020**
16	0,2	81	93	141	16	4	**16002**
16	1,0	81	93	141	16	4	**16010**
16	1,5	81	93	141	16	4	**16015**
16	2,0	81	93	141	16	4	**16020**
18	0,2	91	103	151	18	4	**18002**
18	1,0	91	103	151	18	4	**18010**
18	1,5	91	103	151	18	4	**18015**
18	2,0	91	103	151	18	4	**18020**
20	0,2	102	114	164	20	4	**20002**
20	1,0	102	114	164	20	4	**20010**
20	1,5	102	114	164	20	4	**20015**
20	2,0	102	114	164	20	4	**20020**

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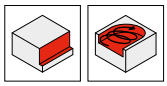
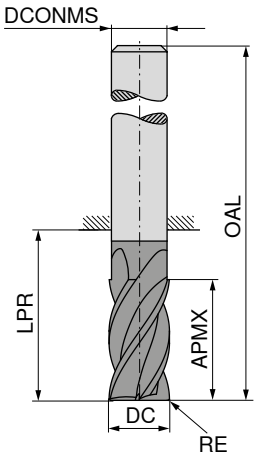
CircularLine – End milling cutter with corner radius

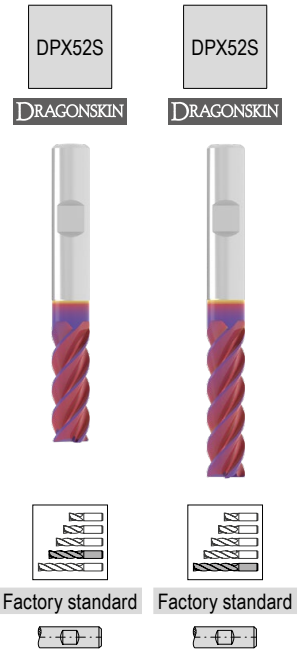
The specialist for machining titanium and titanium alloys

- ▲ Chip breaker 0.9 x DC
- ▲ Long cutting depth version: 3 x DC
- ▲ Extra-long cutting depth version: 4 x DC

CCR Ti | λ_s=40° γ_s=10° | HPC







DC e8 mm	RE ±0,01 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	52 510 ...	52 510 ...
6	0,1	18	29	65	6	5	06000	
6	0,1	24	31	67	6	5		06100
8	0,2	24	34	70	8	5	08000	
8	0,2	32	44	80	8	5		08100
10	0,2	30	40	80	10	5	10000	
10	0,2	40	50	90	10	5		10100
12	0,2	36	50	95	12	5	12000	
12	0,2	48	55	100	12	5		12100
16	0,2	48	62	110	16	5	16000	
16	0,3	64	72	120	16	5		16100
20	0,3	60	75	125	20	5	20000	
20	0,3	80	90	140	20	5		20100
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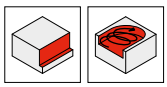
14

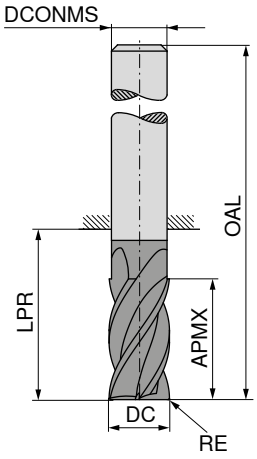
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 3 x DC

CCR H | λ_s=50° γ_s=–6° | 45–70 HRC





DPX62S

DRAGONSKIN

Factory standard

53 596 ...

DC $_{e8}$ mm	RE $_{\pm 0,05}$ mm	APMX mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
6	0,2	19	24	60	6	6	**06002**
6	1,0	19	24	60	6	6	**06010**
8	0,2	25	31	67	8	6	**08002**
8	1,0	25	31	67	8	6	**08010**
10	0,2	31	37	77	10	6	**10002**
10	1,0	31	37	77	10	6	**10010**
10	1,5	31	37	77	10	6	**10015**
12	0,2	37	43	88	12	6	**12002**
12	1,0	37	43	88	12	6	**12010**
12	1,5	37	43	88	12	6	**12015**
12	2,0	37	43	88	12	6	**12020**
12	3,0	37	43	88	12	6	**12030**
16	0,2	49	56	104	16	6	**16002**
16	1,0	49	56	104	16	6	**16010**
16	1,5	49	56	104	16	6	**16015**
16	2,0	49	56	104	16	6	**16020**
16	3,0	49	56	104	16	6	**16030**
20	0,2	61	68	118	20	6	**20002**
20	1,0	61	68	118	20	6	**20010**
20	1,5	61	68	118	20	6	**20015**
20	2,0	61	68	118	20	6	**20020**
20	3,0	61	68	118	20	6	**20030**

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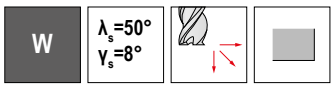
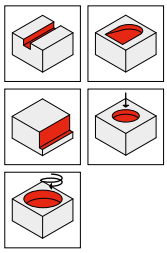
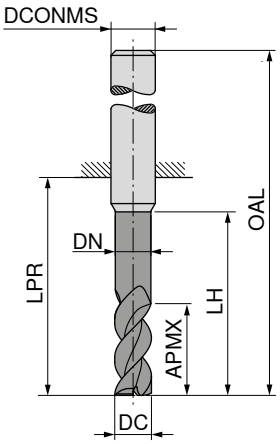
AluLine – End milling cutter

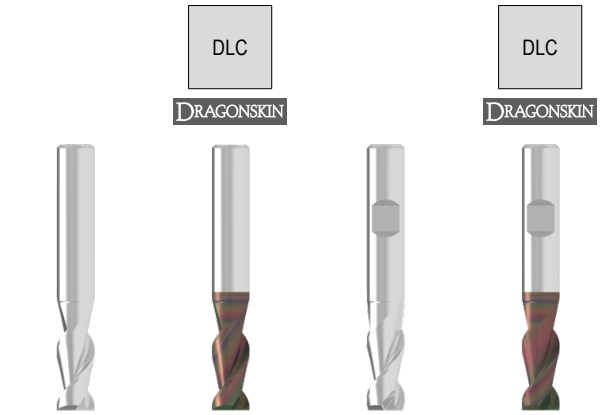
The specialist for machining non-ferrous metals

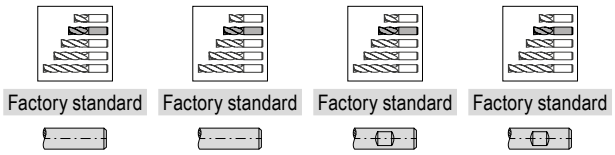
▲ With polished chip flutes











								53 623 ...	53 625 ...	53 624 ...	53 626 ...
								Factory standard	Factory standard	Factory standard	Factory standard
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP				
5,0	10,5	4,8	15	22	58	6	2	**05100**	**05100**	**05100**	**05100**
5,5	13,0	5,3	18	22	58	6	2	**05600**	**05600**	**05600**	**05600**
6,0	13,0	5,8	18	22	58	6	2	**06100**	**06100**	**06100**	**06100**
6,5	17,0	6,2	24	28	64	8	2	**06600**	**06600**	**06600**	**06600**
7,0	17,0	6,7	24	28	64	8	2	**07100**	**07100**	**07100**	**07100**
7,5	17,0	7,2	24	28	64	8	2	**07600**	**07600**	**07600**	**07600**
8,0	17,0	7,7	24	28	64	8	2	**08100**	**08100**	**08100**	**08100**
8,5	21,0	8,2	30	34	74	10	2	**08600**	**08600**	**08600**	**08600**
9,0	21,0	8,7	30	34	74	10	2	**09100**	**09100**	**09100**	**09100**
9,5	21,0	9,2	30	34	74	10	2	**09600**	**09600**	**09600**	**09600**
10,0	21,0	9,7	30	34	74	10	2	**10100**	**10100**	**10100**	**10100**
10,5	25,0	10,1	36	40	85	12	2	**10600**	**10600**	**10600**	**10600**
11,0	25,0	10,6	36	40	85	12	2	**11100**	**11100**	**11100**	**11100**
11,5	25,0	11,1	36	40	85	12	2	**11600**	**11600**	**11600**	**11600**
12,0	25,0	11,6	36	40	85	12	2	**12100**	**12100**	**12100**	**12100**
12,5	29,0	12,1	42	46	91	14	2			**12600**	**12600**
13,0	29,0	12,6	42	46	91	14	2			**13100**	**13100**
13,5	29,0	13,1	42	46	91	14	2			**13600**	**13600**
14,0	29,0	13,6	42	46	91	14	2			**14100**	**14100**
14,5	33,0	14,0	48	52	100	16	2			**14600**	**14600**
15,0	33,0	14,5	48	52	100	16	2			**15100**	**15100**
15,5	33,0	15,0	48	52	100	16	2			**15600**	**15600**
16,0	33,0	15,5	48	52	100	16	2			**16100**	**16100**
16,5	38,0	16,0	54	58	106	18	2			**16600**	**16600**
17,0	38,0	16,5	54	58	106	18	2			**17100**	**17100**
17,5	38,0	17,0	54	58	106	18	2			**17600**	**17600**
18,0	38,0	17,5	54	58	106	18	2			**18100**	**18100**
18,5	42,0	18,0	60	64	114	20	2			**18600**	**18600**
19,0	42,0	18,5	60	64	114	20	2			**19100**	**19100**
19,5	42,0	19,0	60	64	114	20	2			**19600**	**19600**
20,0	42,0	19,5	60	64	114	20	2			**20100**	**20100**
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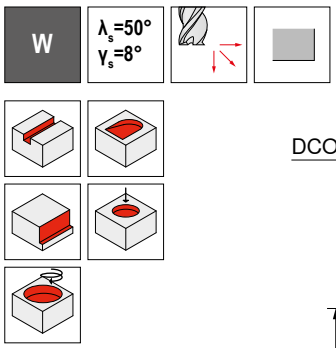
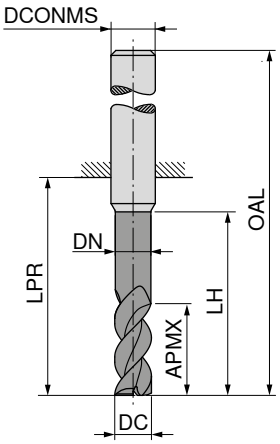
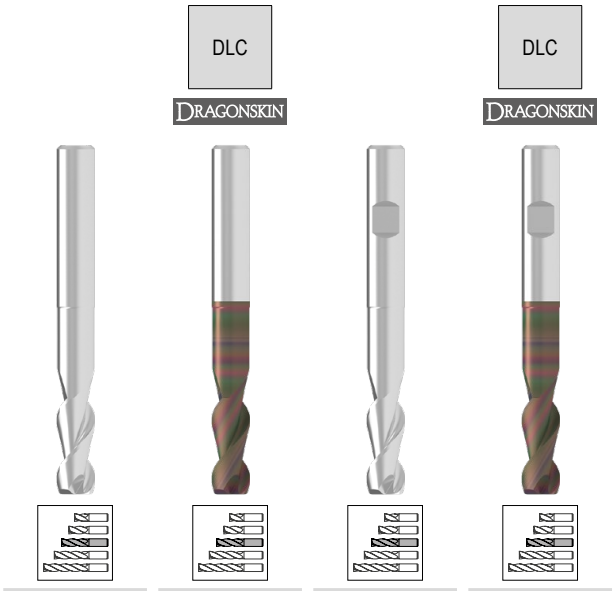
AluLine – End milling cutter

The specialist for machining non-ferrous metals

▲ With polished chip flutes







								53 633 ...	53 635 ...	53 634 ...	53 636 ...
DC h6	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP				
mm	mm	mm	mm	mm	mm	mm					
2,0	5,5	1,8	10,0	19	55	6	2	**02300**	**02300**	**02300**	**02300**
2,5	6,5	2,3	12,5	22	58	6	2	**02800**	**02800**	**02800**	**02800**
3,0	8,0	2,8	15,0	22	58	6	2	**03300**	**03300**	**03300**	**03300**
3,5	10,5	3,3	20,0	26	62	6	2	**03800**	**03800**	**03800**	**03800**
4,0	10,5	3,8	20,0	26	62	6	2	**04300**	**04300**	**04300**	**04300**
4,5	13,0	4,3	25,0	34	70	6	2	**04800**	**04800**	**04800**	**04800**
5,0	13,0	4,8	25,0	34	70	6	2	**05300**	**05300**	**05300**	**05300**
5,5	16,0	5,3	30,0	34	70	6	2	**05800**	**05800**	**05800**	**05800**
6,0	16,0	5,8	30,0	34	70	6	2	**06300**	**06300**	**06300**	**06300**
6,5	21,0	6,2	40,0	44	80	8	2	**06800**	**06800**	**06800**	**06800**
7,0	21,0	6,7	40,0	44	80	8	2	**07300**	**07300**	**07300**	**07300**
7,5	21,0	7,2	40,0	44	80	8	2	**07800**	**07800**	**07800**	**07800**
8,0	21,0	7,7	40,0	44	80	8	2	**08300**	**08300**	**08300**	**08300**
8,5	26,0	8,2	50,0	54	94	10	2	**08800**	**08800**	**08800**	**08800**
9,0	26,0	8,7	50,0	54	94	10	2	**09300**	**09300**	**09300**	**09300**
9,5	26,0	9,2	50,0	54	94	10	2	**09800**	**09800**	**09800**	**09800**
10,0	26,0	9,7	50,0	54	94	10	2	**10300**	**10300**	**10300**	**10300**
10,5	31,0	10,1	60,0	64	109	12	2	**10800**	**10800**	**10800**	**10800**
11,0	31,0	10,6	60,0	64	109	12	2	**11300**	**11300**	**11300**	**11300**
11,5	31,0	11,1	60,0	64	109	12	2	**11800**	**11800**	**11800**	**11800**
12,0	31,0	11,6	60,0	64	109	12	2	**12300**	**12300**	**12300**	**12300**
12,5	36,0	12,1	70,0	74	119	14	2			**12800**	**12800**
13,0	36,0	12,6	70,0	74	119	14	2			**13300**	**13300**
13,5	36,0	13,1	70,0	74	119	14	2			**13800**	**13800**
14,0	36,0	13,6	70,0	74	119	14	2			**14300**	**14300**
14,5	41,0	14,0	80,0	84	132	16	2			**14800**	**14800**
15,0	41,0	14,5	80,0	84	132	16	2			**15300**	**15300**
15,5	41,0	15,0	80,0	84	132	16	2			**15800**	**15800**
16,0	41,0	15,5	80,0	84	132	16	2			**16300**	**16300**
16,5	47,0	16,0	90,0	94	142	18	2			**16800**	**16800**
17,0	47,0	16,5	90,0	94	142	18	2			**17300**	**17300**
17,5	47,0	17,0	90,0	94	142	18	2			**17800**	**17800**
18,0	47,0	17,5	90,0	94	142	18	2			**18300**	**18300**
18,5	52,0	18,0	100,0	104	154	20	2			**18800**	**18800**
19,0	52,0	18,5	100,0	104	154	20	2			**19300**	**19300**
19,5	52,0	19,0	100,0	104	154	20	2			**19800**	**19800**
20,0	52,0	19,5	100,0	104	154	20	2			**20300**	**20300**
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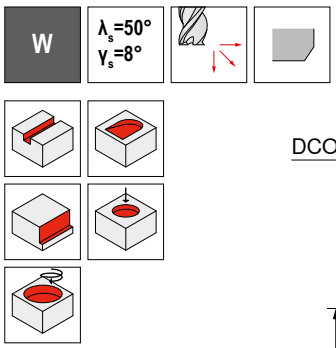
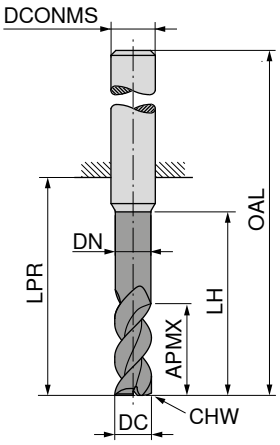
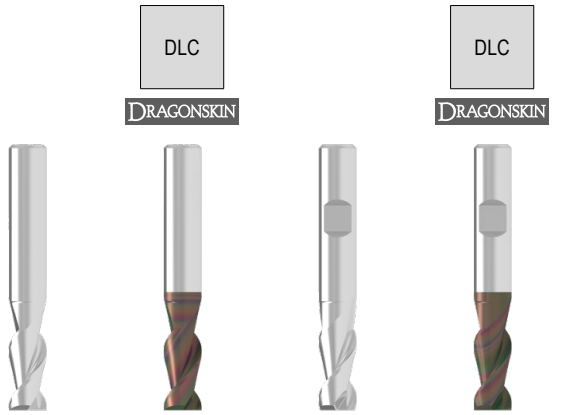
AluLine – End milling cutter

The specialist for machining non-ferrous metals

▲ With polished chip flutes







Factory standard | Factory standard | Factory standard | Factory standard

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 619 ...	53 621 ...	53 620 ...	53 622 ...
5,0	10,5	4,8	15	22	58	6	0,1	2	**05100**	**05100**	**05100**	**05100**
5,5	13,0	5,3	18	22	58	6	0,1	2	**05600**	**05600**	**05600**	**05600**
6,0	13,0	5,8	18	22	58	6	0,1	2	**06100**	**06100**	**06100**	**06100**
6,5	17,0	6,2	24	28	64	8	0,1	2	**06600**	**06600**	**06600**	**06600**
7,0	17,0	6,7	24	28	64	8	0,1	2	**07100**	**07100**	**07100**	**07100**
7,5	17,0	7,2	24	28	64	8	0,1	2	**07600**	**07600**	**07600**	**07600**
8,0	17,0	7,7	24	28	64	8	0,1	2	**08100**	**08100**	**08100**	**08100**
8,5	21,0	8,2	30	34	74	10	0,1	2	**08600**	**08600**	**08600**	**08600**
9,0	21,0	8,7	30	34	74	10	0,1	2	**09100**	**09100**	**09100**	**09100**
9,5	21,0	9,2	30	34	74	10	0,1	2	**09600**	**09600**	**09600**	**09600**
10,0	21,0	9,7	30	34	74	10	0,1	2	**10100**	**10100**	**10100**	**10100**
10,5	25,0	10,1	36	40	85	12	0,1	2	**10600**	**10600**	**10600**	**10600**
11,0	25,0	10,6	36	40	85	12	0,1	2	**11100**	**11100**	**11100**	**11100**
11,5	25,0	11,1	36	40	85	12	0,1	2	**11600**	**11600**	**11600**	**11600**
12,0	25,0	11,6	36	40	85	12	0,1	2	**12100**	**12100**	**12100**	**12100**
12,5	29,0	12,1	42	46	91	14	0,1	2			**12600**	**12600**
13,0	29,0	12,6	42	46	91	14	0,1	2			**13100**	**13100**
13,5	29,0	13,1	42	46	91	14	0,1	2			**13600**	**13600**
14,0	29,0	13,6	42	46	91	14	0,1	2			**14100**	**14100**
14,5	33,0	14,0	48	52	100	16	0,1	2			**14600**	**14600**
15,0	33,0	14,5	48	52	100	16	0,1	2			**15100**	**15100**
15,5	33,0	15,0	48	52	100	16	0,1	2			**15600**	**15600**
16,0	33,0	15,5	48	52	100	16	0,1	2			**16100**	**16100**
16,5	38,0	16,0	54	58	106	18	0,1	2			**16600**	**16600**
17,0	38,0	16,5	54	58	106	18	0,1	2			**17100**	**17100**
17,5	38,0	17,0	54	58	106	18	0,1	2			**17600**	**17600**
18,0	38,0	17,5	54	58	106	18	0,1	2			**18100**	**18100**
18,5	42,0	18,0	60	64	114	20	0,1	2			**18600**	**18600**
19,0	42,0	18,5	60	64	114	20	0,1	2			**19100**	**19100**
19,5	42,0	19,0	60	64	114	20	0,1	2			**19600**	**19600**
20,0	42,0	19,5	60	64	114	20	0,1	2			**20100**	**20100**

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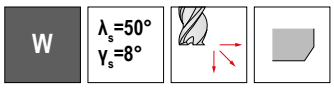
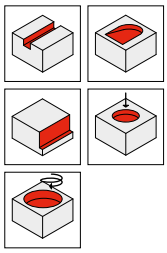
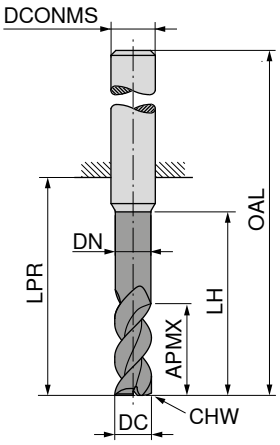
AluLine – End milling cutter

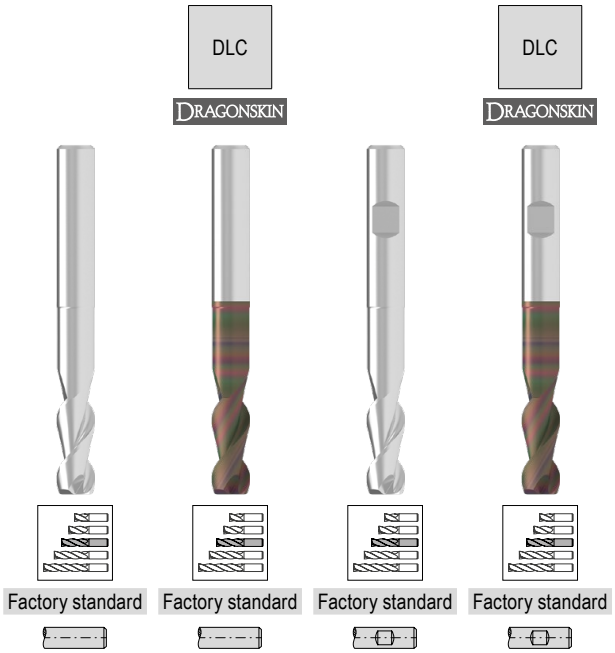
The specialist for machining non-ferrous metals

▲ With polished chip flutes









Factory standard | Factory standard | Factory standard | Factory standard

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 629 ...	53 631 ...	53 630 ...	53 632 ...
2,0	5,5	1,8	10,0	19	55	6	0,05	2	**02300**	**02300**	**02300**	**02300**
2,5	6,5	2,3	12,5	22	58	6	0,05	2	**02800**	**02800**	**02800**	**02800**
3,0	8,0	2,8	15,0	22	58	6	0,10	2	**03300**	**03300**	**03300**	**03300**
3,5	10,5	3,3	20,0	26	62	6	0,10	2	**03800**	**03800**	**03800**	**03800**
4,0	10,5	3,8	20,0	26	62	6	0,10	2	**04300**	**04300**	**04300**	**04300**
4,5	13,0	4,3	25,0	34	70	6	0,10	2	**04800**	**04800**	**04800**	**04800**
5,0	13,0	4,8	25,0	34	70	6	0,10	2	**05300**	**05300**	**05300**	**05300**
5,5	16,0	5,3	30,0	34	70	6	0,10	2	**05800**	**05800**	**05800**	**05800**
6,0	16,0	5,8	30,0	34	70	6	0,10	2	**06300**	**06300**	**06300**	**06300**
6,5	21,0	6,2	40,0	44	80	8	0,10	2	**06800**	**06800**	**06800**	**06800**
7,0	21,0	6,7	40,0	44	80	8	0,10	2	**07300**	**07300**	**07300**	**07300**
7,5	21,0	7,2	40,0	44	80	8	0,10	2	**07800**	**07800**	**07800**	**07800**
8,0	21,0	7,7	40,0	44	80	8	0,10	2	**08300**	**08300**	**08300**	**08300**
8,5	26,0	8,2	50,0	54	94	10	0,10	2	**08800**	**08800**	**08800**	**08800**
9,0	26,0	8,7	50,0	54	94	10	0,10	2	**09300**	**09300**	**09300**	**09300**
9,5	26,0	9,2	50,0	54	94	10	0,10	2	**09800**	**09800**	**09800**	**09800**
10,0	26,0	9,7	50,0	54	94	10	0,10	2	**10300**	**10300**	**10300**	**10300**
10,5	31,0	10,1	60,0	64	109	12	0,10	2	**10800**	**10800**	**10800**	**10800**
11,0	31,0	10,6	60,0	64	109	12	0,10	2	**11300**	**11300**	**11300**	**11300**
11,5	31,0	11,1	60,0	64	109	12	0,10	2	**11800**	**11800**	**11800**	**11800**
12,0	31,0	11,6	60,0	64	109	12	0,10	2	**12300**	**12300**	**12300**	**12300**
12,5	36,0	12,1	70,0	74	119	14	0,10	2			**12800**	**12800**
13,0	36,0	12,6	70,0	74	119	14	0,10	2			**13300**	**13300**
13,5	36,0	13,1	70,0	74	119	14	0,10	2			**13800**	**13800**
14,0	36,0	13,6	70,0	74	119	14	0,10	2			**14300**	**14300**
14,5	41,0	14,0	80,0	84	132	16	0,10	2			**14800**	**14800**
15,0	41,0	14,5	80,0	84	132	16	0,10	2			**15300**	**15300**
15,5	41,0	15,0	80,0	84	132	16	0,10	2			**15800**	**15800**
16,0	41,0	15,5	80,0	84	132	16	0,10	2			**16300**	**16300**
16,5	47,0	16,0	90,0	94	142	18	0,10	2			**16800**	**16800**
17,0	47,0	16,5	90,0	94	142	18	0,10	2			**17300**	**17300**
17,5	47,0	17,0	90,0	94	142	18	0,10	2			**17800**	**17800**
18,0	47,0	17,5	90,0	94	142	18	0,10	2			**18300**	**18300**
18,5	52,0	18,0	100,0	104	154	20	0,10	2			**18800**	**18800**
19,0	52,0	18,5	100,0	104	154	20	0,10	2			**19300**	**19300**
19,5	52,0	19,0	100,0	104	154	20	0,10	2			**19800**	**19800**
20,0	52,0	19,5	100,0	104	154	20	0,10	2			**20300**	**20300**
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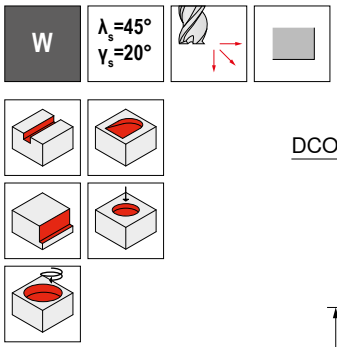
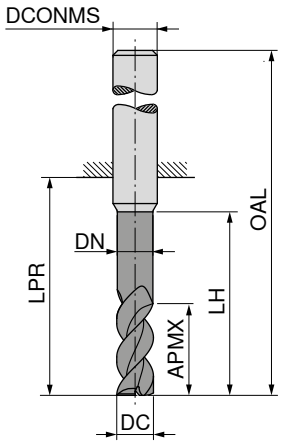
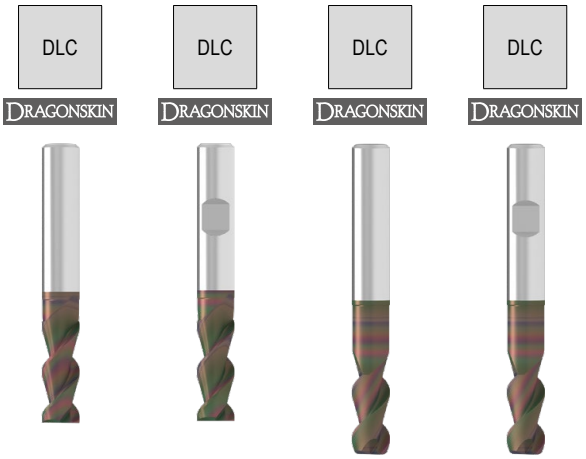
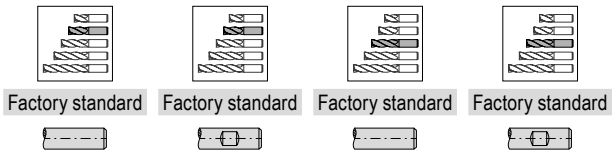
AluLine – End milling cutter

The specialist for machining non-ferrous metals









DC h6	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	53 627 ...		53 628 ...		53 637 ...		53 638 ...	
mm	mm	mm	mm	mm	mm	mm									
2,0	5,5	1,8	10,0	19	55	6	2						02300		02300
2,5	6,5	2,3	12,5	22	58	6	2						02800		02800
3,0	8,0	2,8	15,0	22	58	6	2						03300		03300
3,5	10,5	3,3	20,0	26	62	6	2						03800		03800
4,0	10,5	3,8	20,0	26	62	6	2						04300		04300
4,5	13,0	4,3	25,0	34	70	6	2						04800		04800
5,0	10,5	4,8	15,0	22	58	6	2	05100		05100					
5,0	13,0	4,8	25,0	34	70	6	2						05300		05300
5,5	13,0	5,3	18,0	22	58	6	2	05600		05600					
5,5	16,0	5,3	30,0	34	70	6	2						05800		05800
6,0	13,0	5,8	18,0	22	58	6	2	06100		06100					
6,0	16,0	5,8	30,0	34	70	6	2						06300		06300
6,5	17,0	6,2	24,0	28	64	8	2	06600		06600					
6,5	21,0	6,2	40,0	44	80	8	2						06800		06800
7,0	17,0	6,7	24,0	28	64	8	2	07100		07100					
7,0	21,0	6,7	40,0	44	80	8	2						07300		07300
7,5	17,0	7,2	24,0	28	64	8	2	07600		07600					
7,5	21,0	7,2	40,0	44	80	8	2						07800		07800
8,0	17,0	7,7	24,0	28	64	8	2	08100		08100					
8,0	21,0	7,7	40,0	44	80	8	2						08300		08300
8,5	21,0	8,2	30,0	34	74	10	2	08600		08600					
8,5	26,0	8,2	50,0	54	94	10	2						08800		08800
9,0	21,0	8,7	30,0	34	74	10	2	09100		09100					
9,0	26,0	8,7	50,0	54	94	10	2						09300		09300
9,5	21,0	9,2	30,0	34	74	10	2	09600		09600					
9,5	26,0	9,2	50,0	54	94	10	2						09800		09800
10,0	21,0	9,7	30,0	34	74	10	2	10100		10100					
10,0	26,0	9,7	50,0	54	94	10	2						10300		10300
10,5	25,0	10,1	36,0	40	85	12	2	10600		10600					
10,5	31,0	10,1	60,0	64	109	12	2						10800		10800
11,0	25,0	10,6	36,0	40	85	12	2	11100		11100					
11,0	31,0	10,6	60,0	64	109	12	2						11300		11300
11,5	25,0	11,1	36,0	40	85	12	2	11600		11600					
11,5	31,0	11,1	60,0	64	109	12	2						11800		11800
12,0	25,0	11,6	36,0	40	85	12	2	12100		12100					
12,0	31,0	11,6	60,0	64	109	12	2						12300		12300
12,5	29,0	12,1	42,0	46	91	14	2			12600					
12,5	36,0	12,1	70,0	74	119	14	2								12800

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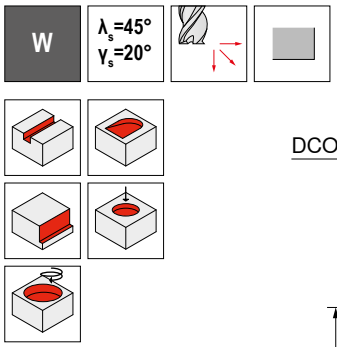
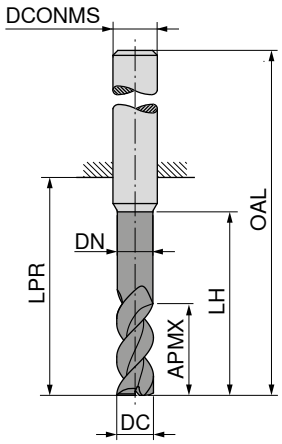
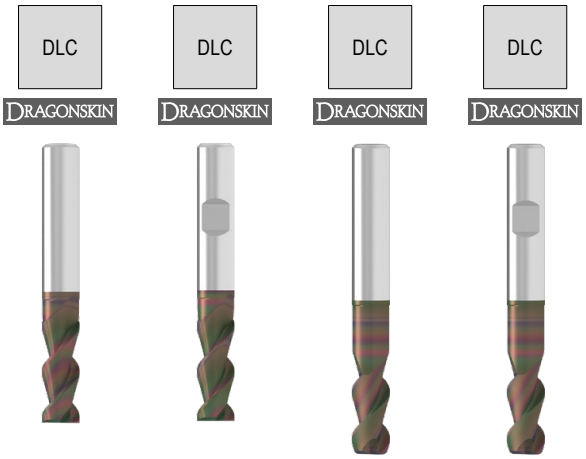
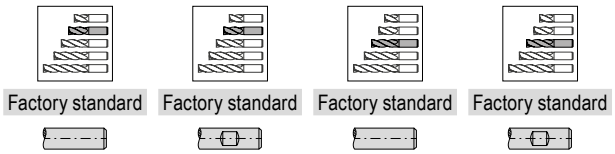
AluLine – End milling cutter

The specialist for machining non-ferrous metals









DC h6	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	53 627 ...	53 628 ...	53 637 ...	53 638 ...
mm	mm	mm	mm	mm	mm	mm					
13,0	29,0	12,6	42,0	46	91	14	2		13100		
13,0	36,0	12,6	70,0	74	119	14	2				13300
13,5	29,0	13,1	42,0	46	91	14	2		13600		
13,5	36,0	13,1	70,0	74	119	14	2				13800
14,0	29,0	13,6	42,0	46	91	14	2		14100		
14,0	36,0	13,6	70,0	74	119	14	2				14300
14,5	33,0	14,0	48,0	52	100	16	2		14600		
14,5	41,0	14,0	80,0	84	132	16	2				14800
15,0	33,0	14,5	48,0	52	100	16	2		15100		
15,0	41,0	14,5	80,0	84	132	16	2				15300
15,5	33,0	15,0	48,0	52	100	16	2		15600		
15,5	41,0	15,0	80,0	84	132	16	2				15800
16,0	33,0	15,5	48,0	52	100	16	2		16100		
16,0	41,0	15,5	80,0	84	132	16	2				16300
16,5	38,0	16,0	54,0	58	106	18	2		16600		
16,5	47,0	16,0	90,0	94	142	18	2				16800
17,0	38,0	16,5	54,0	58	106	18	2		17100		
17,0	47,0	16,5	90,0	94	142	18	2				17300
17,5	38,0	17,0	54,0	58	106	18	2		17600		
17,5	47,0	17,0	90,0	94	142	18	2				17800
18,0	38,0	17,5	54,0	58	106	18	2		18100		
18,0	47,0	17,5	90,0	94	142	18	2				18300
18,5	42,0	18,0	60,0	64	114	20	2		18600		
18,5	52,0	18,0	100,0	104	154	20	2				18800
19,0	42,0	18,5	60,0	64	114	20	2		19100		
19,0	52,0	18,5	100,0	104	154	20	2				19300
19,5	42,0	19,0	60,0	64	114	20	2		19600		
19,5	52,0	19,0	100,0	104	154	20	2				19800
20,0	42,0	19,5	60,0	64	114	20	2		20100		
20,0	52,0	19,5	100,0	104	154	20	2				20300
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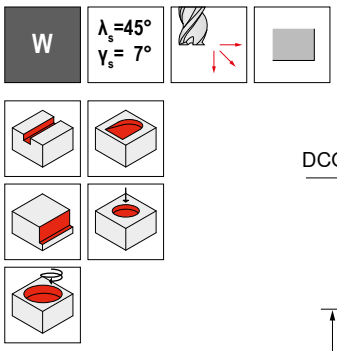
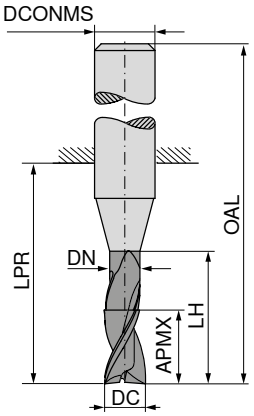
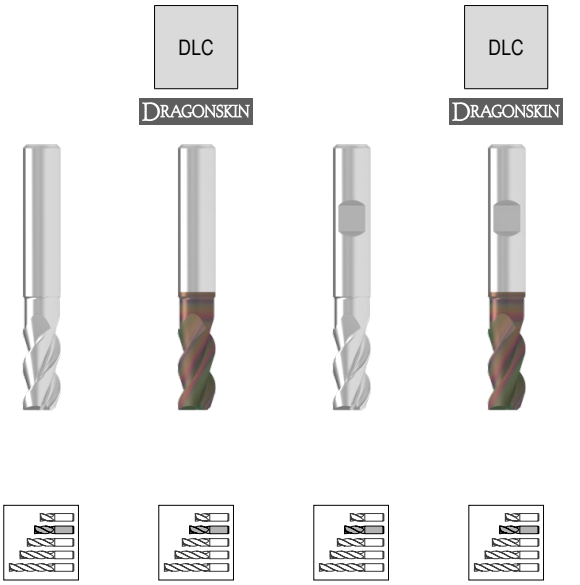
AluLine – End milling cutter

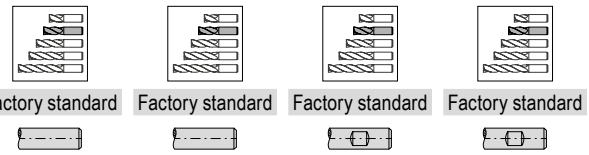
The specialist for machining non-ferrous metals

▲ With polished chip flutes









	Factory standard	Factory standard	Factory standard	Factory standard
	53 615 ...	53 617 ...	53 616 ...	53 618 ...

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP				
2,0	4,5	1,8	6,0	14	50	6	3	02100	02100	02100	02100
2,5	5,5	2,3	7,5	19	55	6	3	02600	02600	02600	02600
3,0	6,5	2,8	9,0	19	55	6	3	03100	03100	03100	03100
3,5	8,5	3,3	12,0	19	55	6	3	03600	03600	03600	03600
4,0	8,5	3,8	12,0	19	55	6	3	04100	04100	04100	04100
4,5	10,5	4,3	15,0	22	58	6	3	04600	04600	04600	04600
5,0	10,5	4,8	15,0	22	58	6	3	05100	05100	05100	05100
5,5	13,0	5,3	18,0	22	58	6	3	05600	05600	05600	05600
6,0	13,0	5,8	18,0	22	58	6	3	06100	06100	06100	06100
6,5	17,0	6,2	24,0	28	64	8	3	06600	06600	06600	06600
7,0	17,0	6,7	24,0	28	64	8	3	07100	07100	07100	07100
7,5	17,0	7,2	24,0	28	64	8	3	07600	07600	07600	07600
8,0	17,0	7,7	24,0	28	64	8	3	08100	08100	08100	08100
8,5	21,0	8,2	30,0	34	74	10	3	08600	08600	08600	08600
9,0	21,0	8,7	30,0	34	74	10	3	09100	09100	09100	09100
9,5	21,0	9,2	30,0	34	74	10	3	09600	09600	09600	09600
10,0	21,0	9,7	30,0	34	74	10	3	10100	10100	10100	10100
10,5	25,0	10,1	36,0	40	85	12	3	10600	10600	10600	10600
11,0	25,0	10,6	36,0	40	85	12	3	11100	11100	11100	11100
11,5	25,0	11,1	36,0	40	85	12	3	11600	11600	11600	11600
12,0	25,0	11,6	36,0	40	85	12	3	12100	12100	12100	12100
12,5	29,0	12,1	42,0	46	91	14	3			12600	12600
13,0	29,0	12,6	42,0	46	91	14	3			13100	13100
13,5	29,0	13,1	42,0	46	91	14	3			13600	13600
14,0	29,0	13,6	42,0	46	91	14	3			14100	14100
14,5	33,0	14,0	48,0	52	100	16	3			14600	14600
15,0	33,0	14,5	48,0	52	100	16	3			15100	15100
15,5	33,0	15,0	48,0	52	100	16	3			15600	15600
16,0	33,0	15,5	48,0	52	100	16	3			16100	16100
16,5	38,0	16,0	54,0	58	106	18	3			16600	16600
17,0	38,0	16,5	54,0	58	106	18	3			17100	17100
17,5	38,0	17,0	54,0	58	106	18	3			17600	17600
18,0	38,0	17,5	54,0	58	106	18	3			18100	18100
18,5	42,0	18,0	60,0	64	114	20	3			18600	18600
19,0	42,0	18,5	60,0	64	114	20	3			19100	19100
19,5	42,0	19,0	60,0	64	114	20	3			19600	19600
20,0	42,0	19,5	60,0	64	114	20	3			20100	20100

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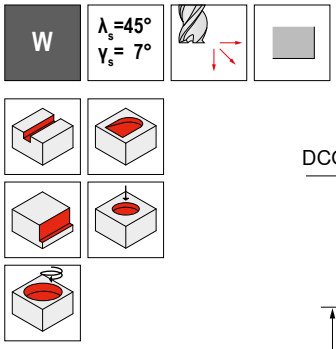
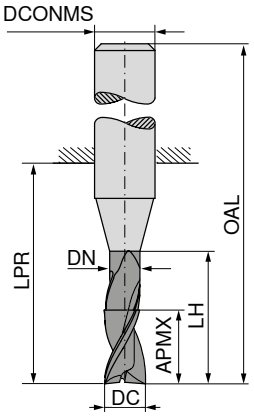
14

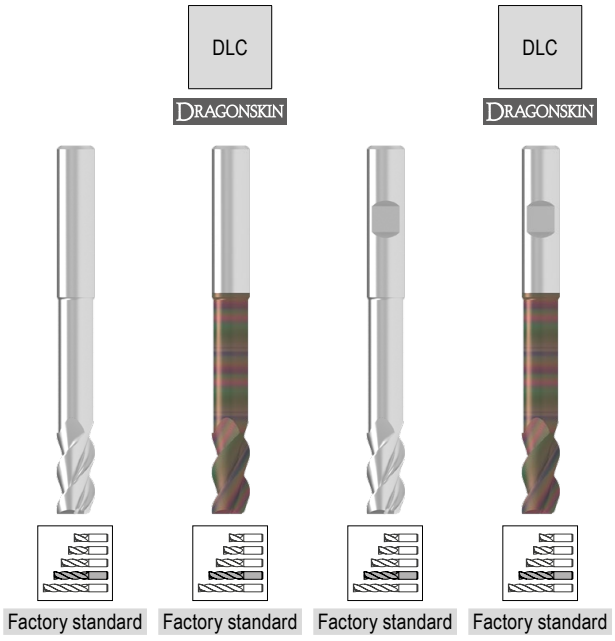
AluLine – End milling cutter

The specialist for machining non-ferrous metals

▲ With polished chip flutes







								Factory standard	Factory standard	Factory standard	Factory standard
								53 615 ...	53 617 ...	53 616 ...	53 618 ...
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP				
2,0	5,5	1,8	10,0	19	55	6	3	02200	02200	02200	02200
2,5	6,5	2,3	12,5	22	58	6	3	02700	02700	02700	02700
3,0	8,0	2,8	15,0	22	58	6	3	03200	03200	03200	03200
3,5	10,5	3,3	20,0	26	62	6	3	03700	03700	03700	03700
4,0	10,5	3,8	20,0	26	62	6	3	04200	04200	04200	04200
4,5	13,0	4,3	25,0	34	70	6	3	04700	04700	04700	04700
5,0	13,0	4,8	25,0	34	70	6	3	05200	05200	05200	05200
5,5	16,0	5,3	30,0	34	70	6	3	05700	05700	05700	05700
6,0	16,0	5,8	30,0	34	70	6	3	06200	06200	06200	06200
6,5	21,0	6,2	40,0	44	80	8	3	06700	06700	06700	06700
7,0	21,0	6,7	40,0	44	80	8	3	07200	07200	07200	07200
7,5	21,0	7,2	40,0	44	80	8	3	07700	07700	07700	07700
8,0	21,0	7,7	40,0	44	80	8	3	08200	08200	08200	08200
8,5	26,0	8,2	50,0	54	94	10	3	08700	08700	08700	08700
9,0	26,0	8,7	50,0	54	94	10	3	09200	09200	09200	09200
9,5	26,0	9,2	50,0	54	94	10	3	09700	09700	09700	09700
10,0	26,0	9,7	50,0	54	94	10	3	10200	10200	10200	10200
10,5	31,0	10,1	60,0	64	109	12	3	10700	10700	10700	10700
11,0	31,0	10,6	60,0	64	109	12	3	11200	11200	11200	11200
11,5	31,0	11,1	60,0	64	109	12	3	11700	11700	11700	11700
12,0	31,0	11,6	60,0	64	109	12	3	12200	12200	12200	12200
12,5	36,0	12,1	70,0	74	119	14	3			12700	12700
13,0	36,0	12,6	70,0	74	119	14	3			13200	13200
13,5	36,0	13,1	70,0	74	119	14	3			13700	13700
14,0	36,0	13,6	70,0	74	119	14	3			14200	14200
14,5	41,0	14,0	80,0	84	132	16	3			14700	14700
15,0	41,0	14,5	80,0	84	132	16	3			15200	15200
15,5	41,0	15,0	80,0	84	132	16	3			15700	15700
16,0	41,0	15,5	80,0	84	132	16	3			16200	16200
16,5	47,0	16,0	90,0	94	142	18	3			16700	16700
17,0	47,0	16,5	90,0	94	142	18	3			17200	17200
17,5	47,0	17,0	90,0	94	142	18	3			17700	17700
18,0	47,0	17,5	90,0	94	142	18	3			18200	18200
18,5	52,0	18,0	100,0	104	154	20	3			18700	18700
19,0	52,0	18,5	100,0	104	154	20	3			19200	19200
19,5	52,0	19,0	100,0	104	154	20	3			19700	19700
20,0	52,0	19,5	100,0	104	154	20	3			20200	20200
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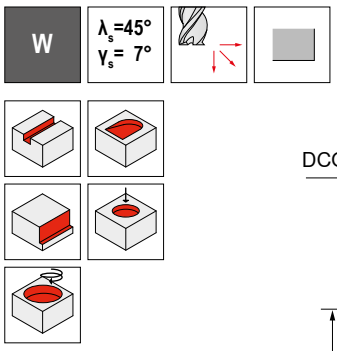
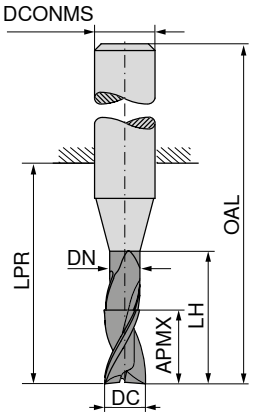
→ v_c/f_z Page 414+415

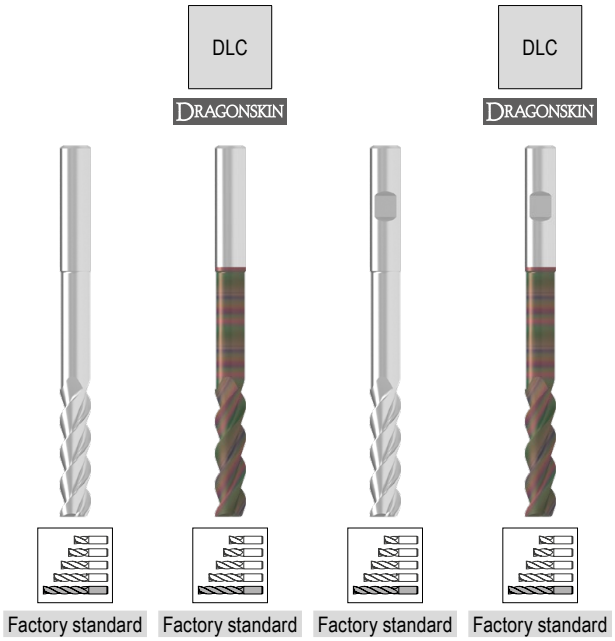
AluLine – End milling cutter

The specialist for machining non-ferrous metals

▲ With polished chip flutes







								53 615 ...	53 617 ...	53 616 ...	53 618 ...
DC h6	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP				
mm	mm	mm	mm	mm	mm	mm					
2,0	8,5	1,8	16	26	62	6	3	**02400**	**02400**	**02400**	**02400**
2,5	10,5	2,3	20	31	67	6	3	**02900**	**02900**	**02900**	**02900**
3,0	12,5	2,8	24	31	67	6	3	**03400**	**03400**	**03400**	**03400**
3,5	16,5	3,3	32	38	74	6	3	**03900**	**03900**	**03900**	**03900**
4,0	16,5	3,8	32	38	74	6	3	**04400**	**04400**	**04400**	**04400**
4,5	20,5	4,3	40	52	88	6	3	**04900**	**04900**	**04900**	**04900**
5,0	20,5	4,8	40	52	88	6	3	**05400**	**05400**	**05400**	**05400**
5,5	25,0	5,3	48	52	88	6	3	**05900**	**05900**	**05900**	**05900**
6,0	25,0	5,8	48	52	88	6	3	**06400**	**06400**	**06400**	**06400**
6,5	33,0	6,2	64	68	104	8	3	**06900**	**06900**	**06900**	**06900**
7,0	33,0	6,7	64	68	104	8	3	**07400**	**07400**	**07400**	**07400**
7,5	33,0	7,2	64	68	104	8	3	**07900**	**07900**	**07900**	**07900**
8,0	33,0	7,7	64	68	104	8	3	**08400**	**08400**	**08400**	**08400**
8,5	41,0	8,2	80	84	124	10	3	**08900**	**08900**	**08900**	**08900**
9,0	41,0	8,7	80	84	124	10	3	**09400**	**09400**	**09400**	**09400**
9,5	41,0	9,2	80	84	124	10	3	**09900**	**09900**	**09900**	**09900**
10,0	41,0	9,7	80	84	124	10	3	**10400**	**10400**	**10400**	**10400**
10,5	49,0	10,1	96	100	145	12	3	**10900**	**10900**	**10900**	**10900**
11,0	49,0	10,6	96	100	145	12	3	**11400**	**11400**	**11400**	**11400**
11,5	49,0	11,1	96	100	145	12	3	**11900**	**11900**	**11900**	**11900**
12,0	49,0	11,6	96	100	145	12	3	**12400**	**12400**	**12400**	**12400**
12,5	57,0	12,1	112	116	161	14	3			**12900**	**12900**
13,0	57,0	12,6	112	116	161	14	3			**13400**	**13400**
13,5	57,0	13,1	112	116	161	14	3			**13900**	**13900**
14,0	57,0	13,6	112	116	161	14	3			**14400**	**14400**
14,5	65,0	14,0	128	132	180	16	3			**14900**	**14900**
15,0	65,0	14,5	128	132	180	16	3			**15400**	**15400**
15,5	65,0	15,0	128	132	180	16	3			**15900**	**15900**
16,0	65,0	15,5	128	132	180	16	3			**16400**	**16400**
16,5	74,0	16,0	144	148	196	18	3			**16900**	**16900**
17,0	74,0	16,5	144	148	196	18	3			**17400**	**17400**
17,5	74,0	17,0	144	148	196	18	3			**17900**	**17900**
18,0	74,0	17,5	144	148	196	18	3			**18400**	**18400**
18,5	82,0	18,0	160	164	214	20	3			**18900**	**18900**
19,0	82,0	18,5	160	164	214	20	3			**19400**	**19400**
19,5	82,0	19,0	160	164	214	20	3			**19900**	**19900**
20,0	82,0	19,5	160	164	214	20	3			**20400**	**20400**
P											
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Factory standard | Factory standard | Factory standard | Factory standard

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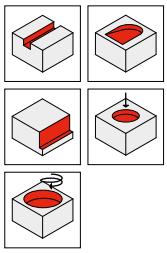
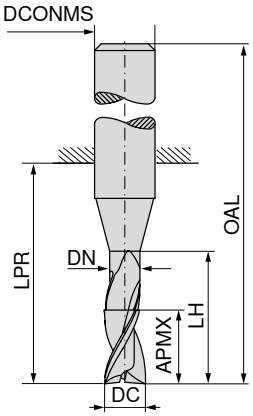
AluLine – End milling cutter

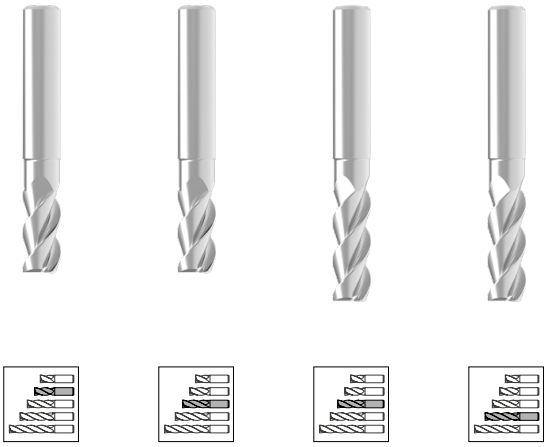
The specialist for machining non-ferrous metals

▲ With polished chip flutes

W | λ_s=45° γ_s= 8°







	Factory standard	Factory standard	Factory standard	Factory standard
	53 517 ...	53 518 ...	53 519 ...	53 520 ...
DC h6 mm				
3				030
4				040
5			050	
6			060	
6				060
8		080		
8			080	
10		100		
10			100	
12		120		
12			120	
14	140			
16	160			
16			160	
18	180			
20	200			
20			200	

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP
3	8	2,7	13	21	57	6	3
4	11	3,7	17	21	57	6	3
5	13	4,7	19	21	57	6	3
6	13	5,7	19	21	57	6	3
6	18	5,7	24	26	62	6	3
8	21	7,4	25	27	63	8	3
8	24	7,4	30	32	68	8	3
10	22	9,2	30	32	72	10	3
10	30	9,2	38	40	80	10	3
12	26	11,0	36	38	83	12	3
12	36	11,0	46	48	93	12	3
14	26	13,0	36	38	83	14	3
16	36	15,0	42	44	92	16	3
16	48	15,0	58	60	108	16	3
18	36	17,0	42	44	92	18	3
20	41	19,0	52	54	104	20	3
20	60	19,0	74	76	126	20	3

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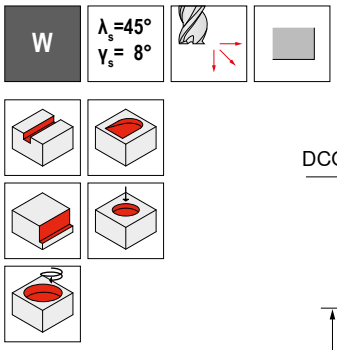
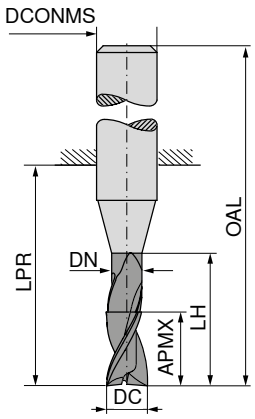
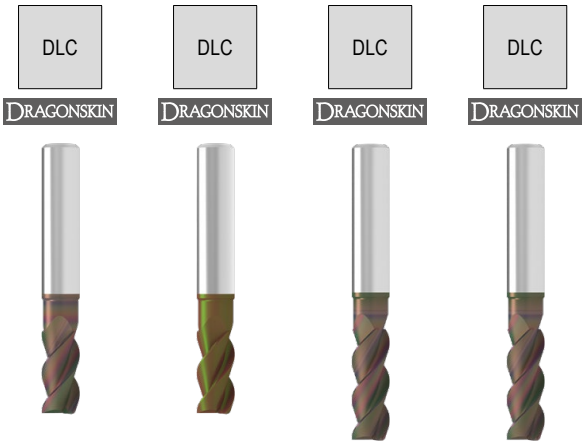
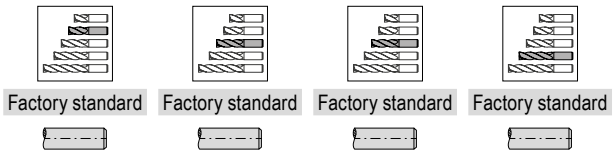
AluLine – End milling cutter

The specialist for machining non-ferrous metals









DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	53 521 ...	53 522 ...	53 523 ...	53 524 ...
3	8	2,7	13	21	57	6	3				030
4	11	3,7	17	21	57	6	3				040
5	13	4,7	19	21	57	6	3			050	
6	13	5,7	19	21	57	6	3			060	
6	18	5,7	24	26	62	6	3				060
8	21	7,4	25	27	63	8	3		080		
8	24	7,4	30	32	68	8	3			080	
10	22	9,2	30	32	72	10	3		100		
10	30	9,2	38	40	80	10	3			100	
12	26	11,0	36	38	83	12	3		120		
12	36	11,0	46	48	93	12	3			120	
14	26	13,0	36	38	83	14	3	140			
16	36	15,0	42	44	92	16	3	160			
18	36	17,0	42	44	92	18	3	180			
20	41	19,0	52	54	104	20	3	200			
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→ v_c/f_z Page 414+415

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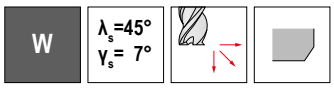
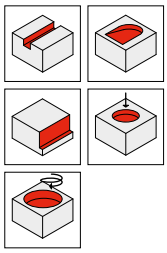
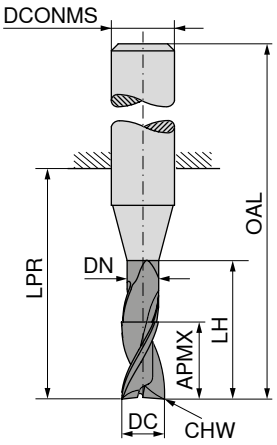
AluLine – End milling cutter

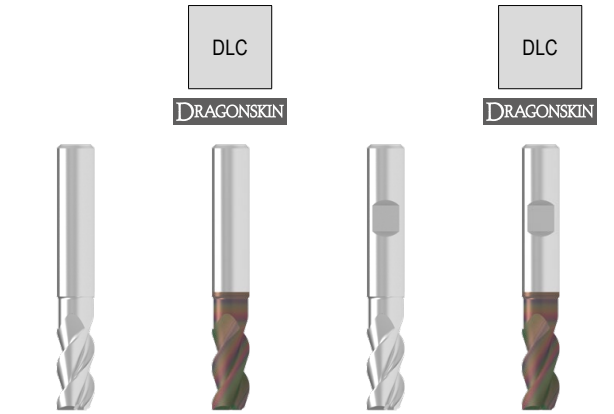
The specialist for machining non-ferrous metals

▲ With polished chip flutes









Factory standard | Factory standard | Factory standard | Factory standard

DC h6	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	53 611 ...	53 613 ...	53 612 ...	53 614 ...
mm	mm	mm	mm	mm	mm	mm	mm					
2,0	4,5	1,8	6,0	14	50	6	0,05	3	**02100**	**02100**	**02100**	**02100**
2,5	5,5	2,3	7,5	19	55	6	0,05	3	**02600**	**02600**	**02600**	**02600**
3,0	6,5	2,8	9,0	19	55	6	0,10	3	**03100**	**03100**	**03100**	**03100**
3,5	8,5	3,3	12,0	19	55	6	0,10	3	**03600**	**03600**	**03600**	**03600**
4,0	8,5	3,8	12,0	19	55	6	0,10	3	**04100**	**04100**	**04100**	**04100**
4,5	10,5	4,3	15,0	22	58	6	0,10	3	**04600**	**04600**	**04600**	**04600**
5,0	10,5	4,8	15,0	22	58	6	0,10	3	**05100**	**05100**	**05100**	**05100**
5,5	13,0	5,3	18,0	22	58	6	0,10	3	**05600**	**05600**	**05600**	**05600**
6,0	13,0	5,8	18,0	22	58	6	0,20	3	**06100**	**06100**	**06100**	**06100**
6,5	17,0	6,2	24,0	28	64	8	0,20	3	**06600**	**06600**	**06600**	**06600**
7,0	17,0	6,7	24,0	28	64	8	0,20	3	**07100**	**07100**	**07100**	**07100**
7,5	17,0	7,2	24,0	28	64	8	0,20	3	**07600**	**07600**	**07600**	**07600**
8,0	17,0	7,7	24,0	28	64	8	0,20	3	**08100**	**08100**	**08100**	**08100**
8,5	21,0	8,2	30,0	34	74	10	0,20	3	**08600**	**08600**	**08600**	**08600**
9,0	21,0	8,7	30,0	34	74	10	0,20	3	**09100**	**09100**	**09100**	**09100**
9,5	21,0	9,2	30,0	34	74	10	0,20	3	**09600**	**09600**	**09600**	**09600**
10,0	21,0	9,7	30,0	34	74	10	0,20	3	**10100**	**10100**	**10100**	**10100**
10,5	25,0	10,1	36,0	40	85	12	0,20	3	**10600**	**10600**	**10600**	**10600**
11,0	25,0	10,6	36,0	40	85	12	0,20	3	**11100**	**11100**	**11100**	**11100**
11,5	25,0	11,1	36,0	40	85	12	0,20	3	**11600**	**11600**	**11600**	**11600**
12,0	25,0	11,6	36,0	40	85	12	0,20	3	**12100**	**12100**	**12100**	**12100**
12,5	29,0	12,1	42,0	46	91	14	0,20	3			**12600**	**12600**
13,0	29,0	12,6	42,0	46	91	14	0,20	3			**13100**	**13100**
13,5	29,0	13,1	42,0	46	91	14	0,20	3			**13600**	**13600**
14,0	29,0	13,6	42,0	46	91	14	0,20	3			**14100**	**14100**
14,5	33,0	14,0	48,0	52	100	16	0,20	3			**14600**	**14600**
15,0	33,0	14,5	48,0	52	100	16	0,20	3			**15100**	**15100**
15,5	33,0	15,0	48,0	52	100	16	0,20	3			**15600**	**15600**
16,0	33,0	15,5	48,0	52	100	16	0,20	3			**16100**	**16100**
16,5	38,0	16,0	54,0	58	106	18	0,20	3			**16600**	**16600**
17,0	38,0	16,5	54,0	58	106	18	0,20	3			**17100**	**17100**
17,5	38,0	17,0	54,0	58	106	18	0,20	3			**17600**	**17600**
18,0	38,0	17,5	54,0	58	106	18	0,20	3			**18100**	**18100**
18,5	42,0	18,0	60,0	64	114	20	0,20	3			**18600**	**18600**
19,0	42,0	18,5	60,0	64	114	20	0,20	3			**19100**	**19100**
19,5	42,0	19,0	60,0	64	114	20	0,20	3			**19600**	**19600**
20,0	42,0	19,5	60,0	64	114	20	0,20	3			**20100**	**20100**
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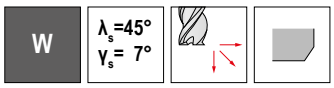
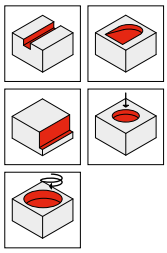
→ v_c/f_z Page 414+415

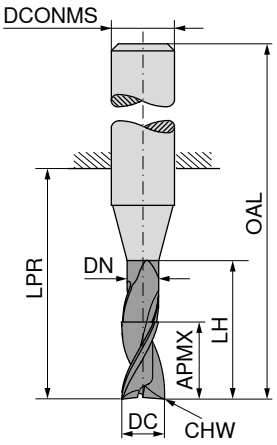
AluLine – End milling cutter

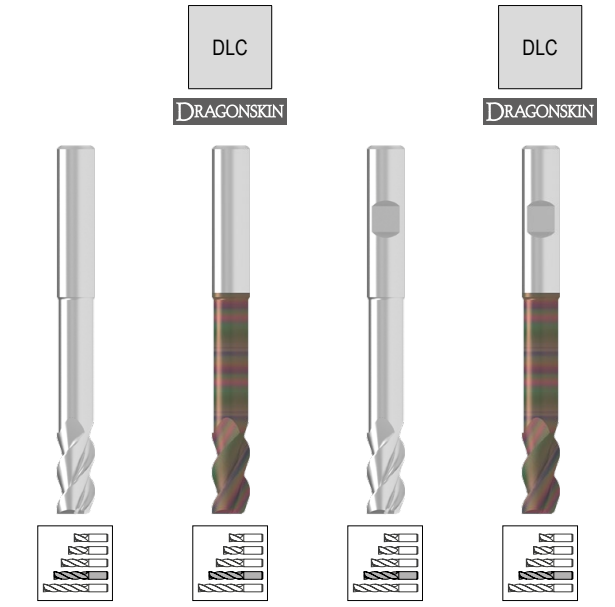
The specialist for machining non-ferrous metals

▲ With polished chip flutes









Factory standard | Factory standard | Factory standard | Factory standard

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 611 ...	53 613 ...	53 612 ...	53 614 ...
2,0	5,5	1,8	10,0	19	55	6	0,05	3	**02200**	**02200**	**02200**	**02200**
2,5	6,5	2,3	12,5	22	58	6	0,05	3	**02700**	**02700**	**02700**	**02700**
3,0	8,0	2,8	15,0	22	58	6	0,10	3	**03200**	**03200**	**03200**	**03200**
3,5	10,5	3,3	20,0	26	62	6	0,10	3	**03700**	**03700**	**03700**	**03700**
4,0	10,5	3,8	20,0	26	62	6	0,10	3	**04200**	**04200**	**04200**	**04200**
4,5	13,0	4,3	25,0	34	70	6	0,10	3	**04700**	**04700**	**04700**	**04700**
5,0	13,0	4,8	25,0	34	70	6	0,10	3	**05200**	**05200**	**05200**	**05200**
5,5	16,0	5,3	30,0	34	70	6	0,10	3	**05700**	**05700**	**05700**	**05700**
6,0	16,0	5,8	30,0	34	70	6	0,20	3	**06200**	**06200**	**06200**	**06200**
6,5	21,0	6,2	40,0	44	80	8	0,20	3	**06700**	**06700**	**06700**	**06700**
7,0	21,0	6,7	40,0	44	80	8	0,20	3	**07200**	**07200**	**07200**	**07200**
7,5	21,0	7,2	40,0	44	80	8	0,20	3	**07700**	**07700**	**07700**	**07700**
8,0	21,0	7,7	40,0	44	80	8	0,20	3	**08200**	**08200**	**08200**	**08200**
8,5	26,0	8,2	50,0	54	94	10	0,20	3	**08700**	**08700**	**08700**	**08700**
9,0	26,0	8,7	50,0	54	94	10	0,20	3	**09200**	**09200**	**09200**	**09200**
9,5	26,0	9,2	50,0	54	94	10	0,20	3	**09700**	**09700**	**09700**	**09700**
10,0	26,0	9,7	50,0	54	94	10	0,20	3	**10200**	**10200**	**10200**	**10200**
10,5	31,0	10,1	60,0	64	109	12	0,20	3	**10700**	**10700**	**10700**	**10700**
11,0	31,0	10,6	60,0	64	109	12	0,20	3	**11200**	**11200**	**11200**	**11200**
11,5	31,0	11,1	60,0	64	109	12	0,20	3	**11700**	**11700**	**11700**	**11700**
12,0	31,0	11,6	60,0	64	109	12	0,20	3	**12200**	**12200**	**12200**	**12200**
12,5	36,0	12,1	70,0	74	119	14	0,20	3			**12700**	**12700**
13,0	36,0	12,6	70,0	74	119	14	0,20	3			**13200**	**13200**
13,5	36,0	13,1	70,0	74	119	14	0,20	3			**13700**	**13700**
14,0	36,0	13,6	70,0	74	119	14	0,20	3			**14200**	**14200**
14,5	41,0	14,0	80,0	84	132	16	0,20	3			**14700**	**14700**
15,0	41,0	14,5	80,0	84	132	16	0,20	3			**15200**	**15200**
15,5	41,0	15,0	80,0	84	132	16	0,20	3			**15700**	**15700**
16,0	41,0	15,5	80,0	84	132	16	0,20	3			**16200**	**16200**
16,5	47,0	16,0	90,0	94	142	18	0,20	3			**16700**	**16700**
17,0	47,0	16,5	90,0	94	142	18	0,20	3			**17200**	**17200**
17,5	47,0	17,0	90,0	94	142	18	0,20	3			**17700**	**17700**
18,0	47,0	17,5	90,0	94	142	18	0,20	3			**18200**	**18200**
18,5	52,0	18,0	100,0	104	154	20	0,20	3			**18700**	**18700**
19,0	52,0	18,5	100,0	104	154	20	0,20	3			**19200**	**19200**
19,5	52,0	19,0	100,0	104	154	20	0,20	3			**19700**	**19700**
20,0	52,0	19,5	100,0	104	154	20	0,20	3			**20200**	**20200**
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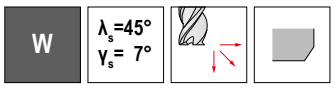
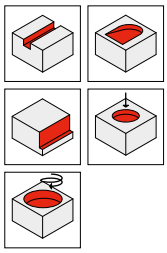
→ v_c/f_z Page 414+415

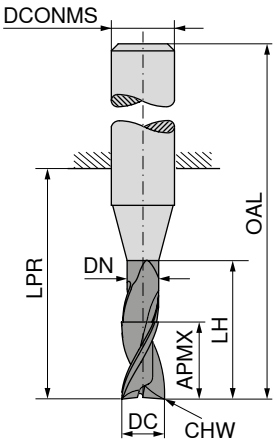
AluLine – End milling cutter

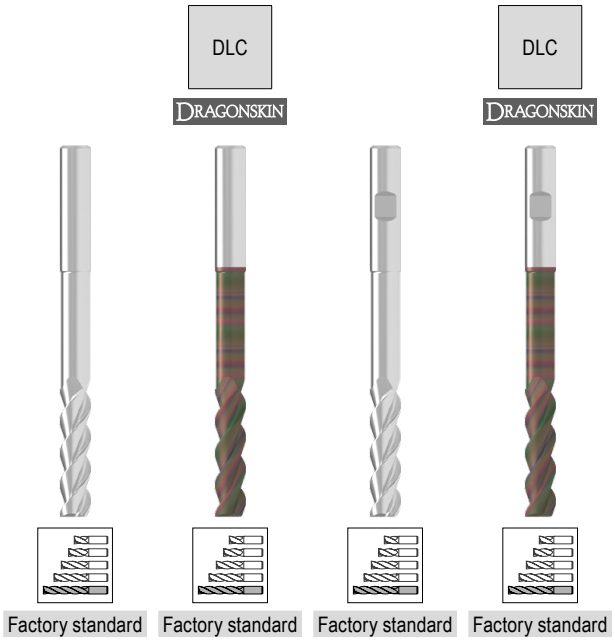
The specialist for machining non-ferrous metals

▲ With polished chip flutes









									Factory standard	Factory standard	Factory standard	Factory standard
									53 611 ...	53 613 ...	53 612 ...	53 614 ...
DC h6	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP				
mm	mm	mm	mm	mm	mm	mm	mm					
2,0	8,5	1,8	16	26	62	6	0,05	3	**02400**	**02400**	**02400**	**02400**
2,5	10,5	2,3	20	31	67	6	0,05	3	**02900**	**02900**	**02900**	**02900**
3,0	12,5	2,8	24	31	67	6	0,10	3	**03400**	**03400**	**03400**	**03400**
3,5	16,5	3,3	32	38	74	6	0,10	3	**03900**	**03900**	**03900**	**03900**
4,0	16,5	3,8	32	38	74	6	0,10	3	**04400**	**04400**	**04400**	**04400**
4,5	20,5	4,3	40	52	88	6	0,10	3	**04900**	**04900**	**04900**	**04900**
5,0	20,5	4,8	40	52	88	6	0,10	3	**05400**	**05400**	**05400**	**05400**
5,5	25,0	5,3	48	52	88	6	0,10	3	**05900**	**05900**	**05900**	**05900**
6,0	25,0	5,8	48	52	88	6	0,20	3	**06400**	**06400**	**06400**	**06400**
6,5	33,0	6,2	64	68	104	8	0,20	3	**06900**	**06900**	**06900**	**06900**
7,0	33,0	6,7	64	68	104	8	0,20	3	**07400**	**07400**	**07400**	**07400**
7,5	33,0	7,2	64	68	104	8	0,20	3	**07900**	**07900**	**07900**	**07900**
8,0	33,0	7,7	64	68	104	8	0,20	3	**08400**	**08400**	**08400**	**08400**
8,5	41,0	8,2	80	84	124	10	0,20	3	**08900**	**08900**	**08900**	**08900**
9,0	41,0	8,7	80	84	124	10	0,20	3	**09400**	**09400**	**09400**	**09400**
9,5	41,0	9,2	80	84	124	10	0,20	3	**09900**	**09900**	**09900**	**09900**
10,0	41,0	9,7	80	84	124	10	0,20	3	**10400**	**10400**	**10400**	**10400**
10,5	49,0	10,1	96	100	145	12	0,20	3	**10900**	**10900**	**10900**	**10900**
11,0	49,0	10,6	96	100	145	12	0,20	3	**11400**	**11400**	**11400**	**11400**
11,5	49,0	11,1	96	100	145	12	0,20	3	**11900**	**11900**	**11900**	**11900**
12,0	49,0	11,6	96	100	145	12	0,20	3	**12400**	**12400**	**12400**	**12400**
12,5	57,0	12,1	112	116	161	14	0,20	3			**12900**	**12900**
13,0	57,0	12,6	112	116	161	14	0,20	3			**13400**	**13400**
13,5	57,0	13,1	112	116	161	14	0,20	3			**13900**	**13900**
14,0	57,0	13,6	112	116	161	14	0,20	3			**14400**	**14400**
14,5	65,0	14,0	128	132	180	16	0,20	3			**14900**	**14900**
15,0	65,0	14,5	128	132	180	16	0,20	3			**15400**	**15400**
15,5	65,0	15,0	128	132	180	16	0,20	3			**15900**	**15900**
16,0	65,0	15,5	128	132	180	16	0,20	3			**16400**	**16400**
16,5	74,0	16,0	144	148	196	18	0,20	3			**16900**	**16900**
17,0	74,0	16,5	144	148	196	18	0,20	3			**17400**	**17400**
17,5	74,0	17,0	144	148	196	18	0,20	3			**17900**	**17900**
18,0	74,0	17,5	144	148	196	18	0,20	3			**18400**	**18400**
18,5	82,0	18,0	160	164	214	20	0,20	3			**18900**	**18900**
19,0	82,0	18,5	160	164	214	20	0,20	3			**19400**	**19400**
19,5	82,0	19,0	160	164	214	20	0,20	3			**19900**	**19900**
20,0	82,0	19,5	160	164	214	20	0,20	3			**20400**	**20400**
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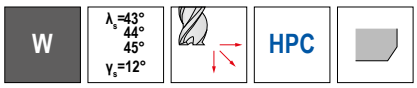
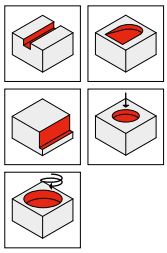
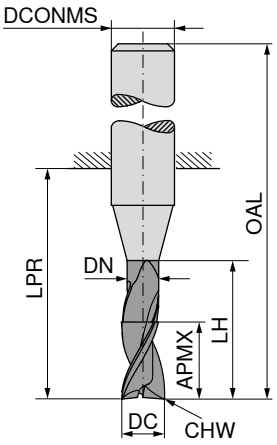
AluLine – End milling cutter

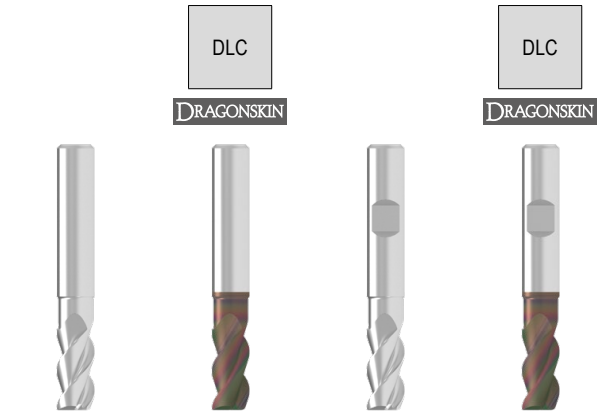
The specialist for machining non-ferrous metals

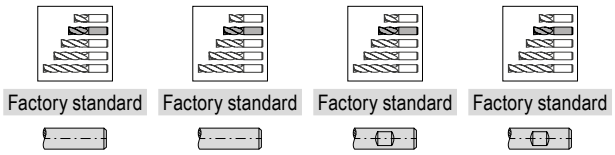
▲ With graduated flute depth











									Factory standard	Factory standard	Factory standard	Factory standard
									53 584 ...	53 598 ...	53 597 ...	53 599 ...
DC f8	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP				
mm	mm	mm	mm	mm	mm	mm	mm					
3,0	8	2,7	12	21	57	6	0,1	3	03000	03000	03000	03000
3,5	8	3,2	12	21	57	6	0,1	3	03600	03600	03600	03600
4,0	11	3,7	18	21	57	6	0,1	3	04000	04000	04000	04000
4,5	11	4,2	18	21	57	6	0,1	3	04600	04600	04600	04600
5,0	13	4,7	18	21	57	6	0,1	3	05000	05000	05000	05000
5,5	13	5,2	18	21	57	6	0,1	3	05600	05600	05600	05600
6,0	13	5,7	18	21	57	6	0,2	3	06000	06000	06000	06000
6,5	21	6,1	25	27	63	8	0,2	3	06600	06600	06600	06600
7,0	21	6,6	25	27	63	8	0,2	3	07000	07000	07000	07000
7,5	21	7,1	25	27	63	8	0,2	3	07600	07600	07600	07600
8,0	21	7,4	25	27	63	8	0,2	3	08000	08000	08000	08000
8,5	22	7,9	30	33	73	10	0,2	3	08600	08600	08600	08600
9,0	22	8,4	30	33	73	10	0,2	3	09000	09000	09000	09000
9,5	22	8,9	30	33	73	10	0,2	3	09600	09600	09600	09600
10,0	22	9,2	30	33	73	10	0,2	3	10000	10000	10000	10000
10,5	26	9,7	36	38	83	12	0,2	3	10600	10600	10600	10600
11,0	26	10,0	36	38	83	12	0,2	3	11000	11000	11000	11000
11,5	26	10,5	36	38	83	12	0,2	3	11600	11600	11600	11600
12,0	26	11,0	36	38	83	12	0,2	3	12000	12000	12000	12000
12,5	26	11,5	36	38	83	14	0,2	3			12600	12600
13,0	26	12,0	36	38	83	14	0,2	3			13000	13000
13,5	26	12,5	36	38	83	14	0,2	3			13600	13600
14,0	26	13,0	36	38	83	14	0,2	3			14000	14000
14,5	36	13,5	42	44	92	16	0,2	3			14600	14600
15,0	36	14,0	42	44	92	16	0,2	3			15000	15000
15,5	36	14,5	42	44	92	16	0,2	3			15600	15600
16,0	36	15,0	42	44	92	16	0,2	3			16000	16000
16,5	36	15,5	42	44	92	18	0,2	3			16600	16600
17,0	36	16,0	42	44	92	18	0,2	3			17000	17000
17,5	36	16,5	42	44	92	18	0,2	3			17600	17600
18,0	36	17,0	42	44	92	18	0,2	3			18000	18000
18,5	41	17,5	52	54	104	20	0,2	3			18600	18600
19,0	41	18,0	52	54	104	20	0,2	3			19000	19000
19,5	41	18,5	52	54	104	20	0,2	3			19600	19600
20,0	41	19,0	52	54	104	20	0,2	3			20000	20000
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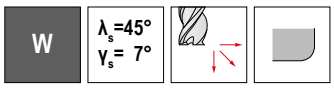
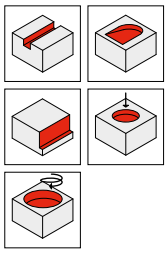
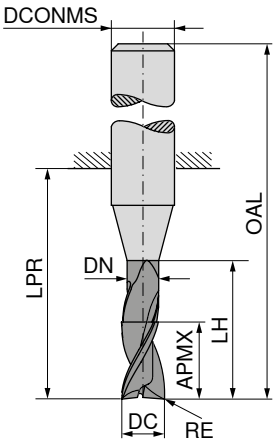
AluLine – End milling cutter with corner radius

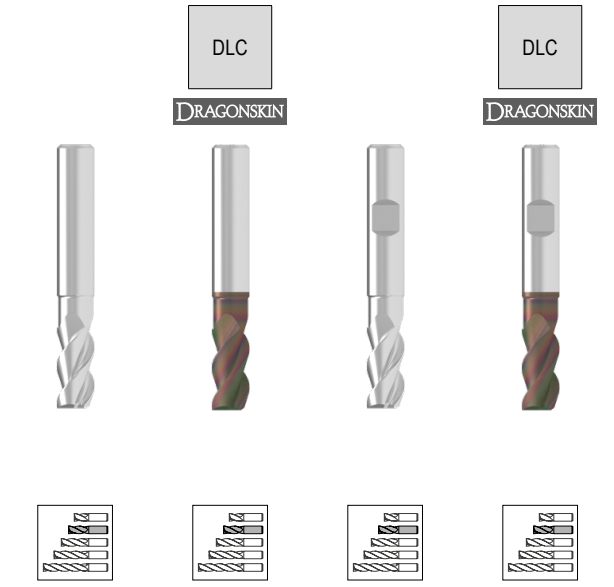
The specialist for machining non-ferrous metals

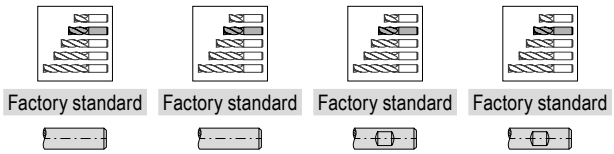
▲ With polished chip flutes











									Factory standard	Factory standard	Factory standard	Factory standard
									53 708 ...	53 710 ...	53 709 ...	53 711 ...
DC h6	RE ±0,05	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP				
mm	mm	mm	mm	mm	mm	mm	mm					
2	0,3	4,5	1,8	6	14	50	6	3	02103	02103	02103	02103
2	0,5	4,5	1,8	6	14	50	6	3	02105	02105	02105	02105
3	0,3	6,5	2,7	9	19	55	6	3	03103	03103	03103	03103
3	0,5	6,5	2,7	9	19	55	6	3	03105	03105	03105	03105
3	1,0	6,5	2,7	9	19	55	6	3	03110	03110	03110	03110
4	0,3	8,5	3,7	12	19	55	6	3	04103	04103	04103	04103
4	0,5	8,5	3,7	12	19	55	6	3	04105	04105	04105	04105
4	1,0	8,5	3,7	12	19	55	6	3	04110	04110	04110	04110
5	0,3	10,5	4,7	15	22	58	6	3	05103	05103	05103	05103
5	0,5	10,5	4,7	15	22	58	6	3	05105	05105	05105	05105
5	1,0	10,5	4,7	15	22	58	6	3	05110	05110	05110	05110
6	0,3	13,0	5,7	18	22	58	6	3	06103	06103	06103	06103
6	0,5	13,0	5,7	18	22	58	6	3	06105	06105	06105	06105
6	1,0	13,0	5,7	18	22	58	6	3	06110	06110	06110	06110
6	1,5	13,0	5,7	18	22	58	6	3	06115	06115	06115	06115
8	0,3	17,0	7,4	24	28	64	8	3	08103	08103	08103	08103
8	0,5	17,0	7,4	24	28	64	8	3	08105	08105	08105	08105
8	1,0	17,0	7,4	24	28	64	8	3	08110	08110	08110	08110
8	1,5	17,0	7,4	24	28	64	8	3	08115	08115	08115	08115
8	2,0	17,0	7,4	24	28	64	8	3	08120	08120	08120	08120
10	0,3	21,0	9,2	30	34	74	10	3	10103	10103	10103	10103
10	0,5	21,0	9,2	30	34	74	10	3	10105	10105	10105	10105
10	1,0	21,0	9,2	30	34	74	10	3	10110	10110	10110	10110
10	1,5	21,0	9,2	30	34	74	10	3	10115	10115	10115	10115
10	2,0	21,0	9,2	30	34	74	10	3	10120	10120	10120	10120
10	3,0	21,0	9,2	30	34	74	10	3	10130	10130	10130	10130
12	0,3	25,0	11,0	36	40	85	12	3	12103	12103	12103	12103
12	0,5	25,0	11,0	36	40	85	12	3	12105	12105	12105	12105
12	1,0	25,0	11,0	36	40	85	12	3	12110	12110	12110	12110
12	1,5	25,0	11,0	36	40	85	12	3	12115	12115	12115	12115
12	2,0	25,0	11,0	36	40	85	12	3	12120	12120	12120	12120
12	3,0	25,0	11,0	36	40	85	12	3	12130	12130	12130	12130
12	4,0	25,0	11,0	36	40	85	12	3	12140	12140	12140	12140
16	0,3	33,0	15,0	48	52	100	16	3			16103	16103
16	0,5	33,0	15,0	48	52	100	16	3			16105	16105
16	1,0	33,0	15,0	48	52	100	16	3			16110	16110
16	1,5	33,0	15,0	48	52	100	16	3			16115	16115
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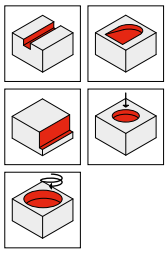
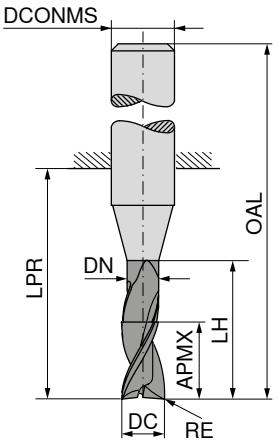
AluLine – End milling cutter with corner radius

The specialist for machining non-ferrous metals

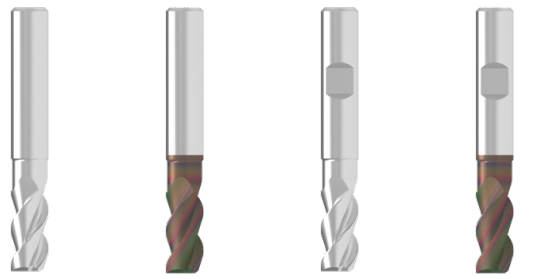
▲ With polished chip flutes

W | λ_s=45° γ_s= 7°





DLC DRAGONSKIN | DLC DRAGONSKIN



	Factory standard	Factory standard	Factory standard	Factory standard
	53 708 ...	53 710 ...	53 709 ...	53 711 ...
DC h6 mm				
16			16120	16120
16			16130	16130
16			16140	16140
20			20105	20105
20			20110	20110
20			20115	20115
20			20120	20120
20			20130	20130
20			20140	20140

DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP
16	2,0	33,0	15,0	48	52	100	16	3
16	3,0	33,0	15,0	48	52	100	16	3
16	4,0	33,0	15,0	48	52	100	16	3
20	0,5	42,0	19,0	60	64	114	20	3
20	1,0	42,0	19,0	60	64	114	20	3
20	1,5	42,0	19,0	60	64	114	20	3
20	2,0	42,0	19,0	60	64	114	20	3
20	3,0	42,0	19,0	60	64	114	20	3
20	4,0	42,0	19,0	60	64	114	20	3

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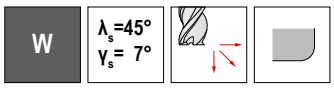
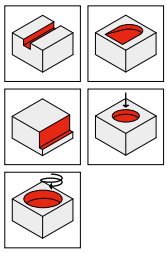
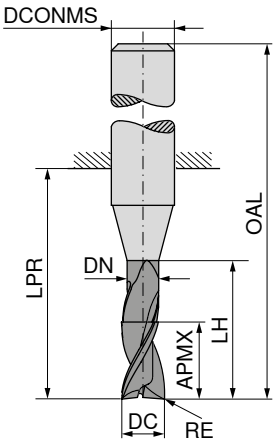
AluLine – End milling cutter with corner radius

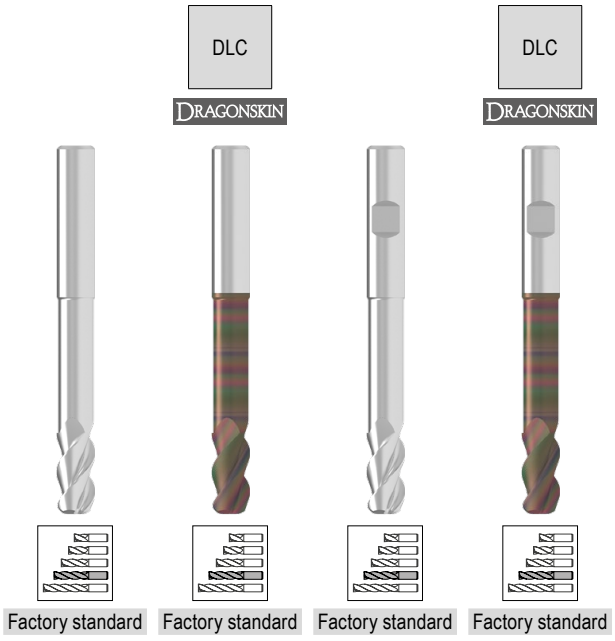
The specialist for machining non-ferrous metals

▲ With polished chip flutes









DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Factory standard 53 708 ...	Factory standard 53 710 ...	Factory standard 53 709 ...	Factory standard 53 711 ...
2	0,3	5,5	1,8	10	19	55	6	3	02203	02203	02203	02203
2	0,5	5,5	1,8	10	19	55	6	3	02205	02205	02205	02205
3	0,3	8,0	2,7	15	22	58	6	3	03203	03203	03203	03203
3	0,5	8,0	2,7	15	22	58	6	3	03205	03205	03205	03205
3	1,0	8,0	2,7	15	22	58	6	3	03210	03210	03210	03210
4	0,3	10,5	3,7	20	26	62	6	3	04203	04203	04203	04203
4	0,5	10,5	3,7	20	26	62	6	3	04205	04205	04205	04205
4	1,0	10,5	3,7	20	26	62	6	3	04210	04210	04210	04210
5	0,3	13,0	4,7	25	34	70	6	3	05203	05203	05203	05203
5	0,5	13,0	4,7	25	34	70	6	3	05205	05205	05205	05205
5	1,0	13,0	4,7	25	34	70	6	3	05210	05210	05210	05210
6	0,3	16,0	5,7	30	34	70	6	3	06203	06203	06203	06203
6	0,5	16,0	5,7	30	34	70	6	3	06205	06205	06205	06205
6	1,0	16,0	5,7	30	34	70	6	3	06210	06210	06210	06210
6	1,5	16,0	5,7	30	34	70	6	3	06215	06215	06215	06215
8	0,3	21,0	7,4	40	44	80	8	3	08203	08203	08203	08203
8	0,5	21,0	7,4	40	44	80	8	3	08205	08205	08205	08205
8	1,0	21,0	7,4	40	44	80	8	3	08210	08210	08210	08210
8	1,5	21,0	7,4	40	44	80	8	3	08215	08215	08215	08215
8	2,0	21,0	7,4	40	44	80	8	3	08220	08220	08220	08220
10	0,3	26,0	9,2	50	54	94	10	3	10203	10203	10203	10203
10	0,5	26,0	9,2	50	54	94	10	3	10205	10205	10205	10205
10	1,0	26,0	9,2	50	54	94	10	3	10210	10210	10210	10210
10	1,5	26,0	9,2	50	54	94	10	3	10215	10215	10215	10215
10	2,0	26,0	9,2	50	54	94	10	3	10220	10220	10220	10220
10	3,0	26,0	9,2	50	54	94	10	3	10230	10230	10230	10230
12	0,3	31,0	11,0	60	64	109	12	3	12203	12203	12203	12203
12	0,5	31,0	11,0	60	64	109	12	3	12205	12205	12205	12205
12	1,0	31,0	11,0	60	64	109	12	3	12210	12210	12210	12210
12	1,5	31,0	11,0	60	64	109	12	3	12215	12215	12215	12215
12	2,0	31,0	11,0	60	64	109	12	3	12220	12220	12220	12220
12	3,0	31,0	11,0	60	64	109	12	3	12230	12230	12230	12230
12	4,0	31,0	11,0	60	64	109	12	3	12240	12240	12240	12240
16	0,3	41,0	15,0	80	84	132	16	3			16203	16203
16	0,5	41,0	15,0	80	84	132	16	3			16205	16205
16	1,0	41,0	15,0	80	84	132	16	3			16210	16210

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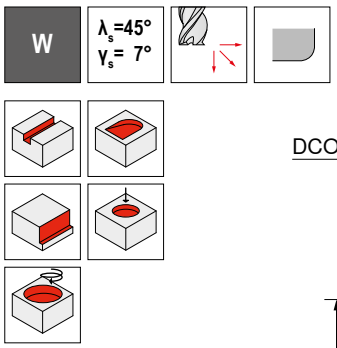
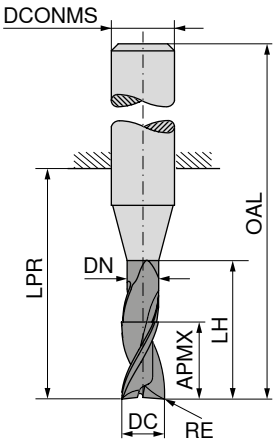
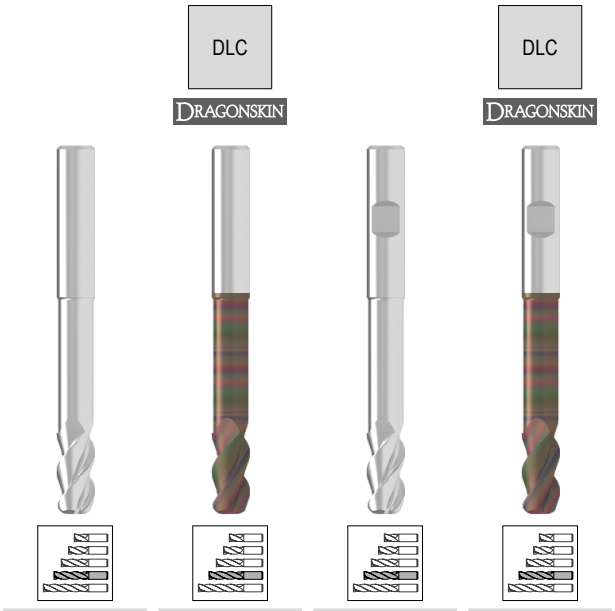
AluLine – End milling cutter with corner radius

The specialist for machining non-ferrous metals

▲ With polished chip flutes







									Factory standard	Factory standard	Factory standard	Factory standard
									53 708 ...	53 710 ...	53 709 ...	53 711 ...
DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP				
16	1,5	41,0	15,0	80	84	132	16	3			**16215**	**16215**
16	2,0	41,0	15,0	80	84	132	16	3			**16220**	**16220**
16	3,0	41,0	15,0	80	84	132	16	3			**16230**	**16230**
16	4,0	41,0	15,0	80	84	132	16	3			**16240**	**16240**
20	0,5	52,0	19,0	100	104	154	20	3			**20205**	**20205**
20	1,0	52,0	19,0	100	104	154	20	3			**20210**	**20210**
20	1,5	52,0	19,0	100	104	154	20	3			**20215**	**20215**
20	2,0	52,0	19,0	100	104	154	20	3			**20220**	**20220**
20	3,0	52,0	19,0	100	104	154	20	3			**20230**	**20230**
20	4,0	52,0	19,0	100	104	154	20	3			**20240**	**20240**
P												
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→ v_c/f_z Page 414+415

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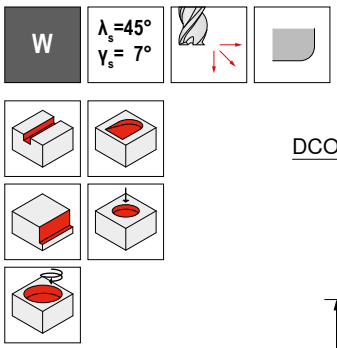
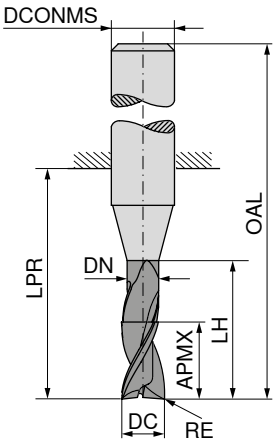
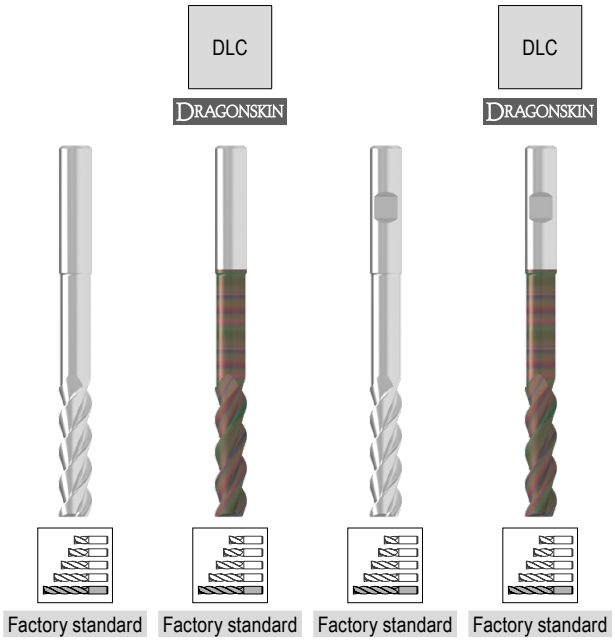
AluLine – End milling cutter with corner radius

The specialist for machining non-ferrous metals

▲ With polished chip flutes







									Factory standard	Factory standard	Factory standard	Factory standard
									53 708 ...	53 710 ...	53 709 ...	53 711 ...
DC h6	RE ±0,05	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP				
mm	mm	mm	mm	mm	mm	mm	mm					
2	0,3	8,5	1,8	16	26	62	6	3	02403	02403	02403	02403
2	0,5	8,5	1,8	16	26	62	6	3	02405	02405	02405	02405
3	0,3	12,5	2,7	24	31	67	6	3	03403	03403	03403	03403
3	0,5	12,5	2,7	24	31	67	6	3	03405	03405	03405	03405
3	1,0	12,5	2,7	24	31	67	6	3	03410	03410	03410	03410
4	0,3	16,5	3,7	32	38	74	6	3	04403	04403	04403	04403
4	0,5	16,5	3,7	32	38	74	6	3	04405	04405	04405	04405
4	1,0	16,5	3,7	32	38	74	6	3	04410	04410	04410	04410
5	0,3	20,5	4,7	40	52	88	6	3	05403	05403	05403	05403
5	0,5	20,5	4,7	40	52	88	6	3	05405	05405	05405	05405
5	1,0	20,5	4,7	40	52	88	6	3	05410	05410	05410	05410
6	0,3	25,0	5,7	48	52	88	6	3	06403	06403	06403	06403
6	0,5	25,0	5,7	48	52	88	6	3	06405	06405	06405	06405
6	1,0	25,0	5,7	48	52	88	6	3	06410	06410	06410	06410
6	1,5	25,0	5,7	48	52	88	6	3	06415	06415	06415	06415
8	0,3	33,0	7,4	64	68	104	8	3	08403	08403	08403	08403
8	0,5	33,0	7,4	64	68	104	8	3	08405	08405	08405	08405
8	1,0	33,0	7,4	64	68	104	8	3	08410	08410	08410	08410
8	1,5	33,0	7,4	64	68	104	8	3	08415	08415	08415	08415
8	2,0	33,0	7,4	64	68	104	8	3	08420	08420	08420	08420
10	0,3	41,0	9,2	80	84	124	10	3	10403	10403	10403	10403
10	0,5	41,0	9,2	80	84	124	10	3	10405	10405	10405	10405
10	1,0	41,0	9,2	80	84	124	10	3	10410	10410	10410	10410
10	1,5	41,0	9,2	80	84	124	10	3	10415	10415	10415	10415
10	2,0	41,0	9,2	80	84	124	10	3	10420	10420	10420	10420
10	3,0	41,0	9,2	80	84	124	10	3	10430	10430	10430	10430
12	0,3	49,0	11,0	96	100	145	12	3	12403	12403	12403	12403
12	0,5	49,0	11,0	96	100	145	12	3	12405	12405	12405	12405
12	1,0	49,0	11,0	96	100	145	12	3	12410	12410	12410	12410
12	1,5	49,0	11,0	96	100	145	12	3	12415	12415	12415	12415
12	2,0	49,0	11,0	96	100	145	12	3	12420	12420	12420	12420
12	3,0	49,0	11,0	96	100	145	12	3	12430	12430	12430	12430
12	4,0	49,0	11,0	96	100	145	12	3	12440	12440	12440	12440
16	0,3	65,0	15,0	128	132	180	16	3			16403	16403
16	0,5	65,0	15,0	128	132	180	16	3			16405	16405
16	1,0	65,0	15,0	128	132	180	16	3			16410	16410

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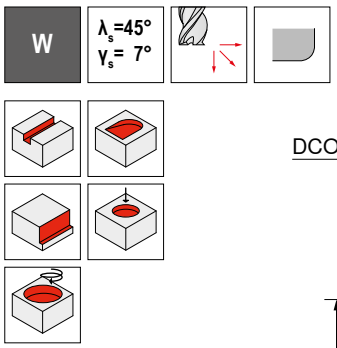
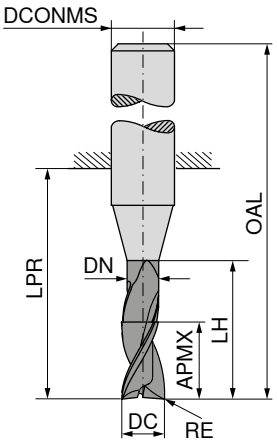
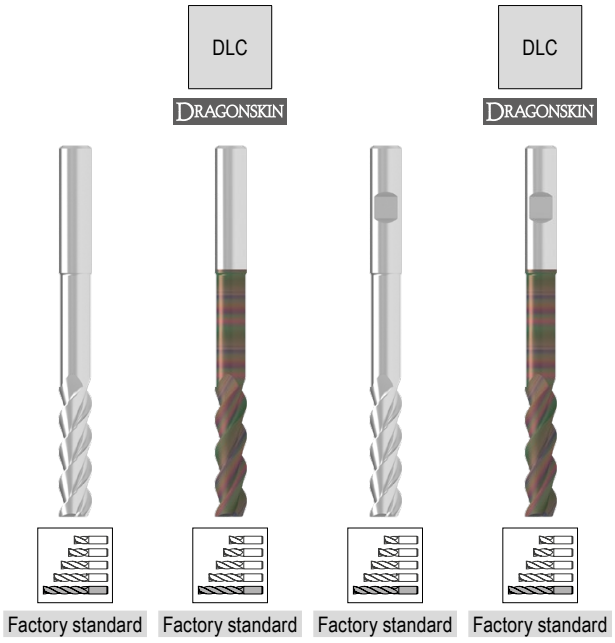
AluLine – End milling cutter with corner radius

The specialist for machining non-ferrous metals

▲ With polished chip flutes







									Factory standard	Factory standard	Factory standard	Factory standard
									53 708 ...	53 710 ...	53 709 ...	53 711 ...
DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP				
16	1,5	65,0	15,0	128	132	180	16	3			**16415**	**16415**
16	2,0	65,0	15,0	128	132	180	16	3			**16420**	**16420**
16	3,0	65,0	15,0	128	132	180	16	3			**16430**	**16430**
16	4,0	65,0	15,0	128	132	180	16	3			**16440**	**16440**
20	0,5	82,0	19,0	160	164	214	20	3			**20405**	**20405**
20	1,0	82,0	19,0	160	164	214	20	3			**20410**	**20410**
20	1,5	82,0	19,0	160	164	214	20	3			**20415**	**20415**
20	2,0	82,0	19,0	160	164	214	20	3			**20420**	**20420**
20	3,0	82,0	19,0	160	164	214	20	3			**20430**	**20430**
20	4,0	82,0	19,0	160	164	214	20	3			**20440**	**20440**
P												
M												
K												
N									●	●	●	●
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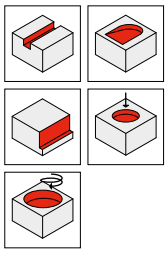
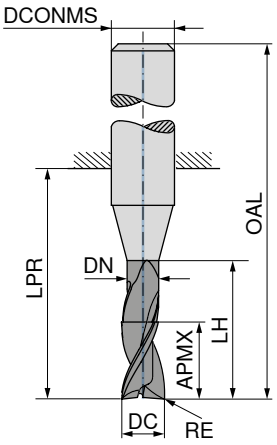
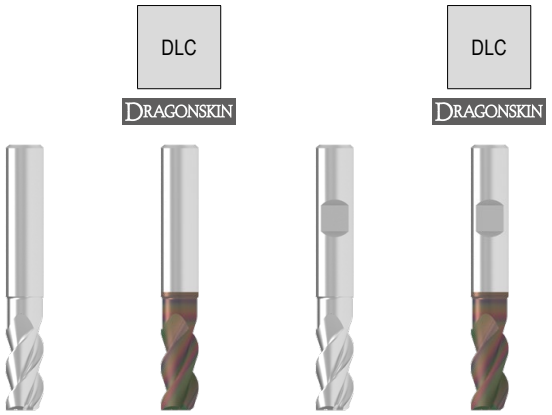
AluLine – End milling cutter with corner radius

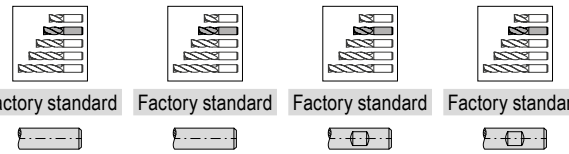
The specialist for machining non-ferrous metals

▲ With polished chip flutes









									Factory standard	Factory standard	Factory standard	Factory standard
									53 712 ...	53 714 ...	53 713 ...	53 715 ...
DC h6	RE ±0,05	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP				
mm	mm	mm	mm	mm	mm	mm	mm					
6	0,3	13	5,7	18	22	58	6	3	06103	06103	06103	06103
6	0,5	13	5,7	18	22	58	6	3	06105	06105	06105	06105
6	1,0	13	5,7	18	22	58	6	3	06110	06110	06110	06110
6	1,5	13	5,7	18	22	58	6	3	06115	06115	06115	06115
8	0,3	17	7,4	24	28	64	8	3	08103	08103	08103	08103
8	0,5	17	7,4	24	28	64	8	3	08105	08105	08105	08105
8	1,0	17	7,4	24	28	64	8	3	08110	08110	08110	08110
8	1,5	17	7,4	24	28	64	8	3	08115	08115	08115	08115
8	2,0	17	7,4	24	28	64	8	3	08120	08120	08120	08120
10	0,3	21	9,2	30	34	74	10	3	10103	10103	10103	10103
10	0,5	21	9,2	30	34	74	10	3	10105	10105	10105	10105
10	1,0	21	9,2	30	34	74	10	3	10110	10110	10110	10110
10	1,5	21	9,2	30	34	74	10	3	10115	10115	10115	10115
10	2,0	21	9,2	30	34	74	10	3	10120	10120	10120	10120
10	3,0	21	9,2	30	34	74	10	3	10130	10130	10130	10130
12	0,3	25	11,0	36	40	85	12	3	12103	12103	12103	12103
12	0,5	25	11,0	36	40	85	12	3	12105	12105	12105	12105
12	1,0	25	11,0	36	40	85	12	3	12110	12110	12110	12110
12	1,5	25	11,0	36	40	85	12	3	12115	12115	12115	12115
12	2,0	25	11,0	36	40	85	12	3	12120	12120	12120	12120
12	3,0	25	11,0	36	40	85	12	3	12130	12130	12130	12130
12	4,0	25	11,0	36	40	85	12	3	12140	12140	12140	12140
16	0,3	33	15,0	48	52	100	16	3			16103	16103
16	0,5	33	15,0	48	52	100	16	3			16105	16105
16	1,0	33	15,0	48	52	100	16	3			16110	16110
16	1,5	33	15,0	48	52	100	16	3			16115	16115
16	2,0	33	15,0	48	52	100	16	3			16120	16120
16	3,0	33	15,0	48	52	100	16	3			16130	16130
16	4,0	33	15,0	48	52	100	16	3			16140	16140
20	0,5	42	19,0	60	64	114	20	3			20105	20105
20	1,0	42	19,0	60	64	114	20	3			20110	20110
20	1,5	42	19,0	60	64	114	20	3			20115	20115
20	2,0	42	19,0	60	64	114	20	3			20120	20120
20	3,0	42	19,0	60	64	114	20	3			20130	20130
20	4,0	42	19,0	60	64	114	20	3			20140	20140
P												
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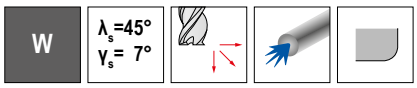
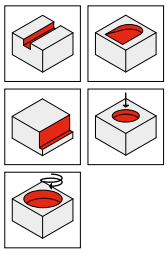
→ v_c/f_z Page 414+415

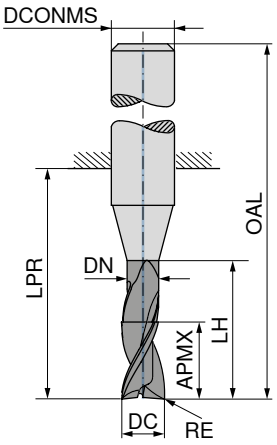
AluLine – End milling cutter with corner radius

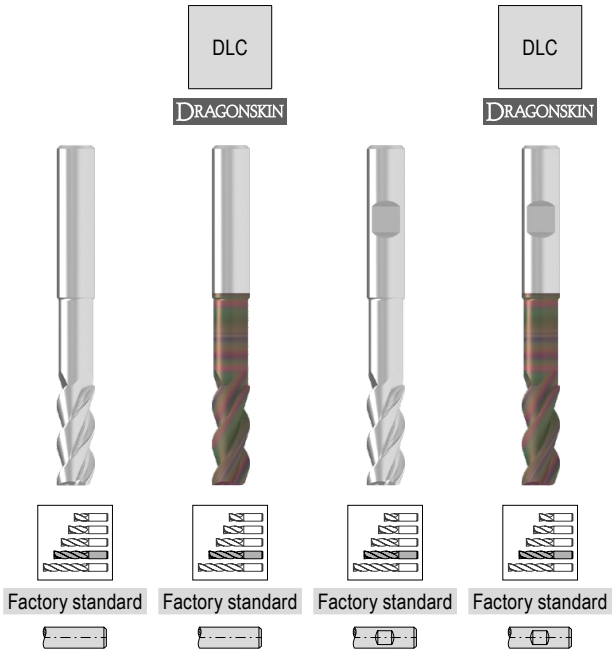
The specialist for machining non-ferrous metals

▲ With polished chip flutes









									Factory standard		Factory standard		Factory standard		Factory standard
									53 712 ...		53 714 ...		53 713 ...		53 715 ...
DC h6	RE ±0,01	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP							
mm	mm	mm	mm	mm	mm	mm	mm								
6	0,3	16	5,7	30	34	70	6	3	06203		06203		06203		06203
6	0,5	16	5,7	30	34	70	6	3	06205		06205		06205		06205
6	1,0	16	5,7	30	34	70	6	3	06210		06210		06210		06210
6	1,5	16	5,7	30	34	70	6	3	06215		06215		06215		06215
8	0,3	21	7,4	40	44	80	8	3	08203		08203		08203		08203
8	0,5	21	7,4	40	44	80	8	3	08205		08205		08205		08205
8	1,0	21	7,4	40	44	80	8	3	08210		08210		08210		08210
8	1,5	21	7,4	40	44	80	8	3	08215		08215		08215		08215
8	2,0	21	7,4	40	44	80	8	3	08220		08220		08220		08220
10	0,3	26	9,2	50	54	94	10	3	10203		10203		10203		10203
10	0,5	26	9,2	50	54	94	10	3	10205		10205		10205		10205
10	1,0	26	9,2	50	54	94	10	3	10210		10210		10210		10210
10	1,5	26	9,2	50	54	94	10	3	10215		10215		10215		10215
10	2,0	26	9,2	50	54	94	10	3	10220		10220		10220		10220
10	3,0	26	9,2	50	54	94	10	3	10230		10230		10230		10230
12	0,3	31	11,0	60	64	109	12	3	12203		12203		12203		12203
12	0,5	31	11,0	60	64	109	12	3	12205		12205		12205		12205
12	1,0	31	11,0	60	64	109	12	3	12210		12210		12210		12210
12	1,5	31	11,0	60	64	109	12	3	12215		12215		12215		12215
12	2,0	31	11,0	60	64	109	12	3	12220		12220		12220		12220
12	3,0	31	11,0	60	64	109	12	3	12230		12230		12230		12230
12	4,0	31	11,0	60	64	109	12	3	12240		12240		12240		12240
16	0,3	41	15,0	80	84	132	16	3					16203		16203
16	0,5	41	15,0	80	84	132	16	3					16205		16205
16	1,0	41	15,0	80	84	132	16	3					16210		16210
16	1,5	41	15,0	80	84	132	16	3					16215		16215
16	2,0	41	15,0	80	84	132	16	3					16220		16220
16	3,0	41	15,0	80	84	132	16	3					16230		16230
16	4,0	41	15,0	80	84	132	16	3					16240		16240
20	0,5	52	19,0	100	104	154	20	3					20205		20205
20	1,0	52	19,0	100	104	154	20	3					20210		20210
20	1,5	52	19,0	100	104	154	20	3					20215		20215
20	2,0	52	19,0	100	104	154	20	3					20220		20220
20	3,0	52	19,0	100	104	154	20	3					20230		20230
20	4,0	52	19,0	100	104	154	20	3					20240		20240

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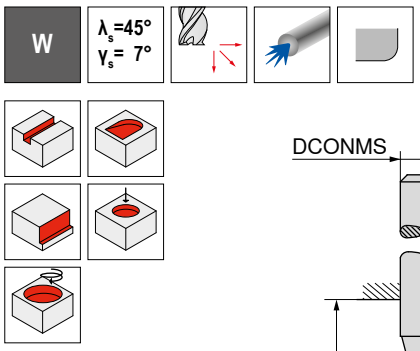
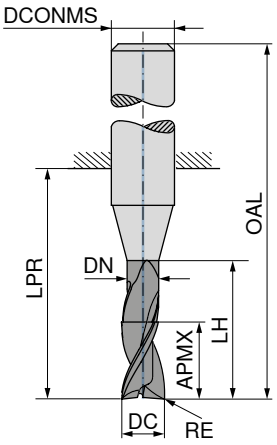
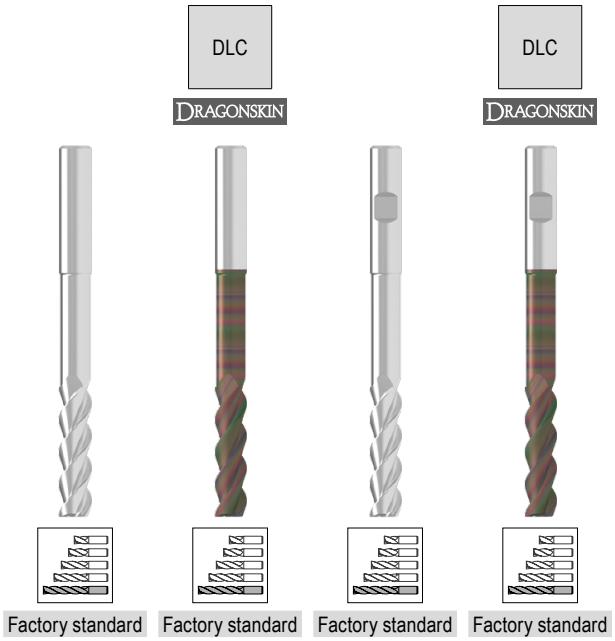
AluLine – End milling cutter with corner radius

The specialist for machining non-ferrous metals

▲ With polished chip flutes







									Factory standard	Factory standard	Factory standard	Factory standard
									53 712 ...	53 714 ...	53 713 ...	53 715 ...
DC h6	RE ±0,01	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP				
mm	mm	mm	mm	mm	mm	mm	mm					
6	0,3	25	5,7	48	52	88	6	3	06403	06403	06403	06403
6	0,5	25	5,7	48	52	88	6	3	06405	06405	06405	06405
6	1,0	25	5,7	48	52	88	6	3	06410	06410	06410	06410
6	1,5	25	5,7	48	52	88	6	3	06415	06415	06415	06415
8	0,3	33	7,4	64	68	104	8	3	08403	08403	08403	08403
8	0,5	33	7,4	64	68	104	8	3	08405	08405	08405	08405
8	1,0	33	7,4	64	68	104	8	3	08410	08410	08410	08410
8	1,5	33	7,4	64	68	104	8	3	08415	08415	08415	08415
8	2,0	33	7,4	64	68	104	8	3	08420	08420	08420	08420
10	0,3	41	9,2	80	84	124	10	3	10403	10403	10403	10403
10	0,5	41	9,2	80	84	124	10	3	10405	10405	10405	10405
10	1,0	41	9,2	80	84	124	10	3	10410	10410	10410	10410
10	1,5	41	9,2	80	84	124	10	3	10415	10415	10415	10415
10	2,0	41	9,2	80	84	124	10	3	10420	10420	10420	10420
10	3,0	41	9,2	80	84	124	10	3	10430	10430	10430	10430
12	0,3	49	11,0	96	100	145	12	3	12403	12403	12403	12403
12	0,5	49	11,0	96	100	145	12	3	12405	12405	12405	12405
12	1,0	49	11,0	96	100	145	12	3	12410	12410	12410	12410
12	1,5	49	11,0	96	100	145	12	3	12415	12415	12415	12415
12	2,0	49	11,0	96	100	145	12	3	12420	12420	12420	12420
12	3,0	49	11,0	96	100	145	12	3	12430	12430	12430	12430
12	4,0	49	11,0	96	100	145	12	3	12440	12440	12440	12440
16	0,3	65	15,0	128	132	180	16	3			16403	16403
16	0,5	65	15,0	128	132	180	16	3			16405	16405
16	1,0	65	15,0	128	132	180	16	3			16410	16410
16	1,5	65	15,0	128	132	180	16	3			16415	16415
16	2,0	65	15,0	128	132	180	16	3			16420	16420
16	3,0	65	15,0	128	132	180	16	3			16430	16430
16	4,0	65	15,0	128	132	180	16	3			16440	16440
20	0,5	82	19,0	160	164	214	20	3			20405	20405
20	1,0	82	19,0	160	164	214	20	3			20410	20410
20	1,5	82	19,0	160	164	214	20	3			20415	20415
20	2,0	82	19,0	160	164	214	20	3			20420	20420
20	3,0	82	19,0	160	164	214	20	3			20430	20430
20	4,0	82	19,0	160	164	214	20	3			20440	20440
P												
M												
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N									●	●	●	●
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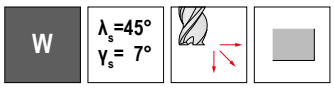
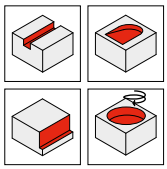
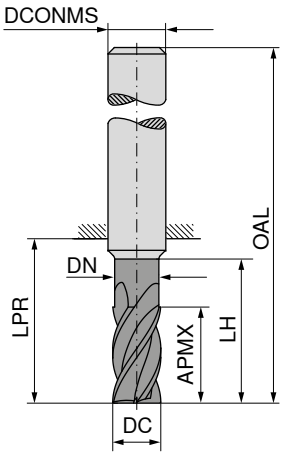
AluLine – End milling cutter

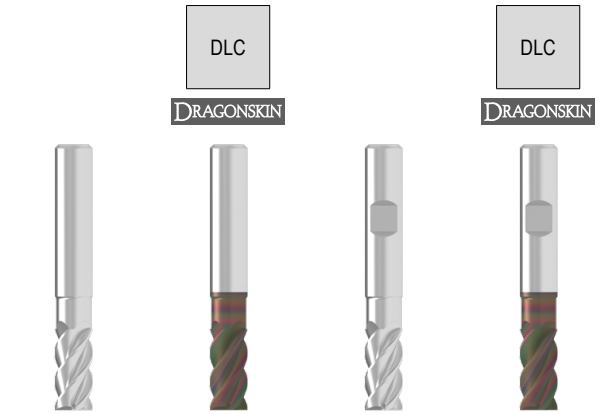
The specialist for machining non-ferrous metals

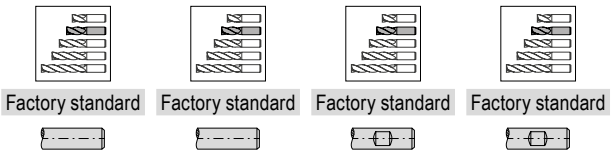
▲ With polished chip flutes











								Factory standard	Factory standard	Factory standard	Factory standard
								53 704 ...	53 706 ...	53 705 ...	53 707 ...
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP				
5	10,5	4,8	15	22	58	6	4	**05100**	**05100**	**05100**	**05100**
6	13,0	5,8	18	22	58	6	4	**06100**	**06100**	**06100**	**06100**
8	17,0	7,7	24	28	64	8	4	**08100**	**08100**	**08100**	**08100**
10	21,0	9,7	30	34	74	10	4	**10100**	**10100**	**10100**	**10100**
12	25,0	11,6	36	40	85	12	4	**12100**	**12100**	**12100**	**12100**
14	29,0	13,6	42	46	91	14	4			**14100**	**14100**
16	33,0	15,5	48	52	100	16	4			**16100**	**16100**
18	38,0	17,5	54	58	106	18	4			**18100**	**18100**
20	42,0	19,5	60	64	114	20	4			**20100**	**20100**
P											
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K											
N								●	●	●	●
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→ v_c/f_z Page 414+415

14

AluLine – End milling cutter

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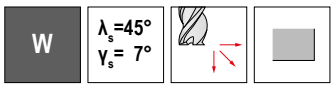
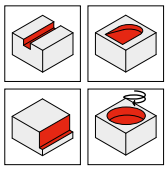
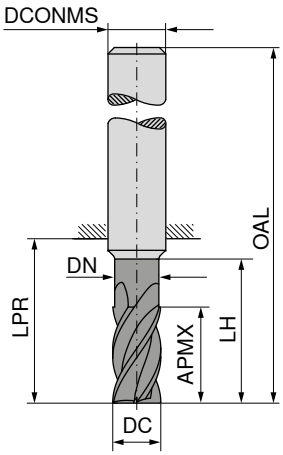
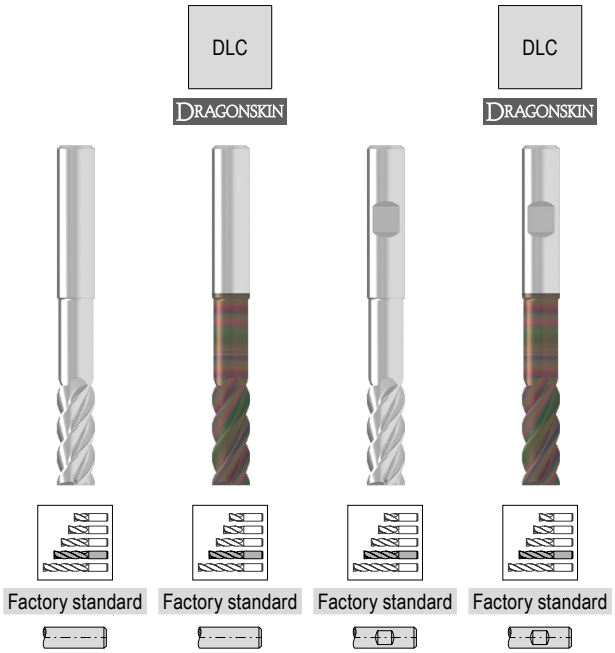
▲ With polished chip flutes









DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Factory standard 53 704 ...	Factory standard 53 706 ...	Factory standard 53 705 ...	Factory standard 53 707 ...
2	5,5	1,8	10	19	55	6	4	**02200**	**02200**	**02200**	**02200**
3	8,0	2,8	15	22	58	6	4	**03200**	**03200**	**03200**	**03200**
4	10,5	3,8	20	26	62	6	4	**04200**	**04200**	**04200**	**04200**
5	13,0	4,8	25	34	70	6	4	**05200**	**05200**	**05200**	**05200**
6	16,0	5,8	30	34	70	6	4	**06200**	**06200**	**06200**	**06200**
8	21,0	7,7	40	44	80	8	4	**08200**	**08200**	**08200**	**08200**
10	26,0	9,7	50	54	94	10	4	**10200**	**10200**	**10200**	**10200**
12	31,0	11,6	60	64	109	12	4	**12200**	**12200**	**12200**	**12200**
14	36,0	13,6	70	74	119	14	4			**14200**	**14200**
16	41,0	15,5	80	84	132	16	4			**16200**	**16200**
18	47,0	17,5	90	94	142	18	4			**18200**	**18200**
20	52,0	19,5	100	104	154	20	4			**20200**	**20200**

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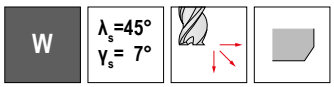
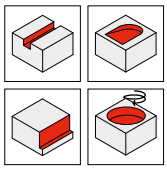
→ v_c/f_z Page 414+415

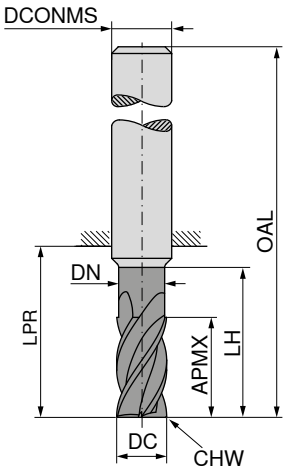
AluLine – End milling cutter

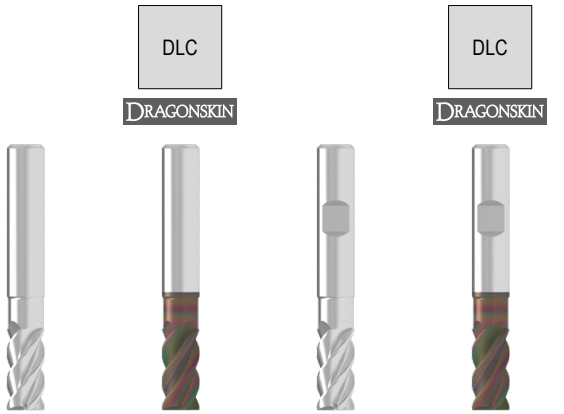
The specialist for machining non-ferrous metals

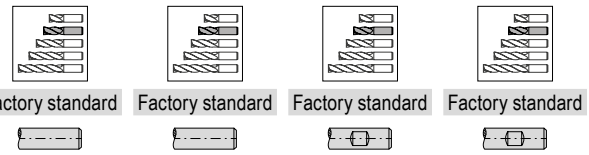
▲ With polished chip flutes











									Factory standard	Factory standard	Factory standard	Factory standard
									53 700 ...	53 702 ...	53 701 ...	53 703 ...
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP				
5	10,5	4,8	15	22	58	6	0,1	4	**05100**	**05100**	**05100**	**05100**
6	13,0	5,8	18	22	58	6	0,2	4	**06100**	**06100**	**06100**	**06100**
8	17,0	7,7	24	28	64	8	0,2	4	**08100**	**08100**	**08100**	**08100**
10	21,0	9,7	30	34	74	10	0,2	4	**10100**	**10100**	**10100**	**10100**
12	25,0	11,6	36	40	85	12	0,2	4	**12100**	**12100**	**12100**	**12100**
14	29,0	13,6	42	46	91	14	0,2	4			**14100**	**14100**
16	33,0	15,5	48	52	100	16	0,2	4			**16100**	**16100**
18	38,0	17,5	54	58	106	18	0,2	4			**18100**	**18100**
20	42,0	19,5	60	64	114	20	0,2	4			**20100**	**20100**
P												
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N									●	●	●	●
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H												
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→ v_c/f_z Page 414+415

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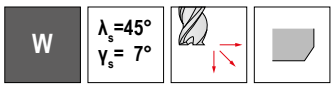
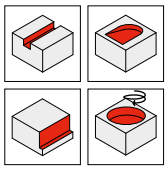
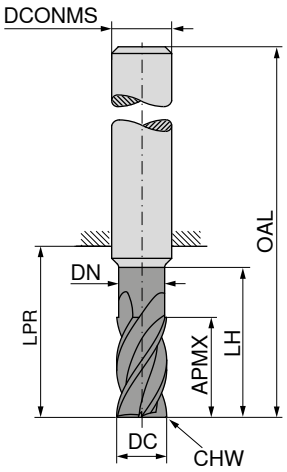
AluLine – End milling cutter

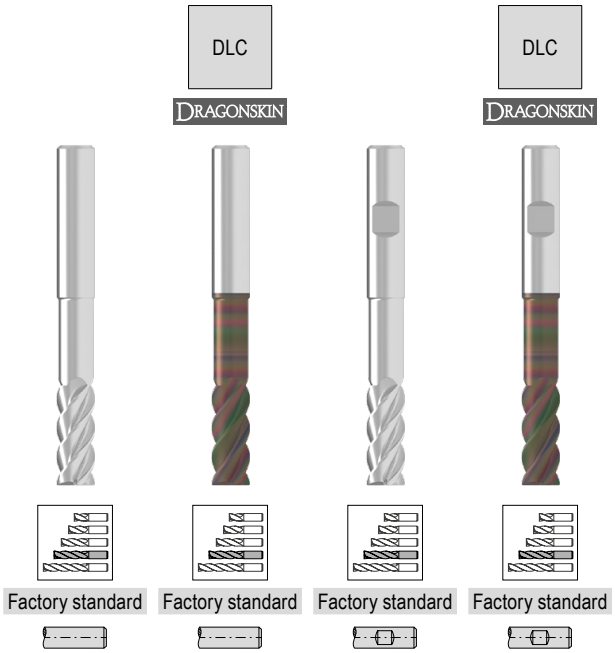
The specialist for machining non-ferrous metals

▲ With polished chip flutes









									Factory standard	Factory standard	Factory standard	Factory standard
									53 700 ...	53 702 ...	53 701 ...	53 703 ...
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP				
2	5,5	1,8	10	19	55	6	0,05	4	**02200**	**02200**	**02200**	**02200**
3	8,0	2,8	15	22	58	6	0,10	4	**03200**	**03200**	**03200**	**03200**
4	10,5	3,8	20	26	62	6	0,10	4	**04200**	**04200**	**04200**	**04200**
5	13,0	4,8	25	34	70	6	0,10	4	**05200**	**05200**	**05200**	**05200**
6	16,0	5,8	30	34	70	6	0,20	4	**06200**	**06200**	**06200**	**06200**
8	21,0	7,7	40	44	80	8	0,20	4	**08200**	**08200**	**08200**	**08200**
10	26,0	9,7	50	54	94	10	0,20	4	**10200**	**10200**	**10200**	**10200**
12	31,0	11,6	60	64	109	12	0,20	4	**12200**	**12200**	**12200**	**12200**
14	36,0	13,6	70	74	119	14	0,20	4			**14200**	**14200**
16	41,0	15,5	80	84	132	16	0,20	4			**16200**	**16200**
18	47,0	17,5	90	94	142	18	0,20	4			**18200**	**18200**
20	52,0	19,5	100	104	154	20	0,20	4			**20200**	**20200**
P												
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N									●	●	●	●
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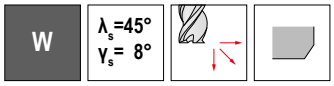
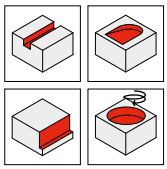
→ v_c/f_z Page 414+415

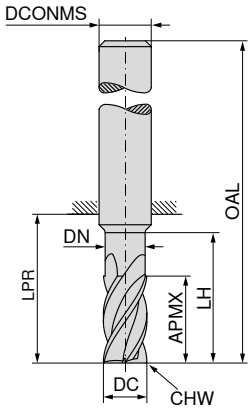
AluLine – End milling cutter

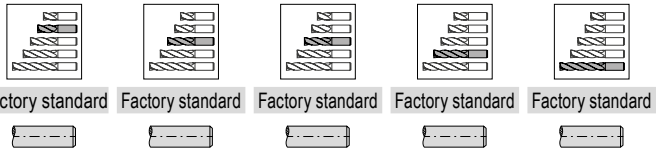
The specialist for machining non-ferrous metals

▲ With polished chip flutes









Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

									53 560 ...	53 561 ...	53 562 ...	53 563 ...	53 564 ...
DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP					
3,0	8	2,7	13	21	57	6	0,1	4				030	
3,5	11	3,2	17	21	57	6	0,1	4				035	
4,0	11	3,7	17	21	57	6	0,1	4				040	
4,5	13	4,2	19	21	57	6	0,1	4				045	
5,0	13	4,7	19	21	57	6	0,1	4			050		
5,5	13	5,2	19	21	57	6	0,1	4			055		
6,0	10	5,7	42	44	80	6	0,2	4					060
6,0	13	5,7	19	21	57	6	0,2	4			060		
6,0	18	5,7	24	26	62	6	0,2	4				060	
6,5	21	6,1	25	27	63	8	0,2	4			065		
8,0	13	7,4	62	64	100	8	0,2	4					080
8,0	21	7,4	25	27	63	8	0,2	4		080			
8,0	24	7,4	30	32	68	8	0,2	4			080		
8,5	22	7,9	30	32	72	10	0,2	4			085		
10,0	16	9,2	58	60	100	10	0,2	4				100	
10,0	22	9,2	30	32	72	10	0,2	4		100			
10,0	30	9,2	38	40	80	10	0,2	4			100		
12,0	19	11,0	73	75	120	12	0,2	4					120
12,0	26	11,0	36	38	83	12	0,2	4		120			
12,0	36	11,0	46	48	93	12	0,2	4			120		
14,0	26	13,0	36	38	83	14	0,2	4	140				
16,0	25	15,0	100	102	150	16	0,2	4					160
16,0	36	15,0	42	44	92	16	0,2	4	160				
16,0	48	15,0	58	60	108	16	0,2	4			160		
18,0	36	17,0	42	44	92	18	0,2	4	180				
20,0	32	19,0	98	100	150	20	0,2	4				200	
20,0	41	19,0	52	54	104	20	0,2	4	200				
20,0	60	19,0	74	76	126	20	0,2	4			200		
25,0	52	24,0	62	65	121	25	0,3	4	250				
P													
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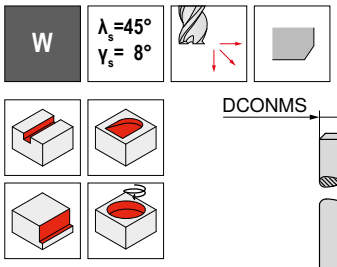
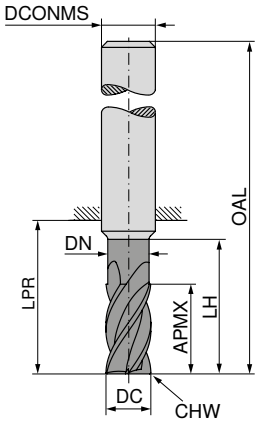
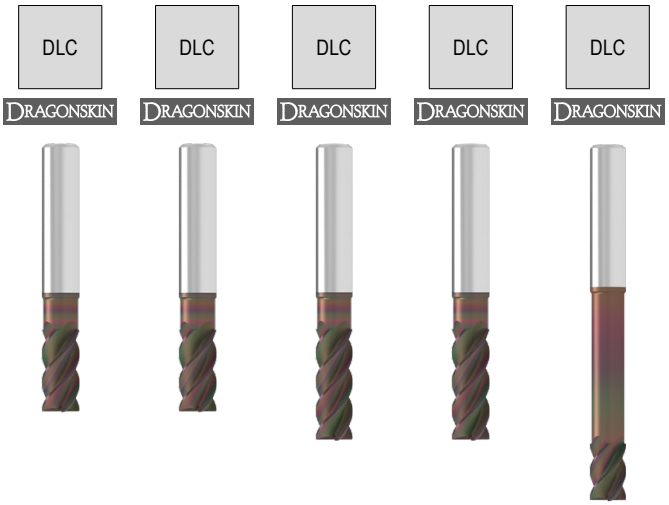
→ v_c/f_z Page 414+415

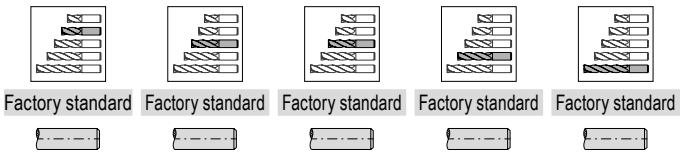
AluLine – End milling cutter

The specialist for machining non-ferrous metals









DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 565 ...	53 566 ...	53 567 ...	53 568 ...	53 569 ...
3,0	8	2,7	13	21	57	6	0,1	4				030	
3,5	11	3,2	17	21	57	6	0,1	4				035	
4,0	11	3,7	17	21	57	6	0,1	4				040	
4,5	13	4,2	19	21	57	6	0,1	4				045	
5,0	13	4,7	19	21	57	6	0,1	4			050		
5,5	13	5,2	19	21	57	6	0,1	4			055		
6,0	10	5,7	42	44	80	6	0,2	4					060
6,0	13	5,7	19	21	57	6	0,2	4			060		
6,0	18	5,7	24	26	62	6	0,2	4				060	
6,5	21	6,1	25	27	63	8	0,2	4			065		
8,0	13	7,4	62	64	100	8	0,2	4					080
8,0	21	7,4	25	27	63	8	0,2	4		080			
8,0	24	7,2	30	32	68	8	0,2	4			080		
8,5	22	7,9	30	32	72	10	0,2	4			085		
10,0	16	9,2	58	60	100	10	0,2	4				100	
10,0	22	9,2	30	32	72	10	0,2	4		100			
10,0	30	9,2	38	40	80	10	0,2	4			100		
12,0	19	11,0	73	75	120	12	0,2	4					120
12,0	26	11,0	36	38	83	12	0,2	4		120			
12,0	36	11,0	46	48	93	12	0,2	4			120		
14,0	26	13,0	36	38	83	14	0,2	4	140				
16,0	25	15,0	100	102	150	16	0,2	4					160
16,0	36	15,0	42	44	92	16	0,2	4	160				
16,0	48	15,0	58	60	108	16	0,2	4			160		
18,0	36	17,0	42	44	92	18	0,2	4	180				
20,0	32	19,0	98	100	150	20	0,2	4				200	
20,0	41	19,0	52	54	104	20	0,2	4	200				
20,0	60	19,0	74	76	126	20	0,2	4			200		
25,0	52	24,0	62	65	121	25	0,3	4	250				
P													
M													
K													
N									●	●	●	●	●
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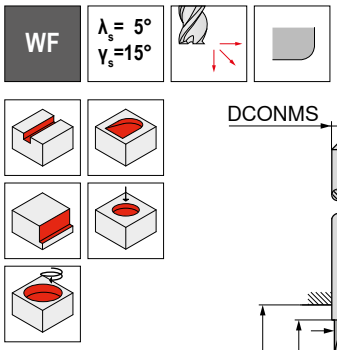
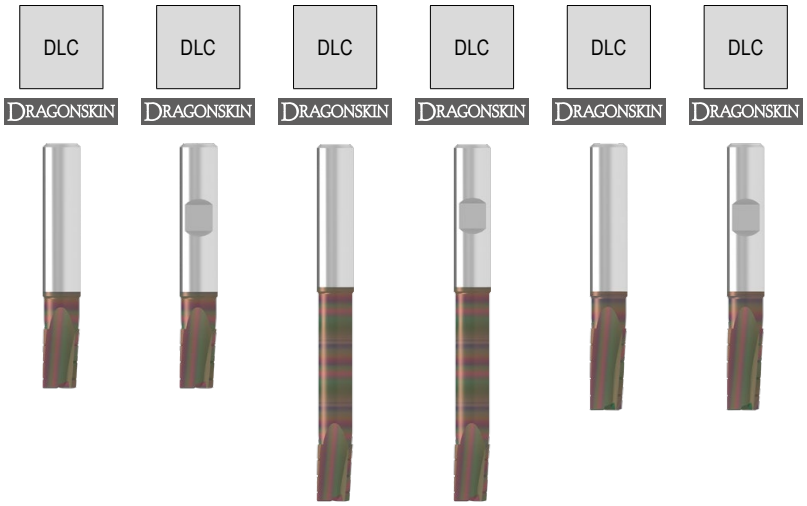
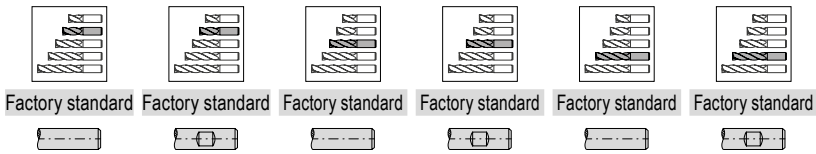
→ v_c/f_z Page 414+415

AluLine – Roughing-Finishing Cutter

The specialist for machining non-ferrous metals







Factory standard

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 582 ...	53 583 ...	53 582 ...	53 583 ...	53 582 ...	53 583 ...
3	0,10	5	2,7	18	44	80	6	3						
4	0,10	7	3,7	24	44	80	6	3			03301	03301		
5	0,15	8	4,7	16	18	54	6	3	05101	05101	04301	04301		
5	0,15	8	4,7	30	44	80	6	3			05301	05301		
5	0,15	13	4,7	18	21	57	6	3					05201	05201
6	0,20	10	5,7	17	18	54	6	3	06102	06102				
6	0,20	10	5,7	42	44	80	6	3			06302	06302		
6	0,20	13	5,7	18	21	57	6	3					06202	06202
8	0,25	13	7,4	20	22	58	8	3	08103	08103				
8	0,25	13	7,4	62	64	100	8	3			08303	08303		
8	0,25	21	7,4	25	27	63	8	3					08203	08203
10	0,30	16	9,2	24	26	66	10	3	10103	10103				
10	0,30	16	9,2	58	60	100	10	3			10303	10303		
10	0,30	22	9,2	30	32	72	10	3					10203	10203
12	0,35	19	11,0	26	28	73	12	3	12104	12104				
12	0,35	19	11,0	73	75	120	12	3			12304	12304		
12	0,35	26	11,0	36	38	83	12	3					12204	12204
16	0,50	25	15,0	32	34	82	16	3		16105				
16	0,50	25	15,0	100	102	150	16	3				16305		
16	0,50	36	15,0	42	44	92	16	3						16205
20	0,60	32	19,0	40	42	92	20	3		20106				
20	0,60	32	19,0	100	100	150	20	3				20306		
20	0,60	41	19,0	52	54	104	20	3						20206

P						
M						
K						
N	●	●	●	●	●	●
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O						

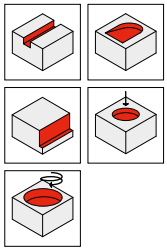
→ v_c/f_z Page 416+417

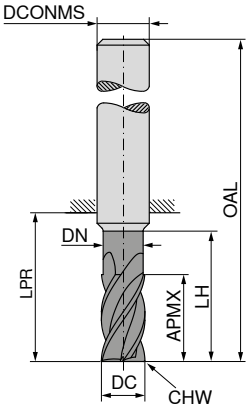
AluLine – Rough milling cutter

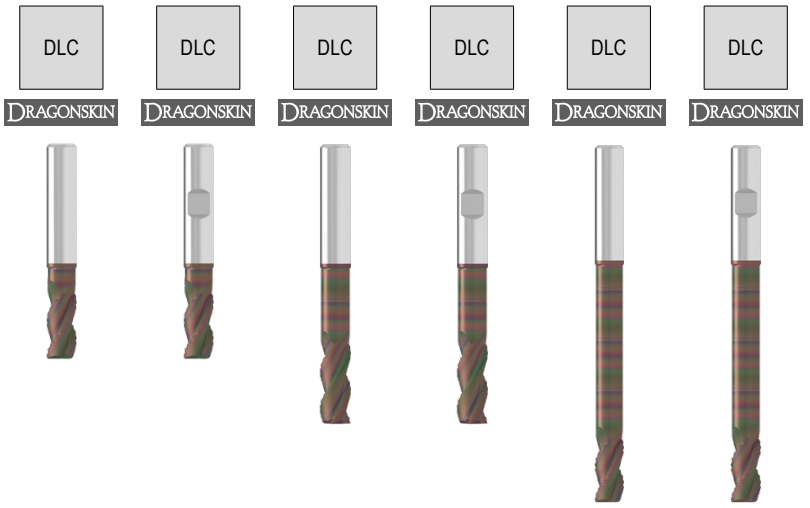
The specialist for machining non-ferrous metals

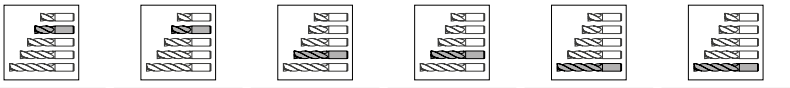
▲ With polished chip flutes

WR | λ_s=38° 40° 43° γ_s=10° | HPC









Factory standard

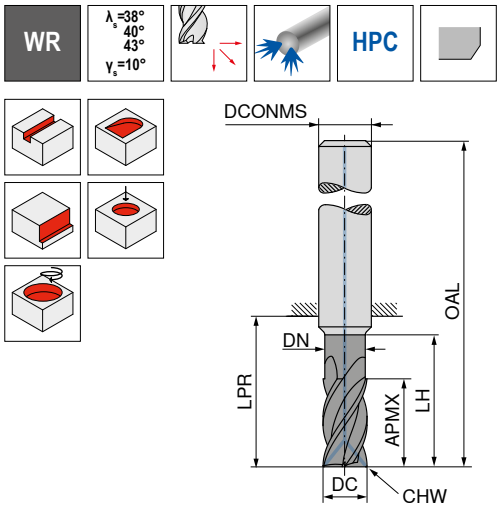
									53 578 ...	53 579 ...	53 578 ...	53 579 ...	53 578 ...	53 579 ...
DC $_{d11}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP						
6	13	5,8	18	22	58	6	0,4	3	06100	06100				
6	16	5,8	30	34	70	6	0,4	3			06200	06200		
6	13	5,8	48	52	88	6	0,4	3					06400	06400
8	17	7,7	24	28	64	8	0,4	3	08100	08100				
8	21	7,7	40	44	80	8	0,4	3			08200	08200		
8	17	7,7	65	68	104	8	0,4	3					08400	08400
10	21	9,7	30	34	74	10	0,4	3	10100	10100				
10	26	9,7	50	54	94	10	0,4	3			10200	10200		
10	21	9,7	80	84	124	10	0,4	3					10400	10400
12	25	11,6	36	40	85	12	0,4	3	12100	12100				
12	31	11,6	60	64	109	12	0,4	3			12200	12200		
12	25	11,6	96	100	145	12	0,4	3					12400	12400
16	33	15,5	48	52	100	16	0,4	3		16100				
16	41	15,5	80	84	132	16	0,4	3				16200		
16	33	15,5	128	132	180	16	0,4	3						16400
20	42	19,5	60	64	114	20	0,4	3		20100				
20	52	19,5	100	104	154	20	0,4	3				20200		
20	42	19,5	160	164	214	20	0,4	3						20400
P														
M														
K														
N									●	●	●	●	●	●
S														
H														
O														

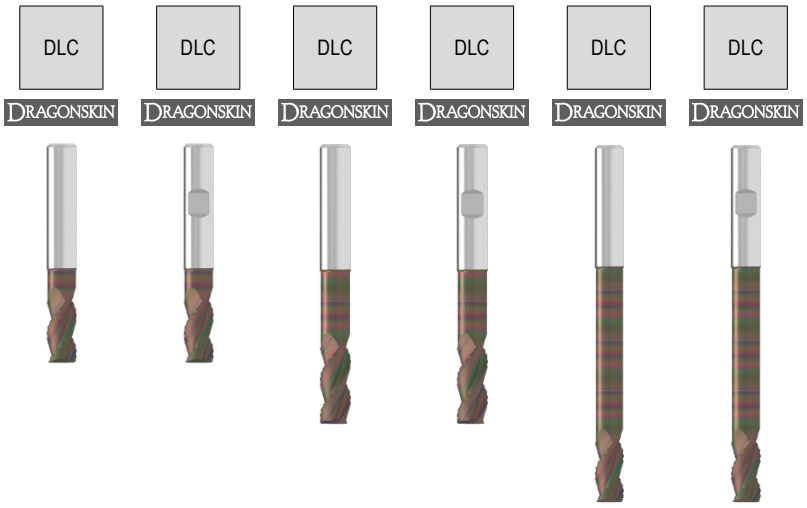
→ v_c/f_z Page 414+415

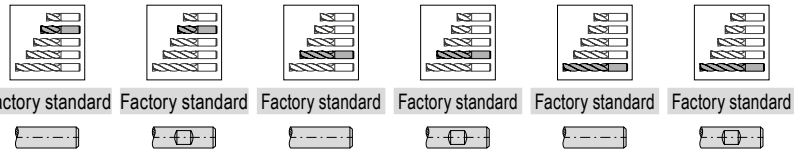
AluLine – Rough milling cutter

The specialist for machining non-ferrous metals

▲ With polished chip flutes







DC d11	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	53 580 ...	53 581 ...	53 580 ...	53 581 ...	53 580 ...	53 581 ...
mm	mm	mm	mm	mm	mm	mm	mm							
6	13	5,8	18	22	58	6	0,4	3	06100	06100				
6	16	5,8	30	34	70	6	0,4	3			06200	06200		
6	13	5,8	48	52	88	6	0,4	3					06400	06400
8	17	7,7	24	28	64	8	0,4	3	08100	08100				
8	21	7,7	40	44	80	8	0,4	3			08200	08200		
8	17	7,7	64	68	104	8	0,4	3					08400	08400
10	21	9,7	30	34	74	10	0,4	3	10100	10100				
10	26	9,7	50	54	94	10	0,4	3			10200	10200		
10	21	9,7	80	84	124	10	0,4	3					10400	10400
12	25	11,6	36	40	85	12	0,4	3	12100	12100				
12	31	11,6	60	64	109	12	0,4	3			12200	12200		
12	25	11,6	96	100	145	12	0,4	3					12400	12400
16	33	15,5	48	52	100	16	0,4	3		16100				
16	41	15,5	80	84	132	16	0,4	3				16200		
16	33	15,5	128	132	180	16	0,4	3						16400
20	42	19,5	60	64	114	20	0,4	3		20100				
20	52	19,5	100	104	154	20	0,4	3				20200		
20	42	19,5	160	164	214	20	0,4	3						20400

P								
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O								

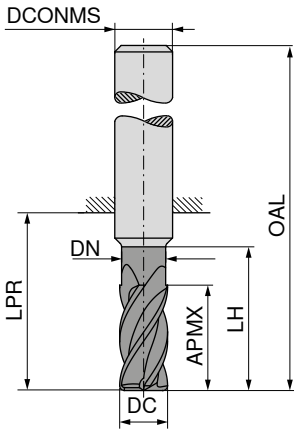
→ v_c/f_z Page 414+415

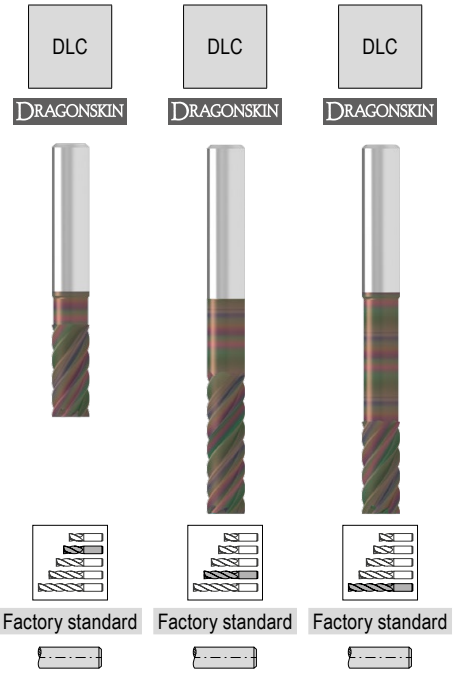
AluLine – High Accuracy Finish Milling Cutter

The specialist for machining non-ferrous metals

▲ max. taper of 0.003 mm for high precision and parallelism of vertical walls
▲ Tool with cutting edge correction

W | λ_s=44° γ_s=20° | HPC





Factory standard | Factory standard | Factory standard

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 639 ...	53 639 ...	53 639 ...
6	16	5,7	20	22	58	6	6	**06100**		
6	16	5,7	42	44	80	6	6			**06400**
8	19	7,4	26	28	64	8	6	**08100**		
8	19	7,4	62	64	100	8	6			**08400**
10	25	9,2	32	34	74	10	6	**10100**		
10	25	9,2	58	60	100	10	6			**10400**
12	30	11,0	37	39	84	12	6	**12100**		
12	30	11,0	73	75	120	12	6			**12400**
12	45			75	120	12	6		**12200**	
16	40	15,0	44	45	93	16	6	**16100**		
16	40	15,0	100	102	150	16	6			**16400**
16	65			102	150	16	6		**16200**	
20	50	19,0	53	54	104	20	6	**20100**		
20	50	19,0	98	100	150	20	6			**20400**
20	75			100	150	20	6		**20200**	

P			
M			
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N	●	●	●
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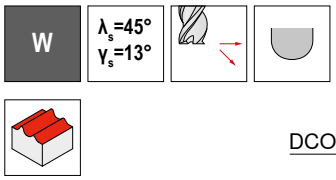
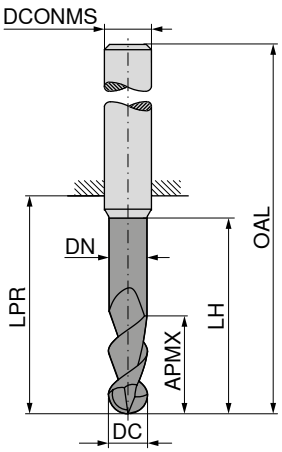
H			
O			

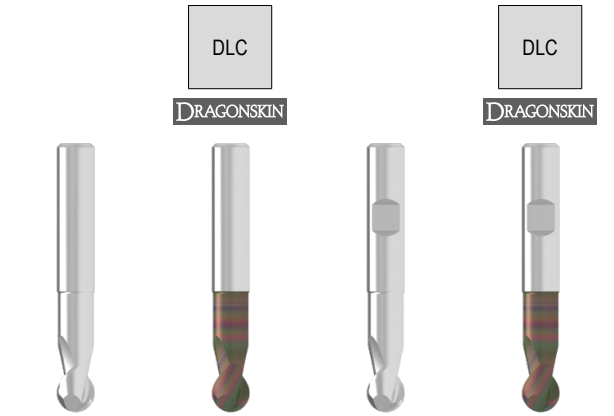
→ v_c/f_z Page 416+417

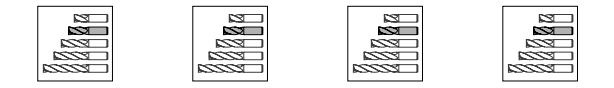
AluLine – Ball Nosed Cutter

The specialist for machining non-ferrous metals









Factory standard | Factory standard | Factory standard | Factory standard

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 607 ...		53 608 ...		53 609 ...		53 610 ...	
3	6	2,7	16	22	50	3	2	**03100**		**03100**					
4	7	3,7	17	26	54	4	2	**04100**		**04100**					
5	8	4,6	18	26	54	5	2	**05100**		**05100**					
6	10	5,5	21	26	62	6	2	**06100**		**06100**		**06100**		**06100**	
8	12	7,5	27	31	67	8	2	**08100**		**08100**		**08100**		**08100**	
10	13	9,4	32	34	74	10	2	**10100**		**10100**		**10100**		**10100**	
12	16	11,4	38	48	93	12	2	**12100**		**12100**		**12100**		**12100**	
14	16	13,2	38	55	100	14	2	**14100**		**14100**		**14100**		**14100**	
16	20	15,0	44	52	100	16	2	**16100**		**16100**		**16100**		**16100**	
20	25	19,0	50	54	104	20	2	**20100**		**20100**		**20100**		**20100**	

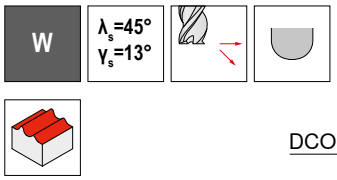
P				
M				
K				
N	●	●	●	●
S				
H				
O	○	○	○	○

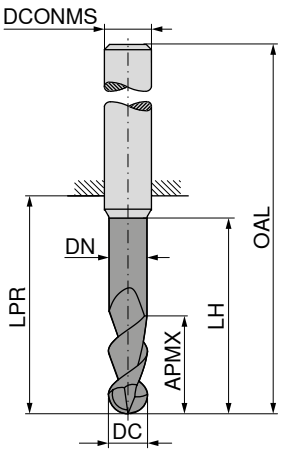
→ v_c/f_z Page 416+417

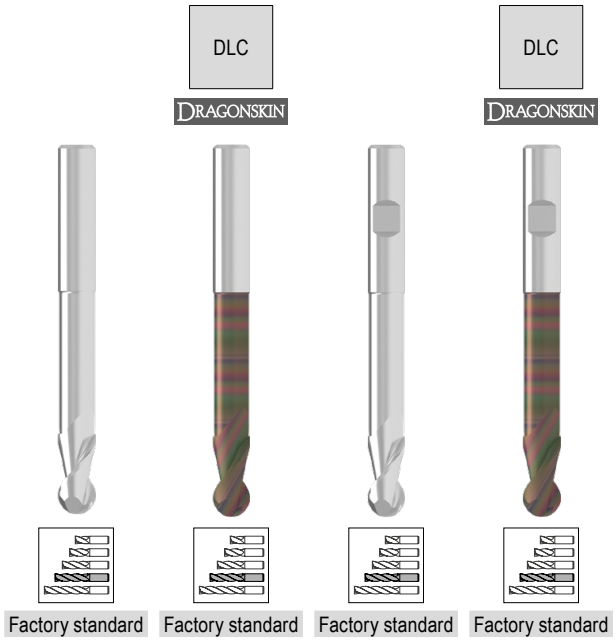
14

AluLine – Ball Nosed Cutter

The specialist for machining non-ferrous metals







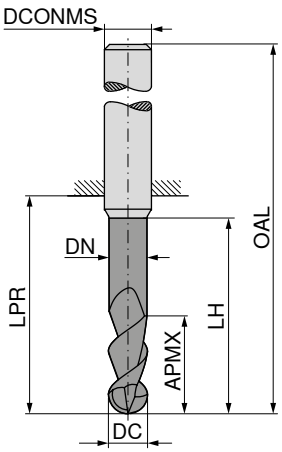
								Factory standard	Factory standard	Factory standard	Factory standard
								53 607 ...	53 608 ...	53 609 ...	53 610 ...
DC $_{f8}$ **mm**	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP				
3	10	2,7	32	47	75	3	2	**03200**	**03200**		
4	13	3,7	36	47	75	4	2	**04200**	**04200**		
5	15	4,6	40	47	75	5	2	**05200**	**05200**		
6	16	5,5	44	64	100	6	2	**06200**	**06200**	**06200**	**06200**
8	22	7,5	54	64	100	8	2	**08200**	**08200**	**08200**	**08200**
10	25	9,4	60	61	101	10	2	**10200**	**10200**	**10200**	**10200**
12	26	11,4	60	63	108	12	2	**12200**	**12200**	**12200**	**12200**
14	26	13,2	60	65	110	14	2	**14200**	**14200**	**14200**	**14200**
16	30	15,0	92	102	150	16	2	**16200**	**16200**	**16200**	**16200**
20	40	19,0	92	100	150	20	2	**20200**	**20200**	**20200**	**20200**
P											
M											
K											
N								●	●	●	●
S											
H											
O								○	○	○	○

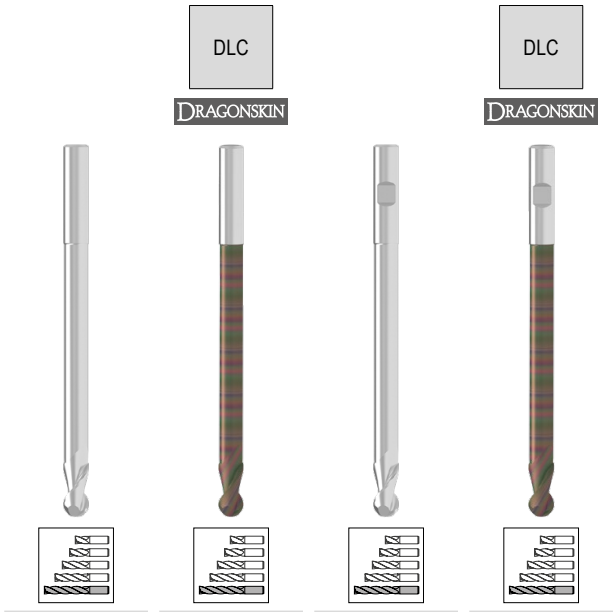
→ v_c/f_z Page 416+417

AluLine – Ball Nosed Cutter

The specialist for machining non-ferrous metals

W | λ_s=45° γ_s=13°





Factory standard | Factory standard | Factory standard | Factory standard

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 607 ...	53 608 ...	53 609 ...	53 610 ...
3	10	2,7	82	97	125	3	2	**03400**	**03400**		
4	13	3,7	86	97	125	4	2	**04400**	**04400**		
6	16	5,5	94	114	150	6	2	**06400**	**06400**	**06400**	**06400**
8	22	7,5	104	114	150	8	2	**08400**	**08400**	**08400**	**08400**
10	25	9,4	110	111	151	10	2	**10400**	**10400**	**10400**	**10400**
12	26	11,4	105	106	151	12	2	**12400**	**12400**	**12400**	**12400**
16	30	15,0	192	202	250	16	2	**16400**	**16400**	**16400**	**16400**
P											
M											
K											
N								●	●	●	●
S											
H											
O								○	○	○	○

→ v_c/f_z Page 416+417

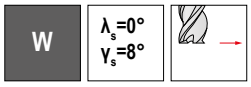
AluLine – NC deburring cutter

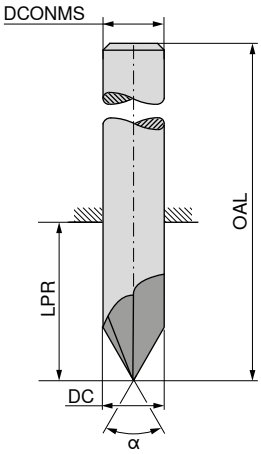
The specialist for machining non-ferrous metals

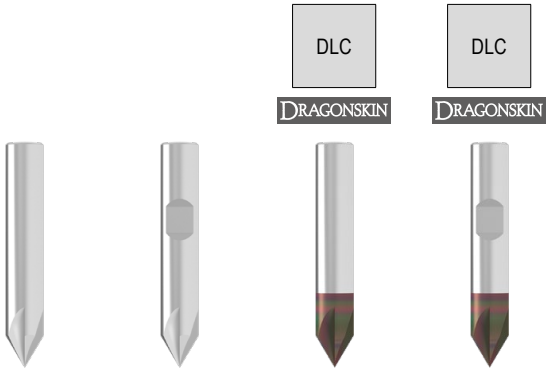
▲ Point angle α = 60°

W

λ_s=0°
γ_s=8°







DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	α = 60° Factory standard 53 666 ...	α = 60° Factory standard 53 667 ...	α = 60° Factory standard 53 662 ...	α = 60° Factory standard 53 663 ...
4	50	22	4	4	**04000**		**04000**	
6	55	19	6	4	**06000**	**06000**	**06000**	**06000**
8	58	22	8	4	**08000**	**08000**	**08000**	**08000**
10	60	20	10	4	**10000**	**10000**	**10000**	**10000**
12	70	25	12	4	**12000**	**12000**	**12000**	**12000**
16	80	32	16	4	**16000**	**16000**	**16000**	**16000**

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

→ v_c/f_z Page 419

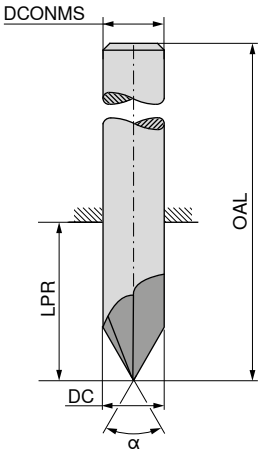
AluLine – NC deburring cutter

The specialist for machining non-ferrous metals

▲ Point angle α = 90°

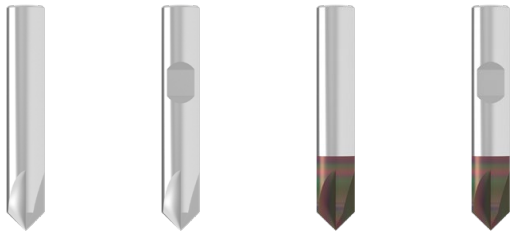
W

λ_s=0°
γ_s=8°



DLC DRAGONSKIN

DLC DRAGONSKIN



	α = 90° Factory standard	α = 90° Factory standard	α = 90° Factory standard	α = 90° Factory standard
	53 664 ...	53 665 ...	53 660 ...	53 661 ...
DC mm				
4	**04000**		**04000**	
6	**06000**	**06000**	**06000**	**06000**
8	**08000**	**08000**	**08000**	**08000**
10	**10000**	**10000**	**10000**	**10000**
12	**12000**	**12000**	**12000**	**12000**
16	**16000**	**16000**	**16000**	**16000**

OAL mm	LPR mm	DCONMS mm	ZEFP
50	22	4	4
55	19	6	4
58	22	8	4
60	20	10	4
70	25	12	4
80	32	16	4

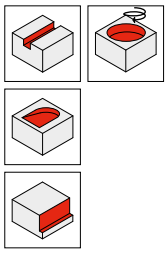
P				
M				
K				
N	●	●	●	●
S				
H				
O	●	●	●	●

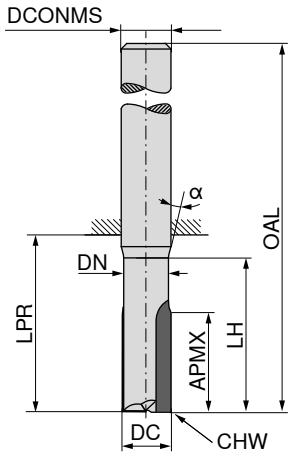
→ v_c/f_z Page 419

PCD end mill

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics

▲ Transition angle α = 45°





DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 010 ...	50 010 ...
3	6	2,8	11	21	57	6	0,15	2	03100	
3	6	2,8	22	64	100	6	0,15	2		03300
4	8	3,5	13	21	57	6	0,15	2	04100	
4	8	3,5	26	64	100	6	0,15	2		04300
5	10	4,4	15	21	57	6	0,15	2	05100	
5	10	4,4	30	64	100	6	0,15	2		05300
6	12	5,4	19	21	57	6	0,15	2	06100	
6	12	5,4	38	64	100	6	0,15	2		06300
8	16	7,2	26	28	64	8	0,15	2	08100	
8	16	7,2	52	64	100	8	0,15	2		08300
10	20	9,0	31	34	74	10	0,15	2	10100	
10	20	9,0	60	60	100	10	0,15	2		10300
P										
M										
K										
N									●	●
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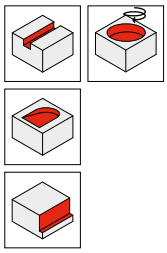
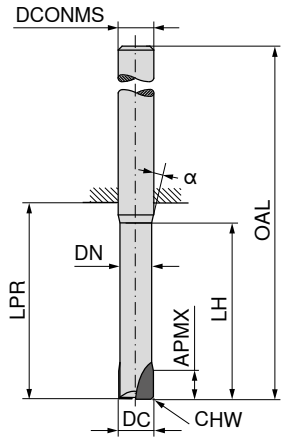
→ v_c/f_z Page 412+413

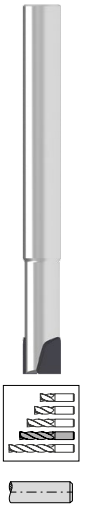
PCD end mill

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics

▲ Transition angle α = 15°







50 011 ...

DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
2	2,0	1,7	6	39	75	6	0,1	1	**02100**
2	2,0	1,7	10	39	75	6	0,1	1	**02300**
2	2,0	1,7	14	39	75	6	0,1	1	**02200**
3	2,5	2,5	9	39	75	6	0,2	2	**03100**
3	2,5	2,5	15	39	75	6	0,2	2	**03300**
3	2,5	2,5	21	39	75	6	0,2	2	**03200**
4	2,5	3,5	12	39	75	6	0,2	2	**04100**
4	2,5	3,5	20	39	75	6	0,2	2	**04300**
4	2,5	3,5	28	39	75	6	0,2	2	**04200**
5	3,0	4,4	15	39	75	6	0,2	2	**05100**
5	3,0	4,4	25	39	75	6	0,2	2	**05300**
5	3,0	4,4	35	39	75	6	0,2	2	**05200**
6	6,0	5,4	18	64	100	6	0,2	2	**06100**
6	6,0	5,4	30	64	100	6	0,2	2	**06300**
6	6,0	5,4	42	64	100	6	0,2	2	**06200**
8	7,0	7,2	24	64	100	8	0,2	2	**08100**
8	7,0	7,2	40	64	100	8	0,2	2	**08300**
10	8,0	9,0	30	60	100	10	0,2	2	**10100**
10	8,0	9,0	50	60	100	10	0,2	2	**10300**
12	9,0	11,0	36	60	105	12	0,2	2	**12100**
12	9,0	11,0	58	60	105	12	0,2	2	**12300**

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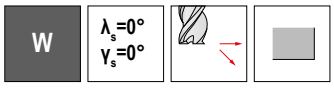
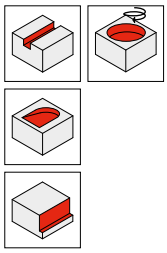
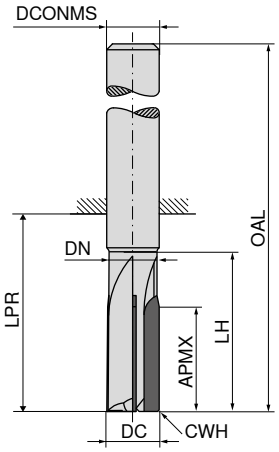
→ v_c/f_z Page 412+413

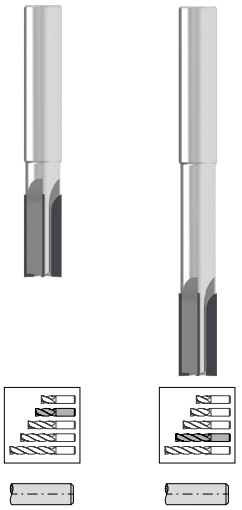
PCD end mill

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics









DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 013 ...	50 013 ...
6	12	5,4	19	21	57	6	0,05	4	**06100**	
6	12	5,4	38	64	100	6	0,05	4		**06200**
8	16	7,2	26	28	64	8	0,05	4	**08100**	
8	16	7,2	52	64	100	8	0,05	4		**08200**
10	20	9,0	31	34	74	10	0,10	4	**10100**	
10	20	9,0	62	60	100	10	0,10	4		**10200**
12	24	11,0	37	39	84	12	0,10	4	**12100**	
12	24	11,0	73	70	115	12	0,10	4		**12200**
16	32	15,0	44	45	93	16	0,20	4	**16100**	
16	32	15,0	88	90	130	16	0,20	4		**16200**
20	38	19,0	53	54	104	20	0,20	4	**20100**	
20	38	19,0	105	110	160	20	0,20	4		**20200**
P										
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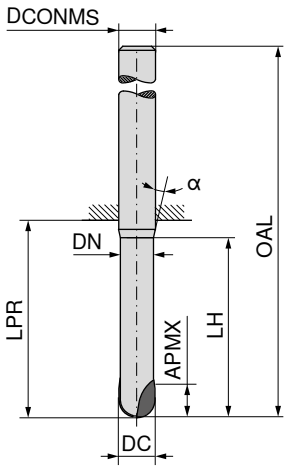
→ v_c/f_z Page 412+413

PCD radius cutter

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics

▲ Transition angle α = 15°



50 014 ...

DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
2	2,0	1,7	6	39	75	6	1	**02100**
2	2,0	1,7	10	39	75	6	1	**02200**
2	2,0	1,7	14	39	75	6	1	**02300**
2	2,0	1,7	35	39	75	6	1	**02400**
3	2,5	2,5	9	39	75	6	2	**03100**
3	2,5	2,5	15	39	75	6	2	**03200**
3	2,5	2,5	21	39	75	6	2	**03300**
3	2,5	2,5	35	39	75	6	2	**03400**
4	2,5	3,5	12	39	75	6	2	**04100**
4	2,5	3,5	20	39	75	6	2	**04200**
4	2,5	3,5	28	39	75	6	2	**04300**
4	2,5	3,5	35	39	75	6	2	**04400**
5	3,0	4,4	15	39	75	6	2	**05100**
5	3,0	4,4	25	39	75	6	2	**05200**
5	3,0	4,4	35	39	75	6	2	**05400**
6	6,0	5,4	18	64	100	6	2	**06100**
6	6,0	5,4	30	64	100	6	2	**06200**
6	6,0	5,4	40	64	100	8	2	**06300**
6	6,0	5,4	42	64	100	6	2	**06400**
8	7,0	7,2	24	64	100	8	2	**08100**
8	7,0	7,2	40	64	100	8	2	**08300**
8	7,0	7,2	40	60	100	10	2	**08900**
10	8,0	9,0	30	60	100	10	2	**10100**
10	8,0	9,0	40	55	100	12	2	**10200**
10	8,0	9,0	50	60	100	10	2	**10300**
12	9,0	11,0	36	60	105	12	2	**12100**
12	9,0	11,0	40	55	100	16	2	**12200**
12	9,0	11,0	58	60	105	12	2	**12400**
16	11,0	15,0	45	82	130	16	2	**16200**
16	11,0	15,0	50	82	130	16	2	**16300**
20	13,0	19,0	60	110	160	20	2	**20400**

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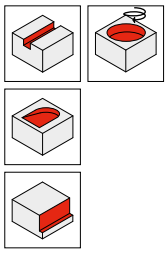
→ v_c/f_z Page 412+413

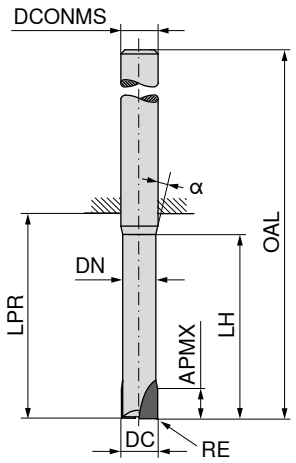
14

PCD torus cutter

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics

▲ Transition angle α = 15°





50 012 ...

DC h7 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
2	0,3	2,0	1,7	6	39	75	6	1	**02103**
2	0,3	2,0	1,7	10	39	75	6	1	**02203**
2	0,3	2,0	1,7	14	39	75	6	1	**02303**
2	0,3	2,0	1,7	35	39	75	6	1	**02403**
3	0,3	2,5	2,5	9	39	75	6	2	**03103**
3	0,3	2,5	2,5	15	39	75	6	2	**03203**
3	0,3	2,5	2,5	21	39	75	6	2	**03303**
3	0,3	2,5	2,5	35	39	75	6	2	**03403**
4	0,3	2,5	3,5	12	39	75	6	2	**04103**
4	0,3	2,5	3,5	20	39	75	6	2	**04203**
4	0,3	2,5	3,5	28	39	75	6	2	**04303**
4	0,3	2,5	3,5	35	39	75	6	2	**04403**
5	0,3	3,0	4,4	15	39	75	6	2	**05103**
5	0,3	3,0	4,4	25	39	75	6	2	**05203**
5	0,3	3,0	4,4	35	39	75	6	2	**05303**
6	0,3	6,0	5,4	18	64	100	6	2	**06103**
6	0,3	6,0	5,4	30	64	100	6	2	**06203**
6	0,3	6,0	5,4	42	64	100	6	2	**06403**
6	0,5	6,0	5,4	18	64	100	6	2	**06105**
6	0,5	6,0	5,4	30	64	100	6	2	**06205**
6	0,5	6,0	5,4	42	64	100	6	2	**06405**
6	1,0	6,0	5,4	18	64	100	6	2	**06110**
6	1,0	6,0	5,4	40	64	100	8	2	**06310**
6	1,0	6,0	5,4	42	64	100	6	2	**06410**
8	0,3	7,0	7,2	24	64	100	8	2	**08103**
8	0,3	7,0	7,2	40	64	100	8	2	**08203**
8	0,5	7,0	7,2	24	64	100	8	2	**08105**
8	0,5	7,0	7,2	40	64	100	8	2	**08205**
8	1,0	7,0	7,2	24	64	100	8	2	**08110**
8	1,0	7,0	7,2	40	64	100	8	2	**08210**
8	2,0	7,0	7,2	24	64	100	8	2	**08120**
8	2,0	7,0	7,2	40	60	100	10	2	**08920**
8	2,0	7,0	7,2	40	64	100	8	2	**08220**
10	0,5	8,0	9,0	30	60	100	10	2	**10105**
10	0,5	8,0	9,0	50	60	100	10	2	**10305**
10	1,0	8,0	9,0	30	60	100	10	2	**10110**
10	1,0	8,0	9,0	50	60	100	10	2	**10310**
10	1,5	8,0	9,0	30	60	100	10	2	**10115**

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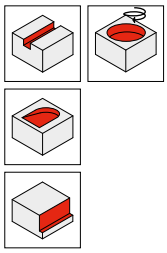
→ v_c/f_z Page 412+413

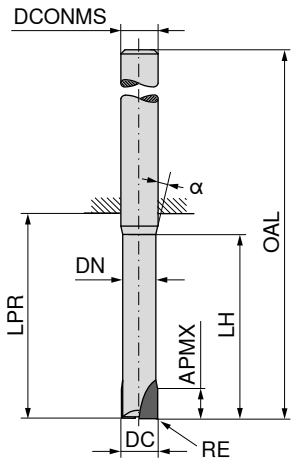
Continued on next page

PCD torus cutter

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics

▲ Transition angle α = 15°





50 012 ...

DC h7 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
10	1,5	8,0	9,0	50	60	100	10	2	**10315**
10	2,0	8,0	9,0	30	60	100	10	2	**10120**
10	2,0	8,0	9,0	50	60	100	10	2	**10320**
10	3,0	8,0	9,0	30	60	100	10	2	**10130**
10	3,0	8,0	9,0	40	55	100	12	2	**10230**
10	3,0	8,0	9,0	50	60	100	10	2	**10330**
12	0,5	9,0	11,0	36	60	105	12	2	**12105**
12	0,5	9,0	11,0	58	60	105	12	2	**12305**
12	1,0	9,0	11,0	36	60	105	12	2	**12110**
12	1,0	9,0	11,0	58	60	105	12	2	**12310**
12	1,5	9,0	11,0	36	60	105	12	2	**12115**
12	1,5	9,0	11,0	58	60	105	12	2	**12315**
12	4,0	9,0	11,0	40	52	100	16	2	**12240**
16	3,0	11,0	15,0	45	82	130	16	2	**16130**
16	5,0	11,0	15,0	50	82	130	16	2	**16250**
20	6,0	13,0	19,0	60	140	160	20	2	**20260**

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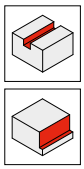
→ v_c/f_z Page 412+413

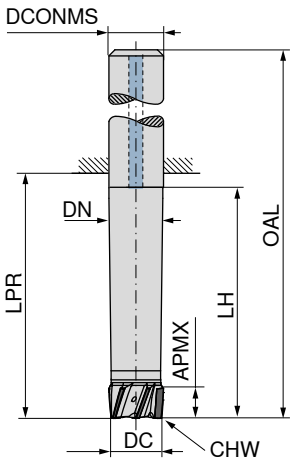
14

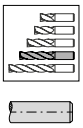
PCD end mill

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics

W | λ_s=20° γ_s= 0° | HPC







50 015 ...

DC mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS mm	CHW mm	ZEFP	KOMET no.	
10	5	9,6	25,0	27	67	10	0,2	4	38320001001000	**10200**
12	5	11,6	30,0	33	78	12	0,2	4	38320001001200	**12200**
16	11	15,6	40,0	43	91	16	0,2	5	38320001001600	**16200**
20	11	19,6	50,0	54	104	20	0,2	6	38320001002000	**20200**
25	11	24,6	62,5	68	124	25	0,2	8	38320001002500	**25200**
32	11	31,6	80,0	87	147	32	0,2	10	38320001003200	**32200**

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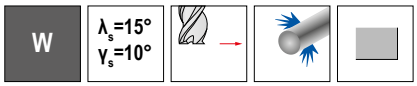
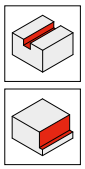
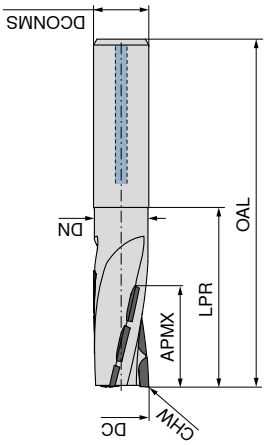
→ v_c/f_z Page 412+413

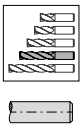
PCD face and shoulder mill

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics









50 020 ...

DC h7 mm	APMX mm	DN mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	KOMET no.	
16	30	15,5	45	93	16	3	38170099001600	**01600**
20	30	19,5	50	100	20	3	38170099002000	**02000**
25	30	24,5	54	110	25	3	38170099002500	**02500**

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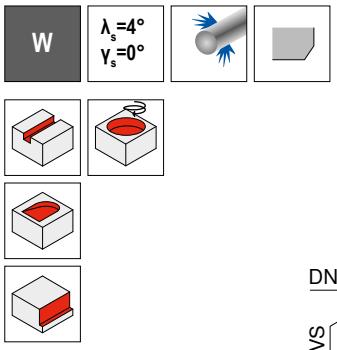
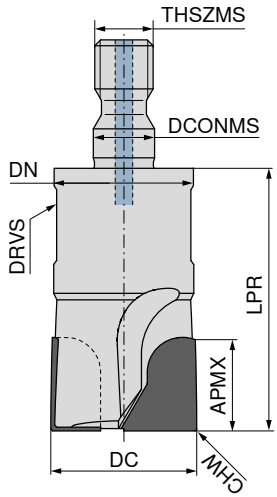
→ v_c/f_z Page 412+413

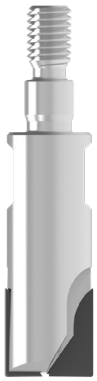
14

PCD drilling slot screw-in cutter

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics







50 016 ...

DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	CHW mm	DRVS mm	ZEFP	THSZMS	KOMET no.	
10	10	9,6	28	5,5	0,2	8	2	M5	37340099001000	**01000**
12	12	9,6	28	5,5	0,2	8	2	M5	37340099001200	**01200**
16	16	13,8	32	8,5	0,2	13	3	M8	37340099001600	**01600**
20	20	18,0	45	10,5	0,2	16	3	M10	37340099002000	**02000**
25	20	21,0	45	12,6	0,2	18	3	M12	37340099002500	**02500**

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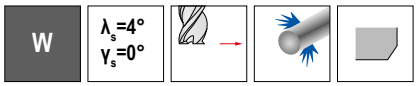
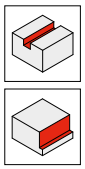
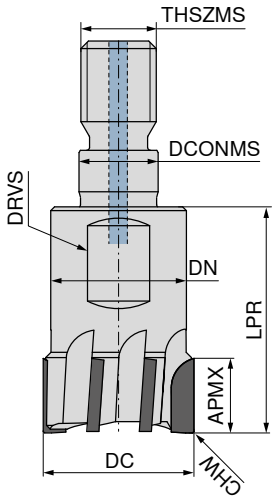
→ v_c/f_z Page 412+413

PCD face screw-in cutter

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics







50 018 ...

DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	CHW mm	DRVS mm	ZEFP	THSZMS	KOMET no.	
10	5	9,6	22	5,5	0,2	8	2	M5	37341099001000	**01000**
12	5	9,6	28	5,5	0,2	8	2	M5	37341099001200	**01200**
16	10	13,8	28	8,5	0,2	13	3	M8	37341099001600	**01600**
20	10	18,0	30	10,5	0,2	16	4	M10	37341099002000	**02000**
25	10	21,0	35	12,5	0,2	18	5	M12	37341099002500	**02500**
32	10	29,0	35	17,0	0,2	27	6	M16	37341099003200	**03200**

P	
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O	●

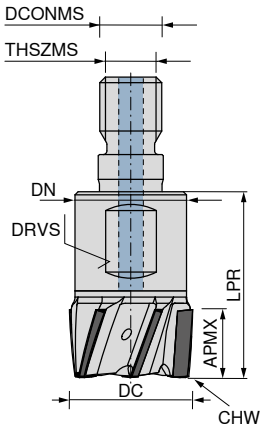
→ v_c/f_z Page 412+413

14

PCD screw-in cutter

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics

W | λ_s=20° γ_s= 0° | HPC



50 015 ...

DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	CHW mm	DRVS mm	ZEFP	THSZMS	KOMET no.	
10	5	9,6	22	5,5	0,2	8	4	M5	37310001001000	**10100**
12	5	11,5	22	6,5	0,2	10	4	M6	37310099001200	**12100**
16	11	13,8	28	8,5	0,2	13	5	M8	37310001001600	**16100**
20	11	18,0	30	10,5	0,2	16	6	M10	37310001002000	**20100**
25	11	21,0	35	12,5	0,2	18	8	M12	37310001002500	**25100**
32	11	29,0	35	17,0	0,2	27	10	M16	37310001003200	**32100**

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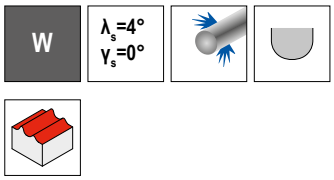
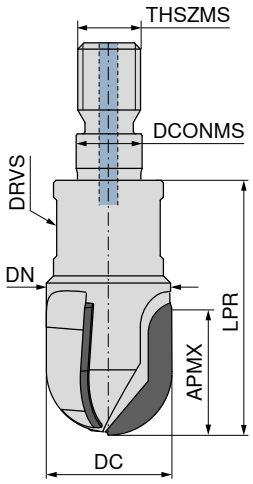
→ v_c/f_z Page 412+413

PCD radius screw-in cutter

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics





50 017 ...

DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	DRVS mm	ZEFP	THSZMS	KOMET no.	
10	10	9,6	28	5,5	8	2	M5	37340098001000	**01000**
12	12	9,6	28	5,5	8	2	M5	37340098001200	**01200**
16	16	13,8	32	8,5	13	3	M8	37340098001600	**01600**

P	
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N	●
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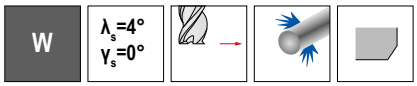
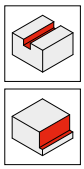
→ v_c/f_z Page 412+413

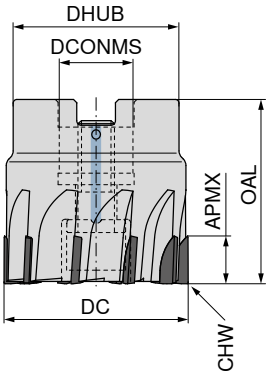
14

PCD face mill

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics







50 019 ...

DC mm	OAL mm	DHUB mm	APMX mm	DCONMS H6 mm	CHW mm	ZNF	KOMET no.	
40	40	36	10	16	0,2	10	37155099004000	**04000**
50	40	41	10	22	0,2	12	37155099005000	**05000**
63	40	48	10	22	0,2	14	37155099006300	**06300**
80	50	60	10	27	0,2	16	37155099008000	**08000**
100	50	78	10	32	0,2	18	37155099010000	**10000**
125	63	100	10	40	0,2	22	37155099012500	**12500**

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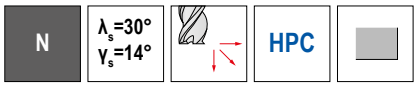
O	●

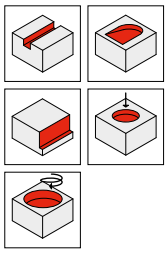
→ v_c/f_z Page 412

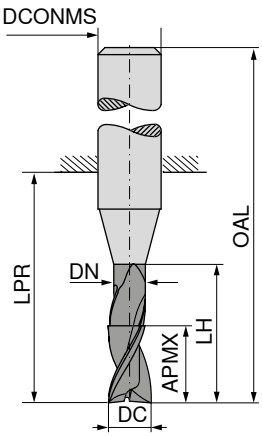
Spare parts can be found in our online shop at cuttingtools.ceratizit.com.

SilverLine – End milling cutter

The all-rounder for universal application







DPB72S

DRAGONSKIN

≈DIN 6527

50 558 ...

DC $_{e8}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
3,0	8	2,8	15	21	57	6	2	**03200**
3,5	11	3,3	15	21	57	6	2	**03700**
4,0	11	3,8	15	21	57	6	2	**04200**
4,5	13	4,3	21	21	57	6	2	**04700**
5,0	13	4,8	21	21	57	6	2	**05200**
5,5	13	5,3	21	21	57	6	2	**05700**
6,0	13	5,8	21	21	57	6	2	**06200**
7,0	16	6,8	27	27	63	8	2	**07200**
8,0	19	7,8	27	27	63	8	2	**08200**
9,0	19	8,8	32	32	72	10	2	**09200**
10,0	22	9,8	32	32	72	10	2	**10200**
11,0	26	10,8	38	38	83	12	2	**11200**
12,0	26	11,8	38	38	83	12	2	**12200**
14,0	26	13,8	38	38	83	14	2	**14200**
15,0	32	14,7	44	44	92	16	2	**15200**
16,0	32	15,7	44	44	92	16	2	**16200**
17,0	32	16,7	44	44	92	18	2	**17200**
18,0	32	17,7	44	44	92	18	2	**18200**
19,0	38	18,7	54	54	104	20	2	**19200**
20,0	38	19,7	54	54	104	20	2	**20200**

P	●
M	●
K	●
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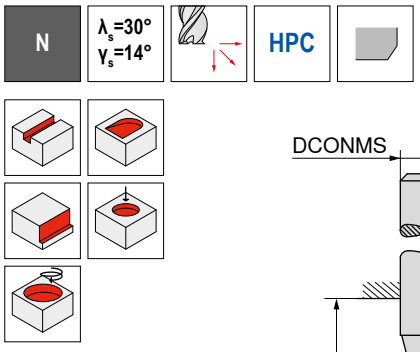
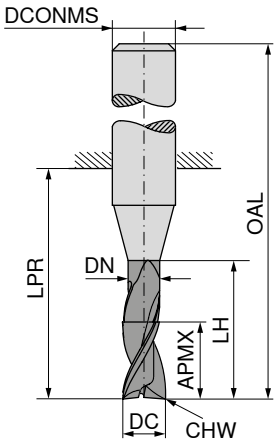
→ v_c/f_z Page 384+385

SilverLine – End milling cutter

The all-rounder for universal application





DPB72S

DRAGONSKIN

≈DIN 6527

50 958 ...

DC $_{e8}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	
3,0	8	2,8	15	21	57	6	0,1	2	**03200**
3,5	11	3,3	15	21	57	6	0,1	2	**03700**
4,0	11	3,8	15	21	57	6	0,1	2	**04200**
4,5	13	4,3	21	21	57	6	0,1	2	**04700**
5,0	13	4,8	21	21	57	6	0,1	2	**05200**
5,5	13	5,3	21	21	57	6	0,1	2	**05700**
6,0	13	5,8	21	21	57	6	0,1	2	**06200**
7,0	16	6,8	27	27	63	8	0,1	2	**07200**
8,0	19	7,8	27	27	63	8	0,1	2	**08200**
9,0	19	8,8	32	32	72	10	0,1	2	**09200**
10,0	22	9,8	32	32	72	10	0,1	2	**10200**
11,0	26	10,8	38	38	83	12	0,1	2	**11200**
12,0	26	11,8	38	38	83	12	0,1	2	**12200**
14,0	26	13,8	38	38	83	14	0,1	2	**14200**
15,0	32	14,7	44	44	92	16	0,1	2	**15200**
16,0	32	15,7	44	44	92	16	0,1	2	**16200**
17,0	32	16,7	44	44	92	18	0,1	2	**17200**
18,0	32	17,7	44	44	92	18	0,1	2	**18200**
19,0	38	18,7	54	54	104	20	0,1	2	**19200**
20,0	38	19,7	54	54	104	20	0,1	2	**20200**

P	●
M	●
K	●
N	○
S	●
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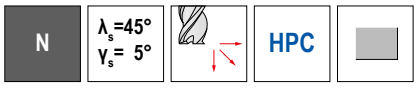
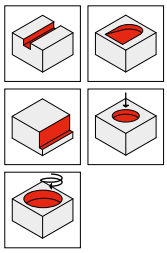
O	

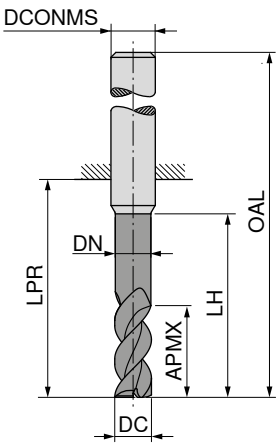
→ v_c/f_z Page 384+385

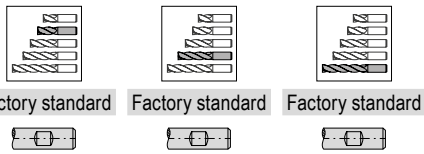
SilverLine – End milling cutter

The all-rounder for universal application









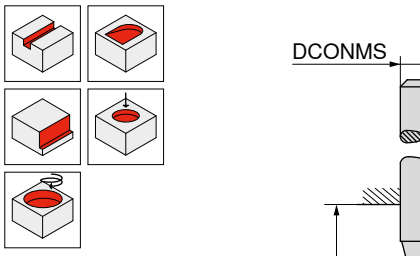
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 992 ...	50 992 ...	50 992 ...
3,0	8	2,9	15	21	57	6	3		03200	
3,5	11	3,4	16	21	57	6	3		03700	
4,0	8	3,9	15	18	54	6	3	04100		
4,0	11	3,9	16	21	57	6	3		04200	
4,0	16			26	62	6	3			04400
4,5	13	4,4	19	21	57	6	3		04700	
5,0	9	4,9	16	18	54	6	3	05100		
5,0	13	4,9	19	21	57	6	3		05200	
5,0	17			26	62	6	3			05400
5,5	13	5,4	19	21	57	6	3		05700	
6,0	10	5,9	17	18	54	6	3	06100		
6,0	13	5,9	19	21	57	6	3		06200	
6,0	18			26	62	6	3			06400
6,5	19	6,3	25	27	63	8	3		06700	
7,0	19	6,8	25	27	63	8	3		07200	
7,5	19	7,3	25	27	63	8	3		07700	
8,0	12		20	22	58	8	3	08100		
8,0	19	7,8	25	27	63	8	3		08200	
8,0	24			32	68	8	3			08400
8,5	22	8,2	30	32	72	10	3		08700	
9,0	22	8,7	30	32	72	10	3		09200	
9,5	22	9,2	30	32	72	10	3		09700	
10,0	14	9,7	24	26	66	10	3	10100		
10,0	22	9,7	30	32	72	10	3		10200	
10,0	30			40	80	10	3			10400
12,0	16	11,7	26	28	73	12	3	12100		
12,0	26	11,7	36	38	83	12	3		12200	
12,0	36			48	93	12	3			12400
14,0	18	13,7	28	30	75	14	3	14100		
14,0	26	13,7	36	38	83	14	3		14200	
14,0	42			54	99	14	3			14400
16,0	22	15,5	32	34	82	16	3	16100		
16,0	32	15,5	42	44	92	16	3		16200	
16,0	48			60	108	16	3			16400
18,0	24	17,5	34	36	84	18	3	18100		
18,0	32	17,5	42	44	92	18	3		18200	
18,0	54			66	114	18	3			18400
20,0	26	19,5	40	42	92	20	3	20100		
20,0	38	19,5	52	54	104	20	3		20200	
20,0	60			76	126	20	3			20400
P								●	●	●
M								●	●	●
K								●	●	●
N								○	○	○
S								●	●	●
H										
O										

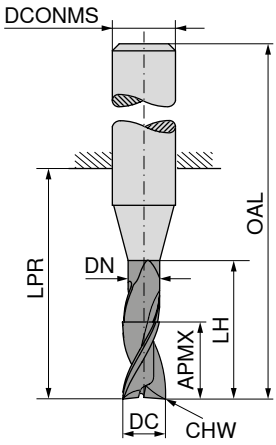
→ v_c/f_z Page 386+387

SilverLine – End milling cutter

The all-rounder for universal application

N | λ_s=45° γ_s= 5° | HPC





≈DIN 6527

≈DIN 6527

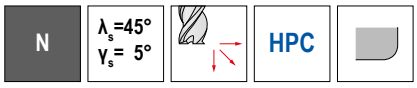
≈DIN 6527

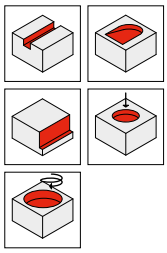
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 966 ...	50 966 ...	50 966 ...
3,0	8	2,9	15	21	57	6	0,1	3		03200	
3,5	11	3,4	16	21	57	6	0,1	3		03700	
4,0	8	3,9	15	18	54	6	0,1	3	04100		
4,0	11	3,9	16	21	57	6	0,1	3		04200	
4,0	16			26	62	6	0,1	3			04400
4,5	13	4,4	19	21	57	6	0,1	3		04700	
5,0	9	4,9	16	18	54	6	0,1	3	05100		
5,0	13	4,9	19	21	57	6	0,1	3		05200	
5,0	17			26	62	6	0,1	3			05400
5,5	13	5,4	19	21	57	6	0,1	3		05700	
6,0	10	5,9	17	18	54	6	0,2	3	06100		
6,0	13	5,9	19	21	57	6	0,2	3		06200	
6,0	18			26	62	6	0,2	3			06400
6,5	19	6,3	25	27	63	8	0,2	3		06700	
7,0	19	6,8	25	27	63	8	0,2	3		07200	
7,5	19	7,3	25	27	63	8	0,2	3		07700	
8,0	12	7,8	20	22	58	8	0,2	3	08100		
8,0	19	7,8	25	27	63	8	0,2	3		08200	
8,0	24			32	68	8	0,2	3			08400
8,5	22	8,2	30	32	72	10	0,2	3		08700	
9,0	22	8,7	30	32	72	10	0,2	3		09200	
9,5	22	9,2	30	32	72	10	0,2	3		09700	
10,0	14	9,7	24	26	66	10	0,2	3	10100		
10,0	22	9,7	30	32	72	10	0,2	3		10200	
10,0	30			40	80	10	0,2	3			10400
12,0	16	11,7	26	28	73	12	0,2	3	12100		
12,0	26	11,7	36	38	83	12	0,2	3		12200	
12,0	36			48	93	12	0,2	3			12400
14,0	18	13,7	28	30	75	14	0,2	3	14100		
14,0	26	13,7	36	38	83	14	0,2	3		14200	
14,0	42			54	99	14	0,2	3			14400
16,0	22	15,5	32	34	82	16	0,2	3	16100		
16,0	32	15,5	42	44	92	16	0,2	3		16200	
16,0	48			60	108	16	0,2	3			16400
18,0	24	17,5	34	36	84	18	0,2	3	18100		
18,0	32	17,5	42	44	92	18	0,2	3		18200	
18,0	54			66	114	18	0,2	3			18400
20,0	26	19,5	40	42	92	20	0,2	3	20100		
20,0	38	19,5	52	54	104	20	0,2	3		20200	
20,0	60			76	126	20	0,2	3			20400
P									●	●	●
M									●	●	●
K									●	●	●
N									○	○	○
S									●	●	●
H											
O											

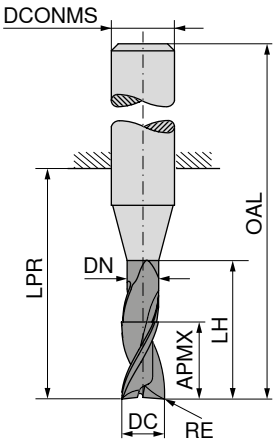
→ v_c/f_z Page 386+387

SilverLine – End milling cutter with corner radius

The all-rounder for universal application







≈DIN 6527

≈DIN 6527

≈DIN 6527

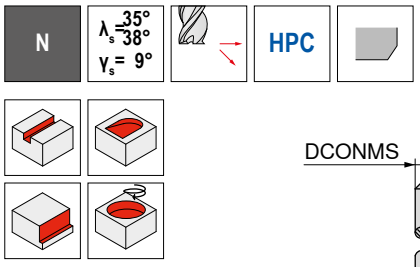
DC f8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 967 ...	50 967 ...	50 967 ...
4,0	0,5	8	3,9	15	18	54	6	3	**04105**		
4,0	0,5	11	3,9	16	21	57	6	3		**04205**	
4,0	0,5	16			26	62	6	3			**04405**
5,0	0,5	9	4,9	16	18	54	6	3	**05105**		
5,0	0,5	13	4,9	19	21	57	6	3		**05205**	
5,0	0,5	17			26	62	6	3			**05405**
6,0	0,5	10	5,9	17	18	54	6	3	**06105**		
6,0	0,5	13	5,9	19	21	57	6	3		**06205**	
6,0	0,5	18			26	62	6	3			**06405**
8,0	1,0	12	7,8	20	22	58	8	3	**08110**		
8,0	1,0	19	7,8	25	27	63	8	3		**08210**	
8,0	1,0	24			32	68	8	3			**08410**
10,0	1,0	14	9,7	24	26	66	10	3	**10110**		
10,0	1,0	22	9,7	30	32	72	10	3		**10210**	
10,0	1,0	30			40	80	10	3			**10410**
12,0	1,5	16	11,7	26	28	73	12	3	**12115**		
12,0	1,5	26	11,7	36	38	83	12	3		**12215**	
12,0	1,5	36			48	93	12	3			**12415**
16,0	2,0	22	15,5	32	34	82	16	3	**16120**		
16,0	2,0	32	15,5	42	44	92	16	3		**16220**	
16,0	2,0	48			60	108	16	3			**16420**
20,0	2,0	26	19,5	40	42	92	20	3	**20120**		
20,0	2,0	38	19,5	52	54	104	20	3		**20220**	
20,0	2,0	60			76	126	20	3			**20420**

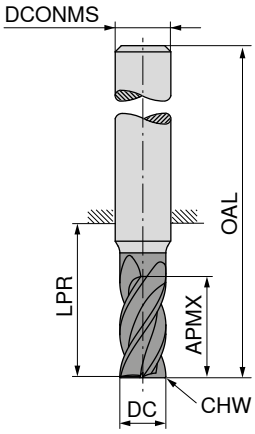
P	●	●	●
M	●	●	●
K	●	●	●
N	○	○	○
S	●	●	●
H			
O			

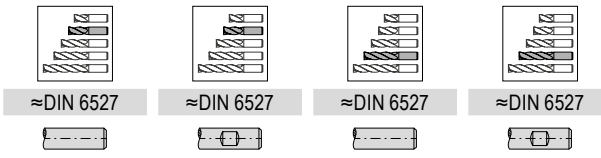
→ v_c/f_z Page 386+387

SilverLine – End milling cutter

The all-rounder for universal application





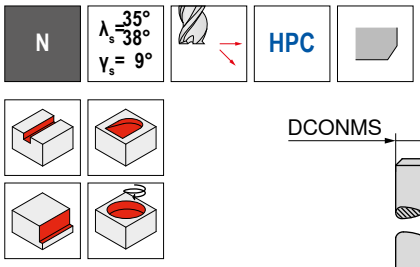


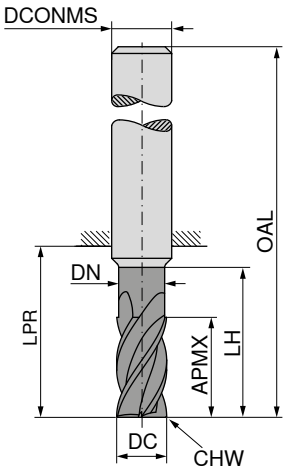
							≈DIN 6527	≈DIN 6527	≈DIN 6527	≈DIN 6527
							50 972 ...	50 973 ...	50 972 ...	50 973 ...
DC f8	APMX	LPR	OAL	DCONMS h6	CHW	ZEFP				
mm	mm	mm	mm	mm	mm					
3,0	5	14	50	6	0,1	4	03100	03100		
3,0	8	21	57	6	0,1	4			03200	03200
3,5	8	18	54	6	0,1	4	03600	03600		
3,5	11	21	57	6	0,1	4			03700	03700
4,0	8	18	54	6	0,1	4	04100	04100		
4,0	11	21	57	6	0,1	4			04200	04200
4,5	9	18	54	6	0,1	4	04600	04600		
4,5	13	21	57	6	0,1	4			04700	04700
5,0	9	18	54	6	0,1	4	05100	05100		
5,0	13	21	57	6	0,1	4			05200	05200
5,5	10	18	54	6	0,1	4	05600	05600		
5,5	13	21	57	6	0,1	4			05700	05700
6,0	10	18	54	6	0,1	4	06100	06100		
6,0	13	21	57	6	0,1	4			06200	06200
7,0	12	22	58	8	0,2	4	07100	07100		
7,0	21	27	63	8	0,2	4			07200	07200
8,0	12	22	58	8	0,2	4	08100	08100		
8,0	21	27	63	8	0,2	4			08200	08200
9,0	14	26	66	10	0,2	4	09100	09100		
9,0	22	32	72	10	0,2	4			09200	09200
10,0	14	26	66	10	0,2	4	10100	10100		
10,0	22	32	72	10	0,2	4			10200	10200
11,0	16	28	73	12	0,3	4	11100	11100		
11,0	26	38	83	12	0,3	4			11200	11200
12,0	16	28	73	12	0,3	4	12100	12100		
12,0	26	38	83	12	0,3	4			12200	12200
14,0	16	28	73	14	0,3	4	14100	14100		
14,0	26	38	83	14	0,3	4			14200	14200
15,0	22	34	82	16	0,3	4	15100	15100		
15,0	36	44	92	16	0,3	4			15200	15200
16,0	22	34	82	16	0,3	4	16100	16100		
16,0	36	44	92	16	0,3	4			16200	16200
17,0	22	34	82	18	0,3	4	17100	17100		
17,0	36	44	92	18	0,3	4			17200	17200
18,0	22	34	82	18	0,3	4	18100	18100		
18,0	36	44	92	18	0,3	4			18200	18200
19,0	26	42	92	20	0,3	4	19100	19100		
19,0	41	54	104	20	0,3	4			19200	19200
20,0	26	42	92	20	0,3	4	20100	20100		
20,0	41	54	104	20	0,3	4			20200	20200
P							●	●	●	●
M							●	●	●	●
K							●	●	●	●
N							○	○	○	○
S							●	●	●	●
H										
O										

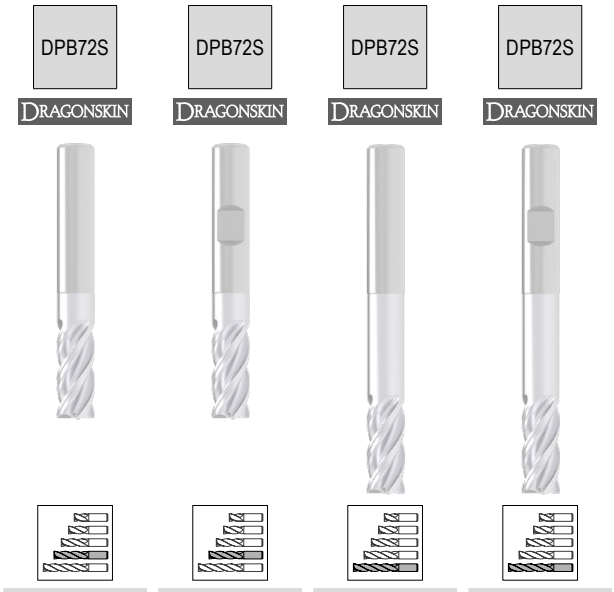
→ v_c/f_z Page 392+393

SilverLine – End milling cutter

The all-rounder for universal application







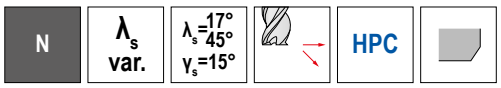
DC f8	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	DIN 6527	DIN 6527	DIN 6527	DIN 6527
mm	mm	mm	mm	mm	mm	mm	mm		50 974 ...	50 975 ...	50 974 ...	50 975 ...
3,0	6,5	2,8	9	19	55	6	0,1	4	03200	03200		
3,0	6,5	2,8	15	22	58	6	0,1	4			03400	03400
4,0	8,5	3,8	12	19	55	6	0,1	4	04200	04200		
4,0	8,5	3,8	20	26	62	6	0,1	4			04400	04400
5,0	10,5	4,8	15	22	58	6	0,1	4	05200	05200		
5,0	10,5	4,8	25	34	70	6	0,1	4			05400	05400
6,0	13,0	5,8	18	22	58	6	0,1	4	06200	06200		
6,0	13,0	5,8	30	34	70	6	0,1	4			06400	06400
8,0	17,0	7,7	24	28	64	8	0,2	4	08200	08200		
8,0	17,0	7,7	40	44	80	8	0,2	4			08400	08400
10,0	21,0	9,7	30	34	74	10	0,2	4	10200	10200		
10,0	21,0	9,7	50	54	94	10	0,2	4			10400	10400
12,0	25,0	11,6	36	40	85	12	0,3	4	12200	12200		
12,0	25,0	11,6	60	64	109	12	0,3	4			12400	12400
14,0	29,0	13,6	42	46	91	14	0,3	4	14200	14200		
14,0	29,0	13,6	70	74	119	14	0,3	4			14400	14400
16,0	33,0	15,5	48	52	100	16	0,3	4	16200	16200		
16,0	33,0	15,5	80	84	132	16	0,3	4			16400	16400
18,0	38,0	17,5	54	58	106	18	0,3	4	18200	18200		
18,0	38,0	17,5	90	94	142	18	0,3	4			18400	18400
20,0	42,0	19,5	60	64	114	20	0,3	4	20200	20200		
20,0	42,0	19,5	100	104	154	20	0,3	4			20400	20400
P									●	●	●	●
M									●	●	●	●
K									●	●	●	●
N									○	○	○	○
S									●	●	●	●
H												
O												

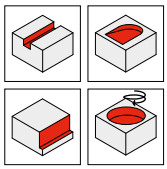
→ v_c/f_z Page 392–391

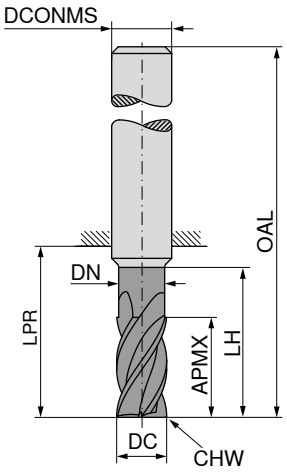
SilverLine – End milling cutter

The all-rounder for universal application

▲ Especially for high-volume milling







DIN 6527 | DIN 6527

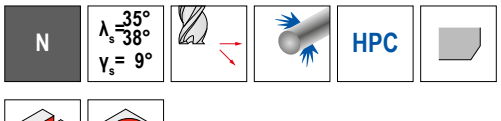
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 976 ...	50 977 ...
3,0	8	2,8	13	21	57	6	0,1	4	**03200**	**03200**
4,0	11	3,8	17	21	57	6	0,1	4	**04200**	**04200**
5,0	13	4,8	19	21	57	6	0,1	4	**05200**	**05200**
6,0	13	5,8	19	21	57	6	0,1	4	**06200**	**06200**
8,0	21	7,7	25	27	63	8	0,2	4	**08200**	**08200**
10,0	22	9,7	30	32	72	10	0,2	4	**10200**	**10200**
12,0	26	11,6	36	38	83	12	0,3	4	**12200**	**12200**
14,0	26	13,6	36	38	83	14	0,3	4	**14200**	**14200**
16,0	36	15,5	42	44	92	16	0,3	4	**16200**	**16200**
18,0	36	17,5	42	44	92	18	0,3	4	**18200**	**18200**
20,0	41	19,5	52	54	104	20	0,3	4	**20200**	**20200**

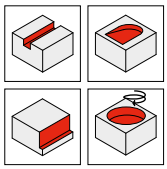
P	●	●
M	●	●
K	●	●
N	○	○
S		
H		
O		

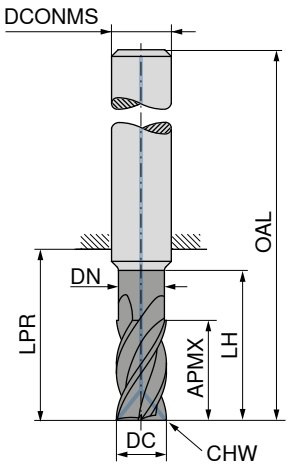
→ v_c/f_z Page 388+389

SilverLine – End milling cutter

The all-rounder for universal application







DPB72S

DRAGONSKIN

DIN 6527

50 978 ...

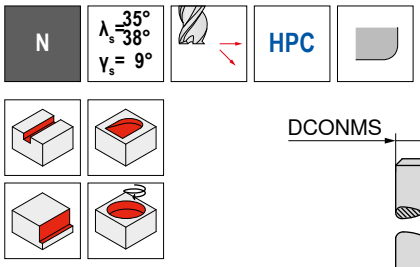
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
6,0	13	5,8	19	21	57	6	0,1	4	**06200**
8,0	21	7,7	25	27	63	8	0,2	4	**08200**
10,0	22	9,7	30	32	72	10	0,2	4	**10200**
12,0	26	11,6	36	38	83	12	0,3	4	**12200**
14,0	26	13,6	36	38	83	14	0,3	4	**14200**
16,0	36	15,5	42	44	92	16	0,3	4	**16200**
18,0	36	17,5	42	44	92	18	0,3	4	**18200**
20,0	41	19,5	52	54	104	20	0,3	4	**20200**

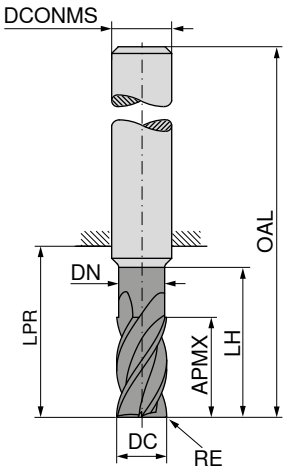
P	●
M	●
K	●
N	○
S	●
H	
O	

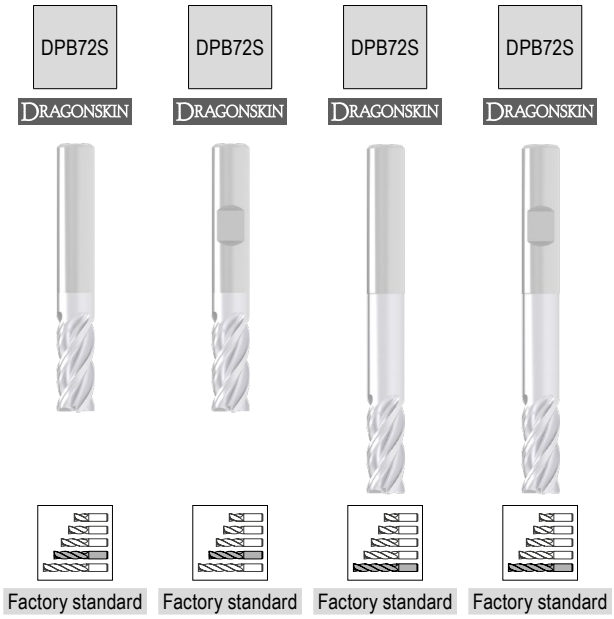
→ v_c/f_z Page 392+393

SilverLine – End milling cutter with corner radius

The all-rounder for universal application







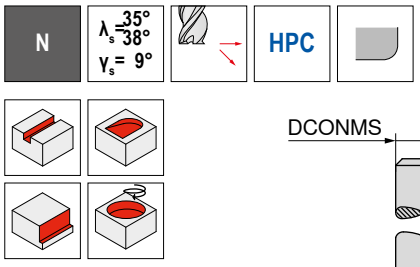
									Factory standard	Factory standard	Factory standard	Factory standard
									50 970 ...	50 971 ...	50 970 ...	50 971 ...
DC f8	RE ±0,05	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP				
mm	mm	mm	mm	mm	mm	mm	mm					
3,0	0,10	8,0	2,8	13	21	57	6	4	03201	03201		
3,0	0,40	8,0	2,8	13	21	57	6	4	03204	03204		
3,0	0,50	8,0	2,8	13	21	57	6	4	03205	03205		
3,0	1,00	8,0	2,8	13	21	57	6	4	03210	03210		
3,0	0,30	6,5	2,8	15	22	58	6	4			03403	03403
3,0	0,50	6,5	2,8	15	22	58	6	4			03405	03405
3,0	0,80	6,5	2,8	15	22	58	6	4			03408	03408
4,0	0,10	11,0	3,8	17	21	57	6	4	04201	04201		
4,0	0,40	11,0	3,8	17	21	57	6	4	04204	04204		
4,0	0,50	11,0	3,8	17	21	57	6	4	04205	04205		
4,0	1,00	11,0	3,8	17	21	57	6	4	04210	04210		
4,0	0,40	8,5	3,8	20	26	62	6	4			04404	04404
4,0	0,50	8,5	3,8	20	26	62	6	4			04405	04405
4,0	0,80	8,5	3,8	20	26	62	6	4			04408	04408
5,0	0,10	13,0	4,8	19	21	57	6	4	05201	05201		
5,0	0,50	13,0	4,8	19	21	57	6	4	05205	05205		
5,0	1,00	13,0	4,8	19	21	57	6	4	05210	05210		
5,0	0,50	10,5	4,8	25	34	70	6	4			05405	05405
5,0	0,80	10,5	4,8	25	34	70	6	4			05408	05408
6,0	0,10	13,0	5,8	19	21	57	6	4	06201	06201		
6,0	0,50	13,0	5,8	19	21	57	6	4	06205	06205		
6,0	1,00	13,0	5,8	19	21	57	6	4	06210	06210		
6,0	1,50	13,0	5,8	19	21	57	6	4	06215	06215		
6,0	0,60	13,0	5,8	30	34	70	6	4			06406	06406
6,0	0,80	13,0	5,8	30	34	70	6	4			06408	06408
6,0	1,00	13,0	5,8	30	34	70	6	4			06410	06410
8,0	0,15	21,0	7,7	25	27	63	8	4	08202	08202		
8,0	0,50	21,0	7,7	25	27	63	8	4	08205	08205		
8,0	1,00	21,0	7,7	25	27	63	8	4	08210	08210		
8,0	1,50	21,0	7,7	25	27	63	8	4	08215	08215		
8,0	2,00	21,0	7,7	25	27	63	8	4	08220	08220		
8,0	0,80	17,0	7,7	40	44	80	8	4			08408	08408
8,0	1,00	17,0	7,7	40	44	80	8	4			08410	08410
8,0	1,50	17,0	7,7	40	44	80	8	4			08415	08415
8,0	2,00	17,0	7,7	40	44	80	8	4			08420	08420
10,0	0,15	22,0	9,7	30	32	72	10	4	10202	10202		
10,0	0,50	22,0	9,7	30	32	72	10	4	10205	10205		
10,0	1,00	22,0	9,7	30	32	72	10	4	10210	10210		
10,0	1,50	22,0	9,7	30	32	72	10	4	10215	10215		
10,0	2,00	22,0	9,7	30	32	72	10	4	10220	10220		
10,0	0,50	21,0	9,7	50	54	94	10	4			10405	10405
10,0	1,00	21,0	9,7	50	54	94	10	4			10410	10410
10,0	1,50	21,0	9,7	50	54	94	10	4			10415	10415
10,0	2,00	21,0	9,7	50	54	94	10	4			10420	10420
12,0	0,20	26,0	11,6	36	38	83	12	4	12202	12202		
12,0	0,50	26,0	11,6	36	38	83	12	4	12205	12205		
12,0	1,00	26,0	11,6	36	38	83	12	4	12210	12210		
P									●	●	●	●
M									●	●	●	●
K									●	●	●	●
N									○	○	○	○
S									●	●	●	●
H												
O												

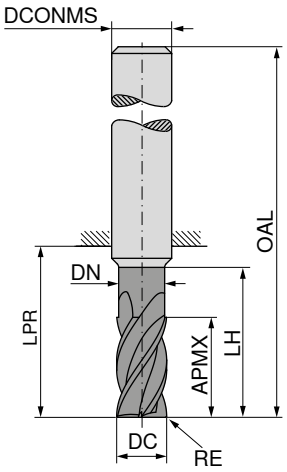
→ v_c/f_z Page 392+393

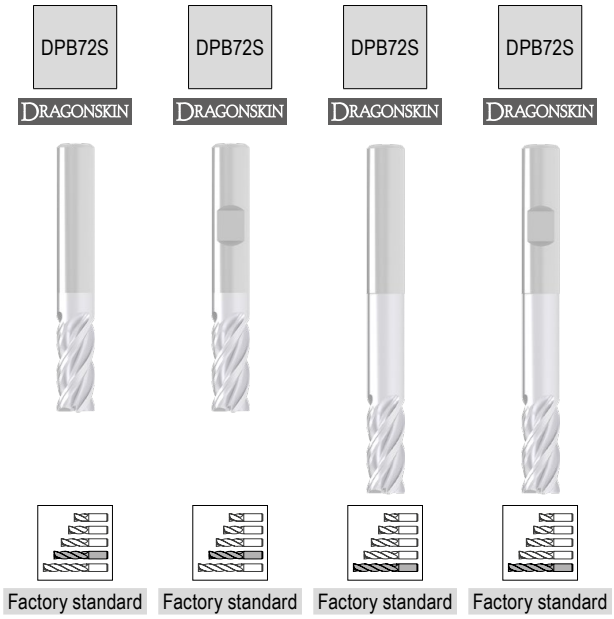
Continued on next page

SilverLine – End milling cutter with corner radius

The all-rounder for universal application







Factory standard | Factory standard | Factory standard | Factory standard

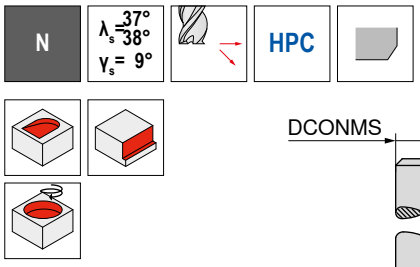
DC f8	RE ±0,05	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	50 970 ...	50 971 ...	50 970 ...	50 971 ...
mm	mm	mm	mm	mm	mm	mm	mm					
12,0	1,50	26,0	11,6	36	38	83	12	4	12215	12215		
12,0	2,00	26,0	11,6	36	38	83	12	4	12220	12220		
12,0	3,00	26,0	11,6	36	38	83	12	4	12230	12230		
12,0	4,00	26,0	11,6	36	38	83	12	4	12240	12240		
12,0	0,50	25,0	11,6	60	64	109	12	4			12405	12405
12,0	1,00	25,0	11,6	60	64	109	12	4			12410	12410
12,0	1,50	25,0	11,6	60	64	109	12	4			12415	12415
12,0	2,00	25,0	11,6	60	64	109	12	4			12420	12420
12,0	3,00	25,0	11,6	60	64	109	12	4			12430	12430
12,0	4,00	25,0	11,6	60	64	109	12	4			12440	12440
14,0	0,30	26,0	13,6	36	38	83	14	4	14203	14203		
14,0	1,00	26,0	13,6	36	38	83	14	4	14210	14210		
14,0	2,00	26,0	13,6	36	38	83	14	4	14220	14220		
14,0	3,00	26,0	13,6	36	38	83	14	4	14230	14230		
14,0	4,00	26,0	13,6	36	38	83	14	4	14240	14240		
14,0	1,00	29,0	13,6	70	74	119	14	4			14410	14410
14,0	2,00	29,0	13,6	70	74	119	14	4			14420	14420
14,0	3,00	29,0	13,6	70	74	119	14	4			14430	14430
14,0	4,00	29,0	13,6	70	74	119	14	4			14440	14440
16,0	0,30	36,0	15,5	42	44	92	16	4	16203	16203		
16,0	1,00	36,0	15,5	42	44	92	16	4	16210	16210		
16,0	2,00	36,0	15,5	42	44	92	16	4	16220	16220		
16,0	3,00	36,0	15,5	42	44	92	16	4	16230	16230		
16,0	4,00	36,0	15,5	42	44	92	16	4	16240	16240		
16,0	1,00	33,0	15,5	80	84	132	16	4			16410	16410
16,0	2,00	33,0	15,5	80	84	132	16	4			16420	16420
16,0	3,00	33,0	15,5	80	84	132	16	4			16430	16430
16,0	4,00	33,0	15,5	80	84	132	16	4			16440	16440
18,0	1,00	36,0	17,5	42	44	92	18	4	18210	18210		
18,0	2,00	36,0	17,5	42	44	92	18	4	18220	18220		
18,0	3,00	36,0	17,5	42	44	92	18	4	18230	18230		
18,0	4,00	36,0	17,5	42	44	92	18	4	18240	18240		
18,0	1,00	38,0	17,5	90	94	142	18	4			18410	18410
18,0	2,00	38,0	17,5	90	94	142	18	4			18420	18420
18,0	3,00	38,0	17,5	90	94	142	18	4			18430	18430
18,0	4,00	38,0	17,5	90	94	142	18	4			18440	18440
20,0	0,30	41,0	19,5	52	54	104	20	4	20203	20203		
20,0	1,00	41,0	19,5	52	54	104	20	4	20210	20210		
20,0	2,00	41,0	19,5	52	54	104	20	4	20220	20220		
20,0	3,00	41,0	19,5	52	54	104	20	4	20230	20230		
20,0	4,00	41,0	19,5	52	54	104	20	4	20240	20240		
20,0	1,00	42,0	19,5	100	104	154	20	4			20410	20410
20,0	2,00	42,0	19,5	100	104	154	20	4			20420	20420
20,0	3,00	42,0	19,5	100	104	154	20	4			20430	20430
20,0	4,00	42,0	19,5	100	104	154	20	4			20440	20440

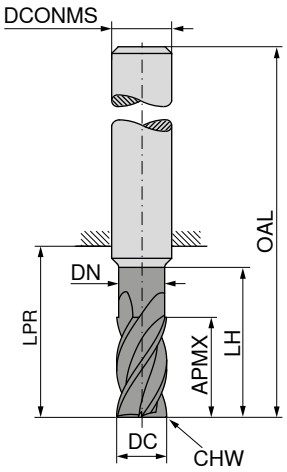
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	○	○	○	○
S	●	●	●	●
H				
O				

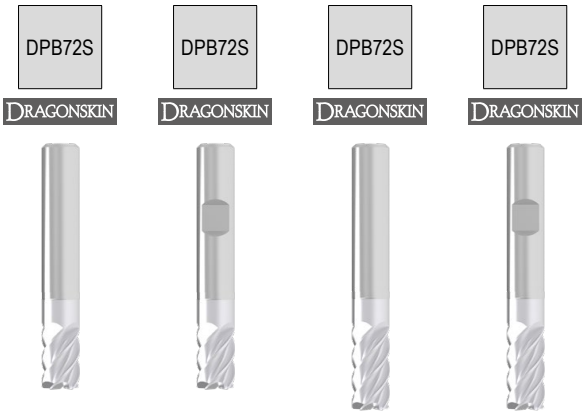
→ v_c/f_z Page 392+393

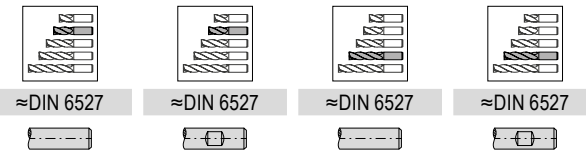
SilverLine – End milling cutter

The all-rounder for universal application









≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527

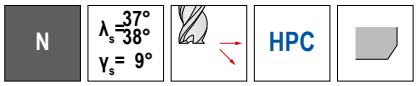
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 993 ...	50 995 ...	50 994 ...	50 996 ...
6	10			18	54	6	0,1	5	**06100**	**06100**		
6	13	5,8	19	21	57	6	0,1	5			**06200**	**06200**
8	12			22	58	8	0,2	5	**08100**	**08100**		
8	21	7,7	25	27	63	8	0,2	5			**08200**	**08200**
10	14			26	66	10	0,2	5	**10100**	**10100**		
10	22	9,7	30	32	72	10	0,2	5			**10200**	**10200**
12	16			28	73	12	0,3	5	**12100**	**12100**		
12	26	11,6	36	38	83	12	0,3	5			**12200**	**12200**
16	22			34	82	16	0,3	5	**16100**	**16100**		
16	36	15,5	42	44	92	16	0,3	5			**16200**	**16200**
20	26			42	92	20	0,3	5	**20100**	**20100**		
20	41	19,5	52	54	104	20	0,3	5			**20200**	**20200**
P									●	●	●	●
M									●	●	●	●
K									●	●	●	●
N									○	○	○	○
S									●	●	●	●
H												
O												

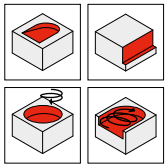
→ v_c/f_z Page 380

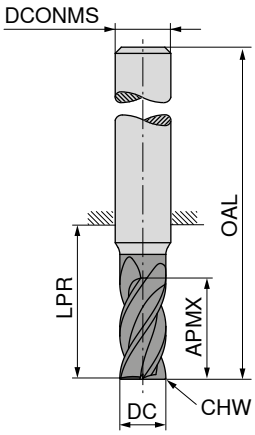
SilverLine – End milling cutter

The all-rounder for universal application

▲ Cutting depth: 3 x DC







≈DIN 6527 ≈DIN 6527

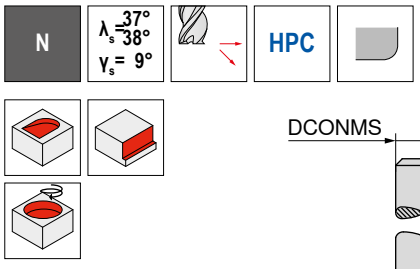
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 999 ...	50 949 ...
6	19	26	62	6	0,1	5	**06200**	**06200**
8	25	32	68	8	0,2	5	**08200**	**08200**
10	31	40	80	10	0,2	5	**10200**	**10200**
12	37	48	93	12	0,3	5	**12200**	**12200**
16	49	60	108	16	0,3	5	**16200**	**16200**
20	61	76	126	20	0,3	5	**20200**	**20200**

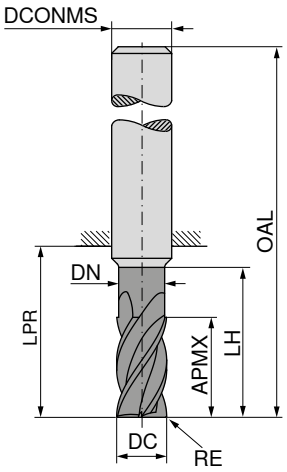
P	●	●
M	●	●
K	●	●
N	○	○
S	●	●
H		
O		

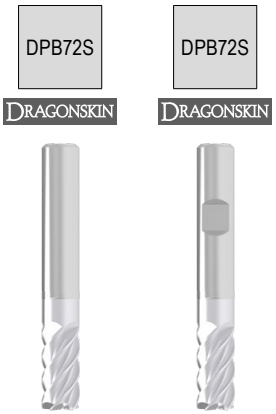
→ v_c/f_z Page 381–383

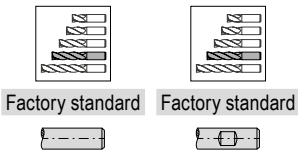
SilverLine – End milling cutter with corner radius

The all-rounder for universal application









DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 997 ...	50 998 ...
6	0,2	13	5,8	19	21	57	6	5	06202	06202
6	0,5	13	5,8	19	21	57	6	5	06205	06205
6	1,0	13	5,8	19	21	57	6	5	06210	06210
8	0,2	21	7,7	25	27	63	8	5	08202	08202
8	0,5	21	7,7	25	27	63	8	5	08205	08205
8	1,0	21	7,7	25	27	63	8	5	08210	08210
8	1,5	21	7,7	25	27	63	8	5	08215	08215
10	0,2	22	9,7	30	32	72	10	5	10202	10202
10	0,5	22	9,7	30	32	72	10	5	10205	10205
10	1,0	22	9,7	30	32	72	10	5	10210	10210
10	1,5	22	9,7	30	32	72	10	5	10215	10215
10	1,6	22	9,7	30	32	72	10	5	10216	10216
10	2,0	22	9,7	30	32	72	10	5	10220	10220
12	0,3	26	11,6	36	38	83	12	5	12203	12203
12	0,5	26	11,6	36	38	83	12	5	12205	12205
12	1,0	26	11,6	36	38	83	12	5	12210	12210
12	1,5	26	11,6	36	38	83	12	5	12215	12215
12	1,6	26	11,6	36	38	83	12	5	12216	12216
12	2,0	26	11,6	36	38	83	12	5	12220	12220
12	2,5	26	11,6	36	38	83	12	5	12225	12225
16	0,3	36	15,5	42	44	92	16	5	16203	16203
16	0,5	36	15,5	42	44	92	16	5	16205	16205
16	1,0	36	15,5	42	44	92	16	5	16210	16210
16	1,5	36	15,5	42	44	92	16	5	16215	16215
16	1,6	36	15,5	42	44	92	16	5	16216	16216
16	2,0	36	15,5	42	44	92	16	5	16220	16220
16	2,5	36	15,5	42	44	92	16	5	16225	16225
16	3,0	36	15,5	42	44	92	16	5	16230	16230
20	0,3	41	19,5	52	54	104	20	5	20203	20203
20	0,5	41	19,5	52	54	104	20	5	20205	20205
20	1,0	41	19,5	52	54	104	20	5	20210	20210
20	1,5	41	19,5	52	54	104	20	5	20215	20215
20	1,6	41	19,5	52	54	104	20	5	20216	20216
20	2,0	41	19,5	52	54	104	20	5	20220	20220
20	2,5	41	19,5	52	54	104	20	5	20225	20225
20	3,0	41	19,5	52	54	104	20	5	20230	20230
20	4,0	41	19,5	52	54	104	20	5	20240	20240

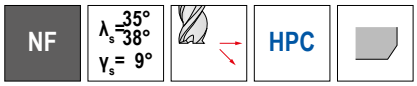
P	●	●
M	●	●
K	●	●
N	○	○
S	●	●
H		
O		

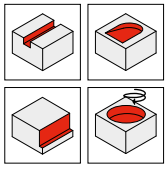
→ v_c/f_z Page 380

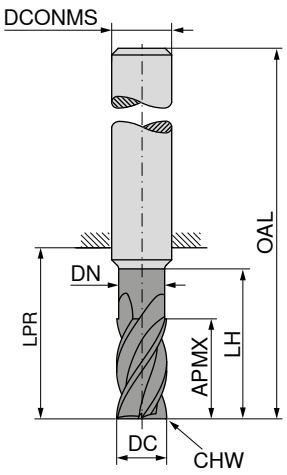
SilverLine – Roughing-Finishing Cutter

The all-rounder for universal application

▲ With rough-finishing profile







DPB72S

DRAGONSKIN

DIN 6527

50 969 ...

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
3,0	8	2,8	13	21	57	6	0,1	4	**03200**
3,5	11	3,3	17	21	57	6	0,1	4	**03700**
4,0	11	3,8	17	21	57	6	0,1	4	**04200**
4,5	13	4,3	19	21	57	6	0,1	4	**04700**
5,0	13	4,8	19	21	57	6	0,1	4	**05200**
5,5	13	5,3	19	21	57	6	0,1	4	**05700**
6,0	13	5,8	19	21	57	6	0,1	4	**06200**
7,0	21	6,7	25	27	63	8	0,2	4	**07200**
8,0	21	7,7	25	27	63	8	0,2	4	**08200**
9,0	22	8,7	30	32	72	10	0,2	4	**09200**
10,0	22	9,7	30	32	72	10	0,2	4	**10200**
11,0	26	10,6	36	38	83	12	0,3	4	**11200**
12,0	26	11,6	36	38	83	12	0,3	4	**12200**
14,0	26	13,6	36	38	83	14	0,3	4	**14200**
15,0	36	14,5	42	44	92	16	0,3	4	**15200**
16,0	36	15,5	42	44	92	16	0,3	4	**16200**
17,0	36	16,5	42	44	92	18	0,3	4	**17200**
18,0	36	17,5	42	44	92	18	0,3	4	**18200**
19,0	41	18,5	52	54	104	20	0,3	4	**19200**
20,0	41	19,5	52	54	104	20	0,3	4	**20200**

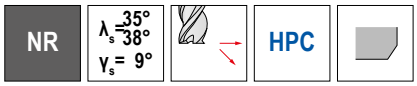
P	●
M	●
K	●
N	○
S	●
H	
O	

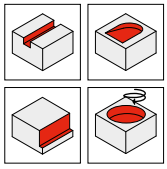
→ v_c/f_z Page 392+393

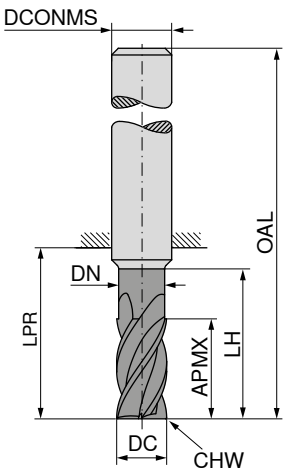
SilverLine – Rough milling cutter

The all-rounder for universal application

▲ With roughing profile







DPB72S

DRAGONSKIN

DIN 6527

50 979 ...

DC d11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
3,0	8	2,8	13	21	57	6	0,1	4	**03200**
3,5	11	3,3	17	21	57	6	0,1	4	**03700**
4,0	11	3,8	17	21	57	6	0,1	4	**04200**
4,5	13	4,3	19	21	57	6	0,1	4	**04700**
5,0	13	4,8	19	21	57	6	0,1	4	**05200**
5,5	13	5,3	19	21	57	6	0,1	4	**05700**
6,0	13	5,8	19	21	57	6	0,1	4	**06200**
7,0	21	6,7	25	27	63	8	0,2	4	**07200**
8,0	21	7,7	25	27	63	8	0,2	4	**08200**
9,0	22	8,7	30	32	72	10	0,2	4	**09200**
10,0	22	9,7	30	32	72	10	0,2	4	**10200**
11,0	26	10,6	36	38	83	12	0,3	4	**11200**
12,0	26	11,6	36	38	83	12	0,3	4	**12200**
14,0	26	13,6	36	38	83	14	0,3	4	**14200**
15,0	36	14,5	42	44	92	16	0,3	4	**15200**
16,0	36	15,5	42	44	92	16	0,3	4	**16200**
17,0	36	16,5	42	44	92	18	0,3	4	**17200**
18,0	36	17,5	42	44	92	18	0,3	4	**18200**
19,0	41	18,5	52	54	104	20	0,3	4	**19200**
20,0	41	19,5	52	54	104	20	0,3	4	**20200**

P	●
M	●
K	●
N	○
S	●
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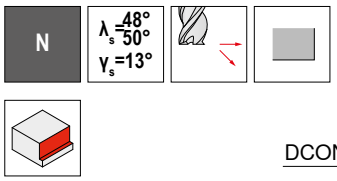
O	

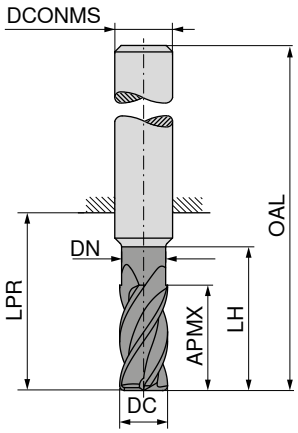
→ v_c/f_z Page 392+393

SilverLine – High Accuracy Finish Milling Cutter

The all-rounder for universal application

▲ max. taper of 0.008 mm for high precision and parallelism of vertical walls
▲ Tool with cutting edge correction





DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	≈DIN 6527 50 991 ...	Factory standard 50 991 ...
6,0	10	5,8	18	22	58	6	6	**06200**	
6,0	13	5,6	19	21	57	6	6	**06700**	
6,0	13	5,8	27	31	67	6	6		**06400**
6,0	13	5,8	36	40	76	6	6		**06900**
6,0	15	5,6	42	44	80	6	6		**90000**
8,0	13	7,7	24	28	64	8	6	**08200**	
8,0	17	7,7	36	40	76	8	6		**08400**
8,0	17	7,7	48	53	89	8	6		**08900**
8,0	19	7,6	25	27	63	8	6	**08700**	
8,0	20	7,6	62	64	100	8	6		**90100**
10,0	16	9,7	30	34	74	10	6	**10200**	
10,0	21	9,7	45	49	89	10	6		**10400**
10,0	21	9,7	60	64	104	10	6		**90200**
10,0	22	9,6	30	32	72	10	6	**10700**	
10,0	25	9,6	58	60	100	10	6		**10900**
12,0	19	11,6	36	40	85	12	6	**12200**	
12,0	25	11,6	54	58	103	12	6		**12400**
12,0	25	11,6	72	76	121	12	6		**90300**
12,0	26	11,5	36	38	83	12	6	**12700**	
12,0	30	11,5	73	75	120	12	6		**12900**
16,0	25	15,5	48	52	100	16	6	**16200**	
16,0	32	15,0	42	44	92	16	6	**16700**	
16,0	33	15,5	72	76	124	16	6		**16400**
16,0	33	15,5	96	100	148	16	6		**16900**
16,0	40	15,0	100	102	150	16	6		**90400**
20,0	32	19,5	60	64	114	20	6	**20200**	
20,0	38	19,0	52	54	104	20	6	**20700**	
20,0	42	19,5	90	94	144	20	6		**20400**
20,0	42	19,5	120	124	174	20	6		**90500**
20,0	50	19,0	98	100	150	20	6		**20900**
25,0	40	24,5	75	80	136	25	6	**25200**	
25,0	52	24,5	113	118	174	25	6		**25400**
25,0	52	24,5	150	154	210	25	6		**25900**

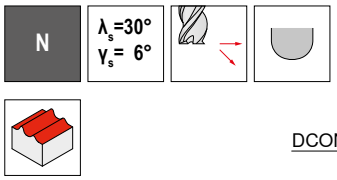
P	●	●
M	●	●
K	○	○
N	○	○
S	●	●
H		
O		

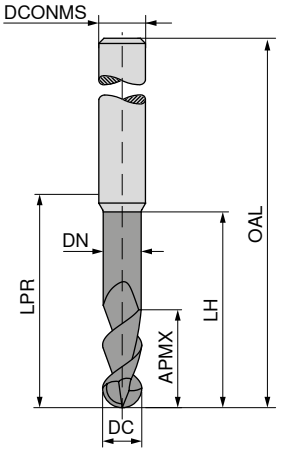
→ v_c/f_z Page 394

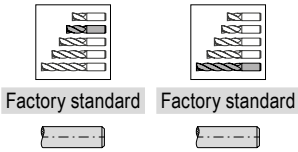
14

SilverLine – Ball Nosed Cutter

The all-rounder for universal application







DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 963 ...		50 963 ...	
3,0	4	2,8	10,0	14	50	6	2	**03115**			
3,0	7	3,0	8,8	24	60	6	2				**03415**
4,0	8	3,8	12,0	18	54	6	2	**04120**			
4,0	10	4,0	12,5	39	75	6	2				**04420**
5,0	9	4,8	16,0	18	54	6	2	**05125**			
5,0	12	5,0	15,0	39	75	6	2				**05425**
6,0	10	5,7	16,0	18	54	6	2	**06130**			
6,0	12	6,0	15,0	64	100	6	2				**06430**
7,0	11	6,6	20,0	22	58	8	2	**07135**			
8,0	12	7,6	20,0	22	58	8	2	**08140**			
8,0	14	8,0	17,5	64	100	8	2				**08440**
10,0	14	9,6	24,0	26	66	10	2	**10150**			
10,0	18	10,0	22,5	60	100	10	2				**10450**
12,0	16	11,5	26,0	28	73	12	2	**12160**			
12,0	22	12,0	27,5	55	100	12	2				**12460**
14,0	18	13,3	28,0	30	75	14	2	**14170**			
14,0	26	14,0	32,5	75	120	14	2				**14470**
16,0	22	15,2	32,0	34	82	16	2	**16180**			
16,0	30	16,0	37,5	102	150	16	2				**16480**
18,0	24	17,1	34,0	36	84	18	2	**18190**			
20,0	26	19,0	40,0	42	92	20	2	**20110**			
20,0	38	20,0	47,5	100	150	20	2				**20410**

P	●	●
M		
K	●	●
N	○	○
S		
H	○	○
O		

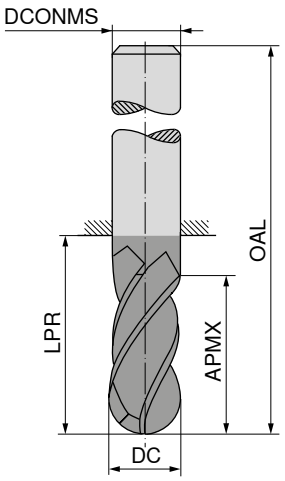
→ v_c/f_z Page 398+399

SilverLine – Ball Nosed Cutter

The all-rounder for universal application

N

λ_s = 35°
γ_s = 38°
γ_s = 7°



DPB72S

DRAGONSKIN

Factory standard

50 990 ...

DC $_{f8}$ mm	APMX mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
4,0	11	21	57	6	4	**04220**
5,0	13	21	57	6	4	**05225**
6,0	13	21	57	6	4	**06230**
8,0	19	36	72	8	4	**08280**
10,0	22	32	72	10	4	**10250**
12,0	26	38	83	12	4	**12260**
16,0	32	44	92	16	4	**16280**
20,0	38	54	104	20	4	**20210**

P	●
M	○
K	●
N	○
S	
H	
O	

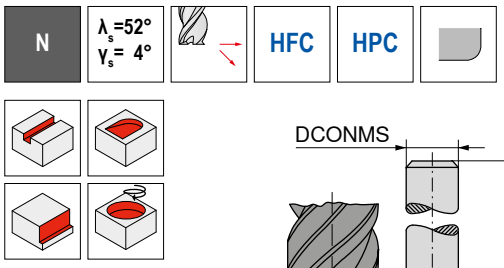
→ v_c/f_z Page 395–397

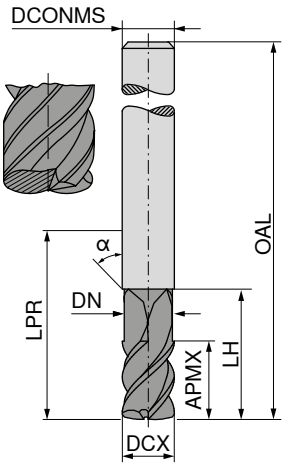
SilverLine – Torus Face Milling Cutter

The all-rounder for universal application

▲ APMX does not correspond to the maximum cutting depth

▲ r_{3D} = corner radius to be programmed





										Factory standard	Factory standard
										50 989 ...	50 989 ...
DCX $_{f8}$ mm	r_{3D} mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	α°	DCONMS $_{h6}$ mm	ZEFP		
6,00	1,12	6	5,5	21	21	57	45	6	4	**06110**	
6,00	1,12	6	5,5	64	64	100	45	6	4		**06410**
8,00	1,23	8	7,4	27	27	63	45	8	4	**08110**	
8,00	1,23	8	7,4	64	64	100	45	8	4		**08410**
10,00	1,17	10	9,2	32	32	72	45	10	4	**10115**	
10,00	1,17	10	9,2	60	60	100	45	10	4		**10415**
12,00	1,86	12	11,0	32	38	83	45	12	4	**12115**	
12,00	1,86	12	11,0	65	65	110	45	12	4		**12415**
16,00	2,47	16	15,0	38	44	92	45	16	4	**16120**	
16,00	2,47	16	15,0	65	102	150	45	16	4		**16420**
20,00	2,61	20	18,5	40	42	92	45	20	4	**20120**	
20,00	2,61	20	18,5	65	100	150	45	20	4		**20420**
P										●	●
M										○	○
K										●	●
N										○	○
S											
H										○	○
O											

→ v_c/f_z Page 400+401

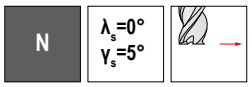
SilverLine – NC deburring cutter

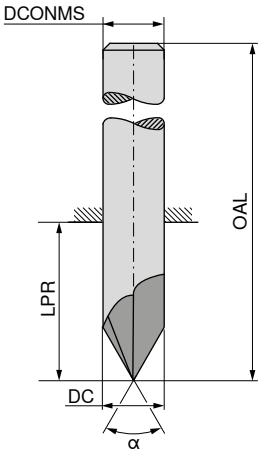
The all-rounder for universal application

▲ Point angle α = 60°

N

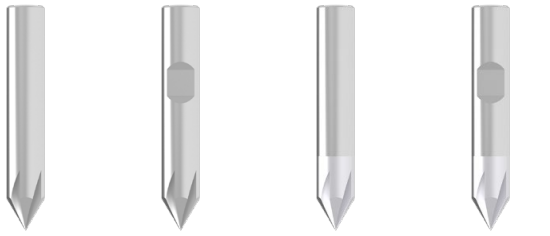
λ_s=0°
γ_s=5°





DPB72S DRAGONSKIN

DPB72S DRAGONSKIN



	α = 60° Factory standard	α = 60° Factory standard	α = 60° Factory standard	α = 60° Factory standard
	50 566 ...	**50 567 ...**	**50 562 ...**	**50 563 ...**

DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP								
4	50	22	4	5	**04000**			**04000**				
6	55	19	6	5	**06000**		**06000**	**06000**		**06000**		
8	58	22	8	5	**08000**		**08000**	**08000**		**08000**		
10	60	20	10	5	**10000**		**10000**	**10000**		**10000**		
12	70	25	12	5	**12000**		**12000**	**12000**		**12000**		
16	80	32	16	5	**16000**		**16000**	**16000**		**16000**		

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

→ v_c/f_z Page 379

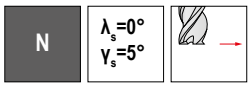
SilverLine – NC deburring cutter

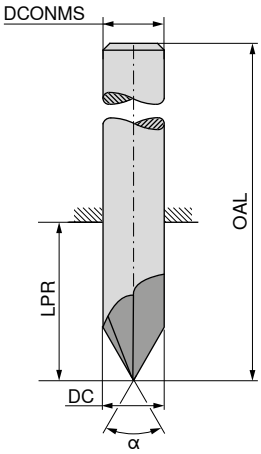
The all-rounder for universal application

▲ High performance 5 flute chamfering tool

N

λ_s=0°
γ_s=5°





DPB72S DRAGONSKIN

DPB72S DRAGONSKIN

	α = 90° Factory standard	α = 90° Factory standard	α = 90° Factory standard	α = 90° Factory standard
	50 564 ...	50 565 ...	50 560 ...	50 561 ...
DC mm				
4	**04000**		**04000**	
6	**06000**	**06000**	**06000**	**06000**
8	**08000**	**08000**	**08000**	**08000**
10	**10000**	**10000**	**10000**	**10000**
12	**12000**	**12000**	**12000**	**12000**
16	**16000**	**16000**	**16000**	**16000**

OAL mm	LPR mm	DCONMS mm	ZEFP				
50	22	4	5				
55	19	6	5				
58	22	8	5				
60	20	10	5				
70	25	12	5				
80	32	16	5				

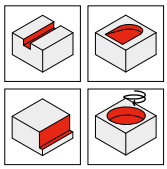
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N				
S	●	●	●	●
H				
O				

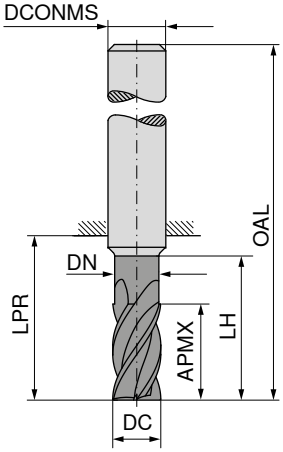
→ v_c/f_z Page 379

S-Cut – End milling cutter

The all-rounder with soft cut and low power consumption

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | HPC





APX72S

≈DIN 6527

52 225 ...

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
3	8	2,8	15,0	21	57	6	4	**030**
4	11	3,8	16,5	21	57	6	4	**040**
5	13	4,8	18,5	21	57	6	4	**050**
6	13	5,5	21,0	21	57	6	4	**060**
8	19	7,5	27,0	27	63	8	4	**080**
10	22	9,5	32,0	32	72	10	4	**100**
12	26	11,5	38,0	38	83	12	4	**120**
14	26	13,5	38,0	38	83	14	4	**140**
16	36	15,5	44,0	44	92	16	4	**160**
18	36	17,5	52,0	52	100	18	4	**180**
20	38	19,5	54,0	54	104	20	4	**200**
25	42	24,0	65,0	65	121	25	4	**250**

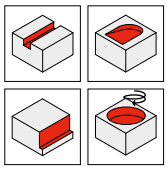
P	●
M	●
K	●
N	○
S	○
H	○
O	

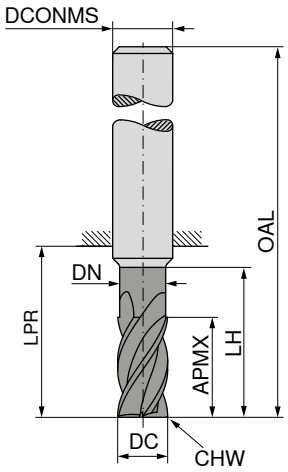
→ v_c/f_z Page 402+403

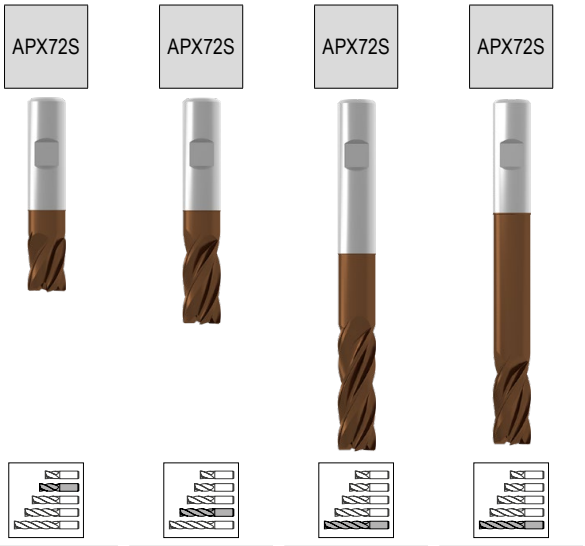
S-Cut – End milling cutter

The all-rounder with soft cut and low power consumption

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | HPC







≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 223 ...	52 224 ...	52 226 ...	52 227 ...
3	6	2,8	12,0	18	54	6	0,10	4	030			
3	8	2,8	15,0	21	57	6	0,10	4		030		
4	8	3,8	13,5	18	54	6	0,13	4	040			
4	11	3,8	16,5	21	57	6	0,13	4		040		
5	9	4,8	15,5	18	54	6	0,18	4	050			
5	13	4,8	18,5	21	57	6	0,18	4		050		
5	22	4,8	24,5	27	63	6	0,18	4			050	
6	10	5,5	18,0	18	54	6	0,20	4	060			
6	13	5,5	21,0	21	57	6	0,20	4		060		
6	13	5,5	42,0	44	80	6	0,20	4				060
6	22	5,5	27,0	27	63	6	0,20	4			060	
7	12	6,5	22,0	22	58	8	0,20	4	070			
7	19	6,5	27,0	27	63	8	0,20	4		070		
8	12	7,5	22,0	22	58	8	0,20	4	080			
8	19	7,5	27,0	27	63	8	0,20	4		080		
8	21	7,5	62,0	64	100	8	0,20	4				080
8	28	7,5	36,0	44	80	8	0,20	4			080	
9	14	8,5	26,0	26	66	10	0,30	4	090			
9	22	8,5	32,0	32	72	10	0,20	4		090		
10	14	9,5	26,0	26	66	10	0,30	4	100			
10	22	9,5	32,0	32	72	10	0,30	4		100		
10	22	9,5	58,0	60	100	10	0,30	4				100
10	33	9,5	54,0	60	100	10	0,30	4			100	
11	16	10,5	28,0	28	73	12	0,30	4	110			
11	26	10,5	38,0	38	83	12	0,30	4		110		
12	16	11,5	28,0	28	73	12	0,30	4	120			
12	26	11,5	38,0	38	83	12	0,30	4		120		
12	26	11,5	73,0	75	120	12	0,30	4				120
12	42	11,5	54,0	55	100	12	0,30	4			120	
13	18	12,5	30,0	30	75	14	0,30	4	130			
13	26	12,5	38,0	38	83	14	0,30	4		130		
14	18	13,5	30,0	30	75	14	0,30	4	140			
14	26	13,5	38,0	38	83	14	0,30	4		140		
14	48	13,5	54,0	55	100	14	0,30	4			140	
16	22	15,5	34,0	34	82	16	0,40	4	160			
16	36	15,5	44,0	44	92	16	0,40	4		160		
16	36	15,5	100,0	102	150	16	0,40	4				160
16	53	15,5	84,0	102	150	16	0,40	4			160	
18	24	17,5	34,0	36	84	18	0,40	4	180			
18	36	17,5	52,0	52	100	18	0,40	4		180		
20	26	19,5	42,0	42	92	20	0,50	4	200			
20	38	19,5	54,0	54	104	20	0,50	4		200		
20	38	19,5	100,0	100	150	20	0,50	4				200
20	68	19,5	84,0	100	150	20	0,50	4			200	
25	32	24,0	46,0	49	105	25	0,50	4	250			
25	42	24,0	65,0	65	121	25	0,50	4		250		
25	68	24,0	84,0	94	150	25	0,50	4			250	

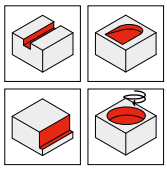
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O				

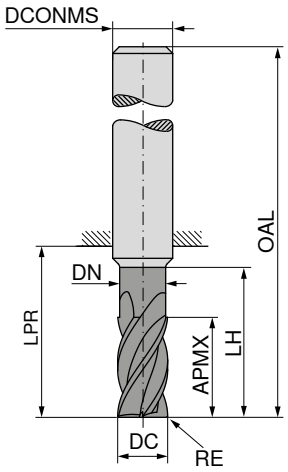
→ v_c/f_z Page 402–405

S-Cut – End milling cutter with corner radius

The all-rounder with soft cut and low power consumption

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | HPC





APX72S

≈DIN 6527

52 228 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
3	0,25	8	2,8	15,0	21	57	6	4	03003
3	0,50	8	2,8	15,0	21	57	6	4	03005
3	1,00	8	2,8	15,0	21	57	6	4	03010
4	0,25	11	3,8	16,5	21	57	6	4	04003
4	0,50	11	3,8	16,5	21	57	6	4	04005
4	1,00	11	3,8	16,5	21	57	6	4	04010
5	0,50	13	4,8	18,5	21	57	6	4	05005
5	1,00	13	4,8	18,5	21	57	6	4	05010
5	1,50	13	4,8	18,5	21	57	6	4	05015
6	0,50	13	5,5	21,0	21	57	6	4	06005
6	0,80	13	5,5	21,0	21	57	6	4	06008
6	1,00	13	5,5	21,0	21	57	6	4	06010
6	1,50	13	5,5	21,0	21	57	6	4	06015
6	2,00	13	5,5	21,0	21	57	6	4	06020
8	0,50	19	7,5	27,0	27	63	8	4	08005
8	0,80	19	7,5	27,0	27	63	8	4	08008
8	1,00	19	7,5	27,0	27	63	8	4	08010
8	1,50	19	7,5	27,0	27	63	8	4	08015
8	2,00	19	7,5	27,0	27	63	8	4	08020
10	0,50	22	9,5	32,0	32	72	10	4	10005
10	1,00	22	9,5	32,0	32	72	10	4	10010
10	1,50	22	9,5	32,0	32	72	10	4	10015
10	1,60	22	9,5	32,0	32	72	10	4	10016
10	2,00	22	9,5	32,0	32	72	10	4	10020
12	0,50	26	11,5	38,0	38	83	12	4	12005
12	1,00	26	11,5	38,0	38	83	12	4	12010
12	1,50	26	11,5	38,0	38	83	12	4	12015
12	1,60	26	11,5	38,0	38	83	12	4	12016
12	2,00	26	11,5	38,0	38	83	12	4	12020
12	3,00	26	11,5	38,0	38	83	12	4	12030
16	1,00	36	15,5	44,0	44	92	16	4	16010
16	1,50	36	15,5	44,0	44	92	16	4	16015
16	1,60	36	15,5	44,0	44	92	16	4	16016
16	2,00	36	15,5	44,0	44	92	16	4	16020
16	2,50	36	15,5	44,0	44	92	16	4	16025
16	3,00	36	15,5	44,0	44	92	16	4	16030
20	1,00	38	19,5	54,0	54	104	20	4	20010
20	1,50	38	19,5	54,0	54	104	20	4	20015
20	2,00	38	19,5	54,0	54	104	20	4	20020
20	2,50	38	19,5	54,0	54	104	20	4	20025
20	3,00	38	19,5	54,0	54	104	20	4	20030
20	4,00	38	19,5	54,0	54	104	20	4	20040

P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c/f_z Page 402+403

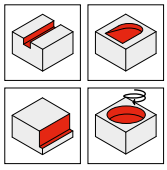
14

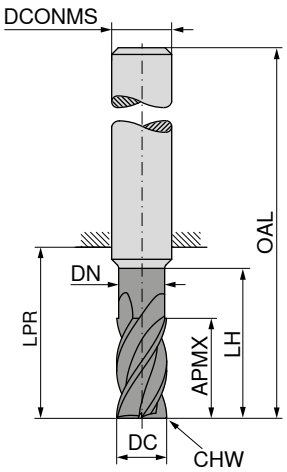
S-Cut – End milling cutter

The all-rounder with soft cut and low power consumption

▲ Suitable for trochoidal milling
▲ With chip breaker

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | HPC





APX72S

≈DIN 6527

52 230 ...

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
6	18	5,5	25	26	62	6	0,12	5	**060**
8	24	7,5	30	32	68	8	0,16	5	**080**
10	30	9,5	35	40	80	10	0,20	5	**100**
12	36	11,5	45	48	93	12	0,24	5	**120**
16	48	15,5	55	60	108	16	0,32	5	**160**
20	60	19,5	70	76	126	20	0,40	5	**200**

P	●
M	●
K	●
N	
S	○
H	
O	

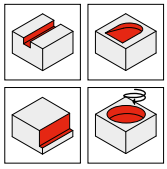
→ v_c/f_z Page 406+407

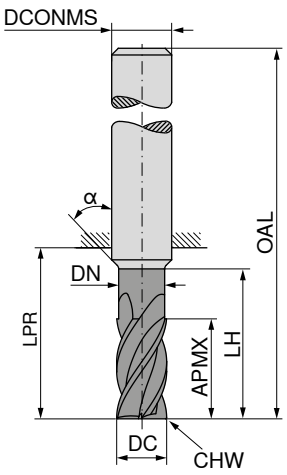
S-Cut – Rough milling cutter

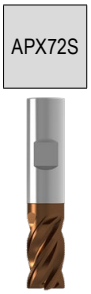
The all-rounder with soft cut and low power consumption

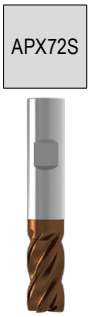
▲ With roughing profile

SC NR | λ_s var. | λ_s=28° 36° γ_s=10° | HPC









≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527

DC $_{h11}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	α°	ZEFP	52 205 ...	52 205 ...	52 205 ...
3	6	2,8	12,0	18	54	6	0,18	15	4	03100		
3	8	2,8	14,0	21	57	6	0,18	15	4		03200	
3	8	2,8	19,0	26	62	6	0,18	15	4			03400
4	8	3,8	13,5	18	54	6	0,20	15	4	04100		
4	11	3,8	18,0	21	57	6	0,20	15	4		04200	
4	11	3,8	23,0	26	62	6	0,20	15	4			04400
5	9	4,8	15,5	18	54	6	0,25	15	4	05100		
5	13	4,8	19,0	21	57	6	0,25	15	4		05200	
5	13	4,8	24,0	26	62	6	0,25	15	4			05400
6	10	5,5	18,0	18	54	6	0,25		4	06100		
6	13	5,5	20,0	21	57	6	0,25		4		06200	
6	13	5,5	25,0	26	62	6	0,25		4			06400
8	12	7,5	22,0	22	58	8	0,30		4	08100		
8	19	7,5	25,0	27	63	8	0,30		4		08200	
8	19	7,5	30,0	32	68	8	0,30		4			08400
10	14	9,5	26,0	26	66	10	0,30		4	10100		
10	22	9,5	30,0	32	72	10	0,30		4		10200	
10	22	9,5	35,0	40	80	10	0,30		4			10400
12	16	11,5	28,0	28	73	12	0,45		4	12100		
12	26	11,5	35,0	38	83	12	0,45		4		12200	
12	26	11,5	45,0	48	93	12	0,45		4			12400
14	18	13,5	30,0	30	75	14	0,50		4	14100		
14	26	13,5	35,0	38	83	14	0,50		4		14200	
14	26	13,5	50,0	54	99	14	0,50		4			14400
16	22	15,5	34,0	34	82	16	0,60		4	16100		
16	32	15,5	40,0	44	92	16	0,60		4		16200	
16	32	15,5	55,0	60	108	16	0,60		4			16400
20	26	19,5	42,0	42	92	20	0,60		4	20100		
20	38	19,5	50,0	54	104	20	0,60		4		20200	
20	38	19,5	70,0	76	126	20	0,60		4			20400
P										●	●	●
M										●	●	●
K										●	●	●
N										○	○	○
S										○	○	○
H										○	○	○
O												

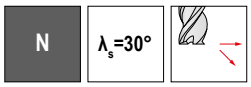
14

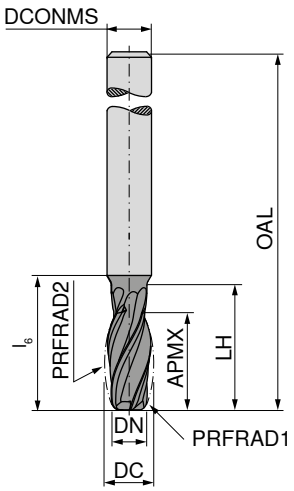
→ v_c/f_z Page 402–405

3D Finish – Barrel shape

The specialist for 3D finish machining

▲ Geometrical tolerance ± 0.01 mm





APB72S

DIN 6527

52 739 ...

DC mm	DCONMS h6 mm	DN mm	PRFRAD1 mm	PRFRAD2 mm	LH mm	APMX mm	l_6 mm	OAL mm	ZEFP	
10	10	8	2	50	28	21	30	80	4	**100**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

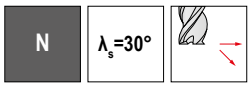
→ v_c/f_z Page 408

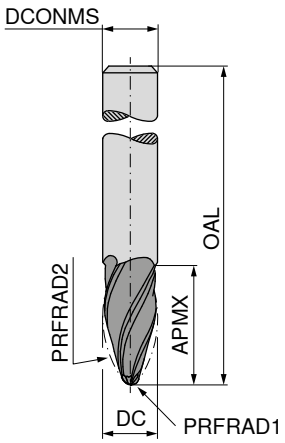
Information on applications and selecting the right product can be found in the Technical Information on → **pages 491+492**.

3D Finish – Oval shape

The specialist for 3D finish machining

▲ Geometrical tolerance ± 0.01 mm





APB72S

DIN 6527

52 745 ...

DC mm	DCONMS h6 mm	PRFRAD1 mm	PRFRAD2 mm	APMX mm	OAL mm	ZEFP	
6	6	1	95	22	62	3	**060**
8	8	1	90	25	68	3	**080**
10	10	2	85	26	72	4	**100**
12	12	2	80	28	83	4	**120**
16	16	3	75	31	92	4	**160**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 409

Information on applications and selecting the right product can be found in the Technical Information on → **pages 491+492**.

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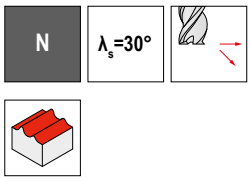
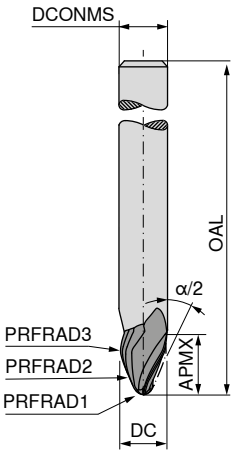
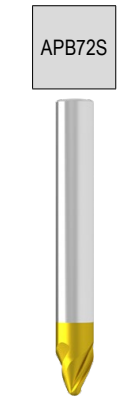
3D Finish – Taper shape

The specialist for 3D finish machining

▲ Geometrical tolerance ± 0.01 mm







DIN 6527

52 753 ...

DC mm	DCONMS h6 mm	PRFRAD1 mm	PRFRAD2 mm	PRFRAD3 mm	α°/2	APMX mm	OAL mm	ZEFP	
6	6	1,0	250	3	17,5	9,5	62	3	**060**
8	8	1,5	250	4	20	10,5	68	3	**080**
10	10	2,0	250	5	20	12,5	80	3	**100**
12	12	1,0	200	1	42,5	8,0	93	3	**120**
12	12	3,0	250	6	20	13,5	93	3	**121**
16	16	2,0	1000	5	12,5	31,0	108	3	**160**
16	16	4,0	500	8	20	18,5	108	3	**161**
16	16	4,0	1000	5	12,5	24,0	108	3	**162**
16	16	4,0	1500	8	20	18,5	108	3	**163**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

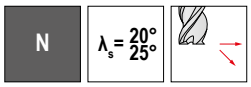
→ v_c/f_z Page 410

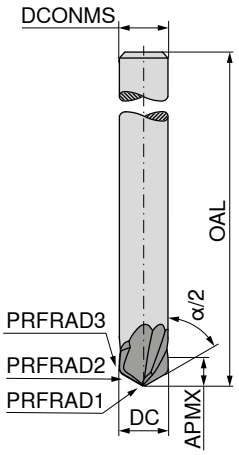
Information on applications and selecting the right product can be found in the Technical Information on → **pages 491+492**.

3D Finish – Taper shape

The specialist for 3D finish machining

▲ Geometrical tolerance ± 0.01 mm





APB72S

DIN 6527

52 755 ...

DC mm	DCONMS h6 mm	PRFRAD1 mm	PRFRAD2 mm	PRFRAD3 mm	α°/2	APMX mm	OAL mm	ZEFP	
10	10	1	200	1,5	60	6	80	2	**100**
10	10	1	200	2,0	70	6	80	2	**101**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 410

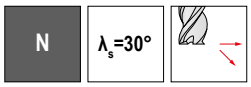
Information on applications and selecting the right product can be found in the Technical Information on → **pages 491+492**.

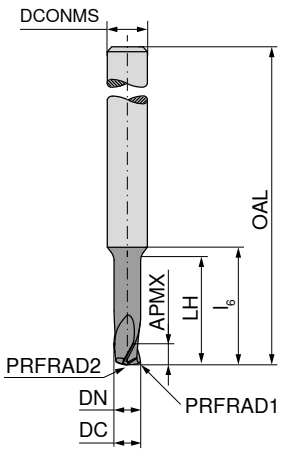
14

3D Finish – Lens shape

The specialist for 3D finish machining

▲ Geometrical tolerance ± 0.01 mm





APB72S

DIN 6527

52 756 ...

DC mm	DCONMS h6 mm	DN mm	PRFRAD1 mm	PRFRAD2 mm	LH mm	APMX mm	l6 mm	OAL mm	ZEFP	
4	6	4	0,25	6	18	4	20	62	3	**040**
6	6		0,50	10		6		62	3	**060**
8	8		0,75	15		8		68	3	**080**
10	10		1,00	20		10		80	3	**100**
12	12		1,25	25		12		93	3	**120**

P	●
M	●
K	●
N	●
S	●
H	
O	

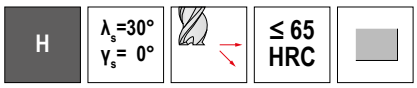
→ v_c/f_z Page 411

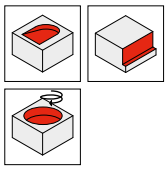
Information on applications and selecting the right product can be found in the Technical Information on → **pages 491+492**.

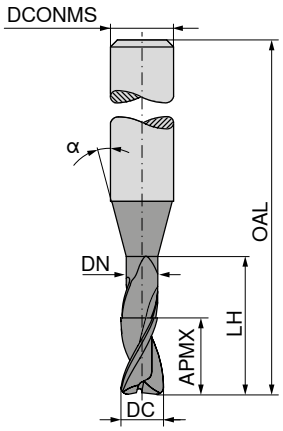
BlueLine – Micro-end milling cutter

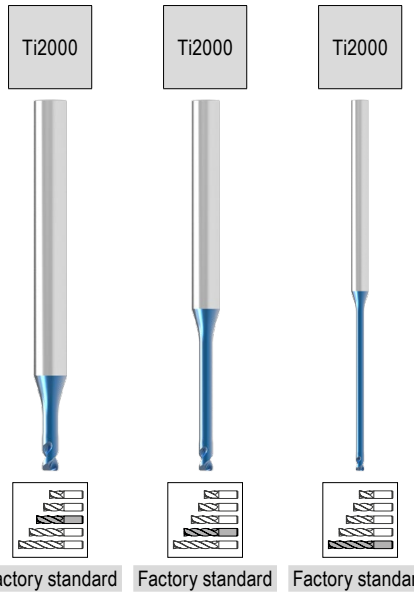
The all-rounder for machining tempered steel

▲ T_x = maximum engagement depth









Factory standard | Factory standard | Factory standard

DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_X	ZEFP	52 345 ...	52 346 ...	52 347 ...
0,2	0,3	0,18	0,5	45	16	4	2,5 x DC	2	**302**		
0,2	0,3	0,18	1,0	45	16	4	5 x DC	2	**402**		
0,2	0,3	0,18	1,5	45	16	4	7,5 x DC	2	**502**		
0,3	0,4	0,28	1,0	45	16	4	3,3 x DC	2	**303**		
0,3	0,4	0,28	2,0	45	16	4	6,6 x DC	2	**403**		
0,3	0,4	0,28	3,0	45	16	4	10 x DC	2		**303**	
0,3	0,4	0,28	6,0	45	16	4	20 x DC	2		**403**	
0,3	0,4	0,28	9,0	45	16	4	30 x DC	2			**303**
0,4	0,6	0,38	2,0	45	16	4	5 x DC	2	**304**		
0,4	0,6	0,38	3,0	45	16	4	7,5 x DC	2	**404**		
0,4	0,6	0,38	4,0	45	16	4	10 x DC	2		**304**	
0,4	0,6	0,38	5,0	45	16	4	12,5 x DC	2		**404**	
0,4	0,6	0,38	8,0	45	16	4	20 x DC	2			**304**
0,4	0,6	0,38	12,0	45	16	4	30 x DC	2			**404**
0,5	0,7	0,48	2,0	45	16	4	4 x DC	2	**305**		
0,5	0,7	0,48	4,0	45	16	4	8 x DC	2	**405**		
0,5	0,7	0,48	6,0	45	16	4	12 x DC	2		**305**	
0,5	0,7	0,48	8,0	45	16	4	16 x DC	2		**405**	
0,5	0,7	0,48	10,0	50	16	4	20 x DC	2			**305**
0,5	0,7	0,48	15,0	50	16	4	30 x DC	2			**405**
0,6	0,9	0,58	2,0	45	16	4	3,3 x DC	2	**306**		
0,6	0,9	0,58	4,0	45	16	4	6,6 x DC	2	**406**		
0,6	0,9	0,58	6,0	45	16	4	10 x DC	2		**306**	
0,6	0,9	0,58	8,0	45	16	4	13,3 x DC	2		**406**	
0,6	0,9	0,58	10,0	45	16	4	16,6 x DC	2		**506**	
0,6	0,9	0,58	12,0	50	16	4	20 x DC	2			**306**
0,6	0,9	0,58	18,0	50	16	4	30 x DC	2			**406**
0,7	1,0	0,68	2,0	45	16	4	2,8 x DC	2	**307**		
0,7	1,0	0,68	4,0	45	16	4	5,7 x DC	2	**407**		
0,7	1,0	0,68	6,0	45	16	4	8,5 x DC	2	**507**		
0,7	1,0	0,68	8,0	45	16	4	11,4 x DC	2		**307**	
0,7	1,0	0,68	10,0	50	16	4	14,2 x DC	2		**407**	
0,8	1,2	0,78	4,0	45	16	4	5 x DC	2	**308**		
0,8	1,2	0,78	6,0	45	16	4	7,5 x DC	2	**408**		
0,8	1,2	0,78	8,0	45	16	4	10 x DC	2		**308**	
0,8	1,2	0,78	10,0	50	16	4	12,5 x DC	2		**408**	
0,8	1,2	0,78	12,0	50	16	4	15 x DC	2		**508**	
0,8	1,2	0,78	16,0	50	16	4	20 x DC	2			**308**
0,8	1,2	0,78	24,0	60	16	4	30 x DC	2			**408**
0,9	1,3	0,88	4,0	45	16	4	4,4 x DC	2	**309**		
0,9	1,3	0,88	6,0	45	16	4	6,6 x DC	2	**409**		
0,9	1,3	0,88	8,0	45	16	4	8,8 x DC	2	**509**		
0,9	1,3	0,88	10,0	45	16	4	11 x DC	2		**309**	
0,9	1,3	0,88	15,0	50	16	4	16,6 x DC	2		**409**	
1,0	1,5	0,95	4,0	45	16	4	4 x DC	2	**310**		

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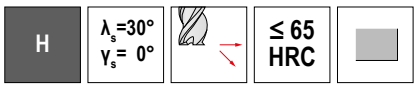
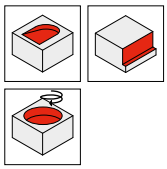
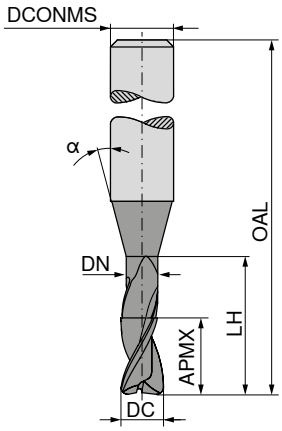
BlueLine – Micro-end milling cutter

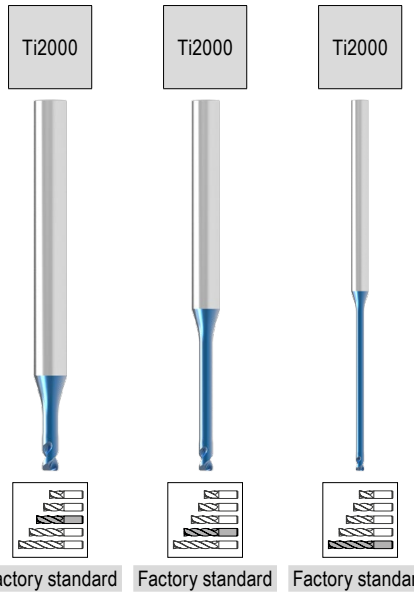
The all-rounder for machining tempered steel

▲ T_x = maximum engagement depth









Factory standard | Factory standard | Factory standard

DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_X	ZEFP	52 345 ...	52 346 ...	52 347 ...
1,0	1,5	0,95	6,0	45	16	4	6 x DC	2	410		
1,0	1,5	0,95	8,0	45	16	4	8 x DC	2	510		
1,0	1,5	0,95	10,0	45	16	4	10 x DC	2		310	
1,0	1,5	0,95	12,0	45	16	4	12 x DC	2		410	
1,0	1,5	0,95	14,0	45	16	4	14 x DC	2		510	
1,0	1,5	0,95	16,0	50	16	4	16 x DC	2		610	
1,0	1,5	0,95	20,0	54	16	4	20 x DC	2			310
1,0	1,5	0,95	25,0	70	16	4	25 x DC	2			410
1,0	1,5	0,95	30,0	70	16	4	30 x DC	2			510
1,2	1,8	1,14	6,0	45	16	4	5 x DC	2	312		
1,2	1,8	1,14	8,0	45	16	4	6,6 x DC	2	412		
1,2	1,8	1,14	10,0	45	16	4	8,3 x DC	2	512		
1,2	1,8	1,14	12,0	45	16	4	10 x DC	2		312	
1,2	1,8	1,14	16,0	50	16	4	13,3 x DC	2		412	
1,2	1,8	1,14	20,0	60	16	4	16,6 x DC	2		512	
1,4	2,1	1,34	6,0	45	16	4	4,2 x DC	2	314		
1,4	2,1	1,34	8,0	45	16	4	5,7 x DC	2	414		
1,4	2,1	1,34	10,0	45	16	4	7,1 x DC	2	514		
1,4	2,1	1,34	12,0	45	16	4	8,5 x DC	2	614		
1,4	2,1	1,34	14,0	45	16	4	10 x DC	2		314	
1,4	2,1	1,34	16,0	50	16	4	11,4 x DC	2		414	
1,4	2,1	1,34	22,0	54	16	4	15,7 x DC	2		514	
1,5	2,3	1,44	6,0	45	16	4	4 x DC	2	315		
1,5	2,3	1,44	8,0	45	16	4	5,3 x DC	2	415		
1,5	2,3	1,44	10,0	45	16	4	6,6 x DC	2	515		
1,5	2,3	1,44	12,0	45	16	4	8 x DC	2	615		
1,5	2,3	1,44	14,0	50	16	4	9,3 x DC	2	715		
1,5	2,3	1,44	16,0	50	16	4	10,6 x DC	2		315	
1,5	2,3	1,44	18,0	54	16	4	12 x DC	2		415	
1,5	2,3	1,44	20,0	54	16	4	13,3 x DC	2		515	
1,5	2,3	1,44	25,0	70	16	4	16,6 x DC	2		615	
1,5	2,3	1,44	30,0	70	16	4	20 x DC	2		715	
1,5	2,3	1,44	35,0	70	16	4	23,3 x DC	2			315
1,5	2,3	1,44	40,0	80	16	4	26,6 x DC	2			415
1,5	2,3	1,44	45,0	80	16	4	30 x DC	2			515
1,6	2,4	1,51	6,0	45	16	4	3,7 x DC	2	316		
1,6	2,4	1,51	8,0	45	16	4	5 x DC	2	416		
1,6	2,4	1,51	10,0	45	16	4	6,2 x DC	2	516		
1,6	2,4	1,51	12,0	45	16	4	7,5 x DC	2	616		
1,6	2,4	1,51	14,0	50	16	4	8,75 x DC	2	716		
1,6	2,4	1,51	16,0	50	16	4	10 x DC	2		316	
1,6	2,4	1,51	18,0	54	16	4	11,25 x DC	2		416	
1,6	2,4	1,51	20,0	54	16	4	12,5 x DC	2		516	
1,6	2,4	1,51	26,0	60	16	4	16,2 x DC	2		616	
1,8	2,7	1,71	6,0	45	16	4	3,3 x DC	2	318		

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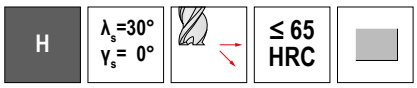
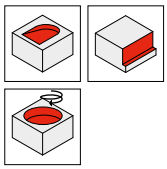
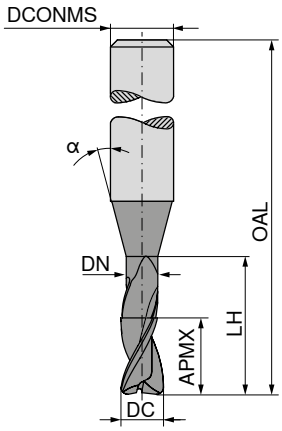
BlueLine – Micro-end milling cutter

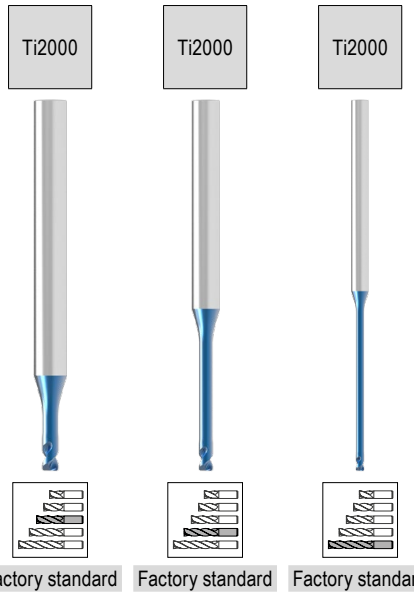
The all-rounder for machining tempered steel

▲ T_x = maximum engagement depth









Factory standard | Factory standard | Factory standard

DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_X	ZEFP	52 345 ...	52 346 ...	52 347 ...
1,8	2,7	1,71	8,0	45	16	4	4,4 x DC	2	**418**		
1,8	2,7	1,71	10,0	45	16	4	5,5 x DC	2	**518**		
1,8	2,7	1,71	12,0	45	16	4	6,6 x DC	2	**618**		
1,8	2,7	1,71	14,0	50	16	4	7,7 x DC	2	**718**		
1,8	2,7	1,71	16,0	50	16	4	8,8 x DC	2	**818**		
1,8	2,7	1,71	18,0	54	16	4	10 x DC	2		**318**	
1,8	2,7	1,71	20,0	54	16	4	11 x DC	2		**418**	
1,8	2,7	1,71	25,0	60	16	4	13,8 x DC	2		**518**	
2,0	3,0	1,91	6,0	45	16	4	3 x DC	2	**320**		
2,0	3,0	1,91	8,0	45	16	4	4 x DC	2	**420**		
2,0	3,0	1,91	10,0	45	16	4	5 x DC	2	**520**		
2,0	3,0	1,91	12,0	45	16	4	6 x DC	2	**620**		
2,0	3,0	1,91	14,0	50	16	4	7 x DC	2	**720**		
2,0	3,0	1,91	16,0	50	16	4	8 x DC	2	**820**		
2,0	3,0	1,91	18,0	54	16	4	9 x DC	2	**920**		
2,0	3,0	1,91	20,0	54	16	4	10 x DC	2		**320**	
2,0	3,0	1,91	25,0	60	16	4	12,5 x DC	2		**420**	
2,0	3,0	1,91	30,0	70	16	4	15 x DC	2		**520**	
2,0	3,0	1,91	35,0	80	16	4	17,5 x DC	2		**620**	
2,0	3,0	1,91	40,0	90	16	4	20 x DC	2			**320**
2,0	3,0	1,91	50,0	100	16	4	25 x DC	2			**420**
2,0	3,0	1,91	60,0	110	16	4	30 x DC	2			**520**
2,5	3,7	2,41	8,0	45	16	4	3,2 x DC	2	**325**		
2,5	3,7	2,41	10,0	45	16	4	4 x DC	2	**425**		
2,5	3,7	2,41	12,0	45	16	4	4,8 x DC	2	**525**		
2,5	3,7	2,41	14,0	50	16	4	5,6 x DC	2	**625**		
2,5	3,7	2,41	16,0	50	16	4	6,4 x DC	2	**725**		
2,5	3,7	2,41	18,0	54	16	4	7,2 x DC	2	**825**		
2,5	3,7	2,41	20,0	54	16	4	8 x DC	2	**925**		
2,5	3,7	2,41	25,0	60	16	4	10 x DC	2		**325**	
2,5	3,7	2,41	30,0	70	16	4	12 x DC	2		**425**	
2,5	3,7	2,41	40,0	90	16	4	16 x DC	2		**525**	
2,5	3,7	2,41	50,0	100	16	4	20 x DC	2			**325**
3,0	4,5	2,92	8,0	45	16	4	2,6 x DC	2	**330**		
3,0	4,5	2,92	12,0	45	16	4	4 x DC	2	**430**		
3,0	4,5	2,92	16,0	50	16	4	5,3 x DC	2	**530**		
3,0	4,5	2,92	20,0	54	16	4	6,6 x DC	2	**630**		

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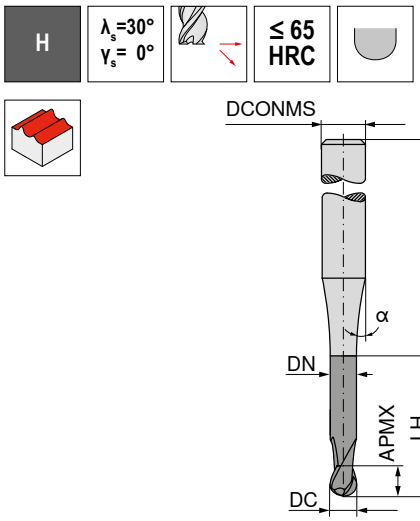
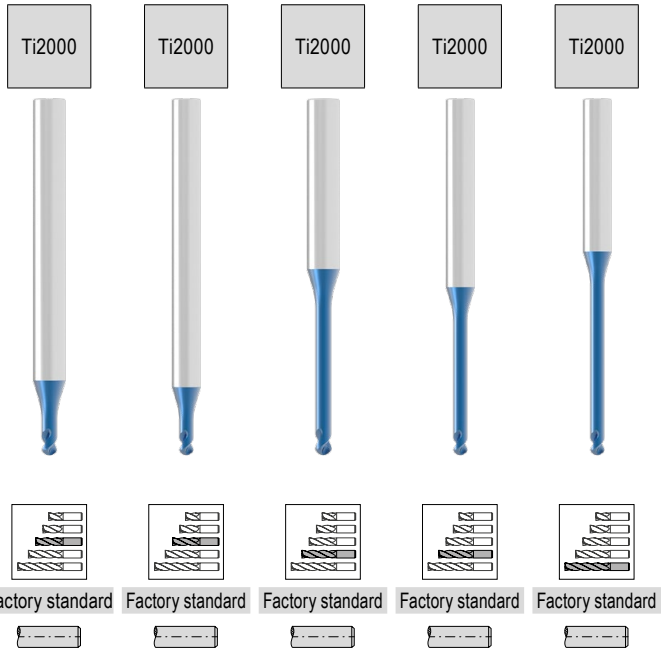
BlueLine – Micro-ball nosed cutter

The all-rounder for machining tempered steel

▲ T_x = maximum engagement depth





DC $_{-0,01}$	APMX	DN	LH	OAL	α°	DCONMS $_{h5}$	T_X	ZEFP	52 356 ...	52 358 ...	52 357 ...	52 359 ...	52 360 ...
mm	mm	mm	mm	mm		mm							
0,2	0,16	0,17	0,30	45	16	4	1,5 x DC	2	**302**				
0,2	0,16	0,17	0,50	45	16	4	2,5 x DC	2	**402**				
0,2	0,16	0,17	0,75	45	16	4	3,75 x DC	2	**502**				
0,2	0,16	0,17	1,00	45	16	4	5 x DC	2	**602**				
0,2	0,16	0,17	1,25	45	16	4	6,2 x DC	2	**702**				
0,2	0,16	0,17	1,50	45	16	4	7,5 x DC	2	**802**				
0,2	0,16	0,17	1,75	45	16	4	8,7 x DC	2	**902**				
0,2	0,16	0,17	2,00	45	16	4	10 x DC	2			**302**		
0,2	0,16	0,17	2,50	45	16	4	12,5 x DC	2			**402**		
0,2	0,16	0,17	3,00	45	16	4	15 x DC	2			**502**		
0,3	0,24	0,27	0,50	45	16	4	1,6 x DC	2	**303**				
0,3	0,24	0,27	0,75	45	16	4	2,5 x DC	2	**403**				
0,3	0,24	0,27	1,00	45	16	4	3,3 x DC	2	**503**				
0,3	0,24	0,27	1,25	45	16	4	4,1 x DC	2	**603**				
0,3	0,24	0,27	1,50	45	16	4	5 x DC	2	**703**				
0,3	0,24	0,27	1,75	50	16	4	5,8 x DC	2		**303**			
0,3	0,24	0,27	2,00	50	16	4	6,6 x DC	2		**403**			
0,3	0,24	0,27	2,25	50	16	4	7,5 x DC	2		**503**			
0,3	0,24	0,27	2,50	50	16	4	8,3 x DC	2		**603**			
0,3	0,24	0,27	2,75	50	16	4	9,1 x DC	2		**703**			
0,3	0,24	0,27	3,00	50	16	4	10 x DC	2				**303**	
0,3	0,24	0,27	3,50	50	16	4	11,6 x DC	2				**403**	
0,3	0,24	0,27	4,00	50	16	4	13,3 x DC	2				**503**	
0,3	0,24	0,27	4,50	50	16	4	15 x DC	2				**603**	
0,4	0,32	0,34	0,50	45	16	4	1,2 x DC	2	**304**				
0,4	0,32	0,34	1,00	45	16	4	2,5 x DC	2	**404**				
0,4	0,32	0,34	1,50	45	16	4	3,75 x DC	2	**504**				
0,4	0,32	0,34	2,00	45	16	4	5 x DC	2	**604**				
0,4	0,32	0,34	2,50	45	16	4	6,2 x DC	2	**704**				
0,4	0,32	0,34	3,00	45	16	4	7,5 x DC	2	**804**				
0,4	0,32	0,34	3,50	45	16	4	8,7 x DC	2	**904**				
0,4	0,32	0,34	4,00	45	16	4	10 x DC	2			**304**		
0,4	0,32	0,34	4,50	45	16	4	11,2 x DC	2			**404**		
0,4	0,32	0,34	5,00	45	16	4	12,5 x DC	2			**504**		
0,4	0,32	0,34	5,50	45	16	4	13,7 x DC	2			**604**		
0,4	0,32	0,34	6,00	45	16	4	15 x DC	2			**704**		
0,5	0,40	0,47	1,50	45	16	4	3 x DC	2	**305**				
0,5	0,40	0,47	2,00	45	16	4	4 x DC	2	**405**				
0,5	0,40	0,47	2,50	45	16	4	5 x DC	2	**505**				
0,5	0,40	0,47	3,00	45	16	4	6 x DC	2	**605**				
0,5	0,40	0,47	3,50	45	16	4	7 x DC	2	**705**				
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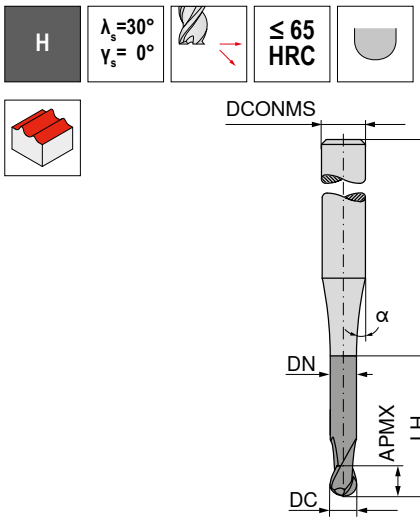
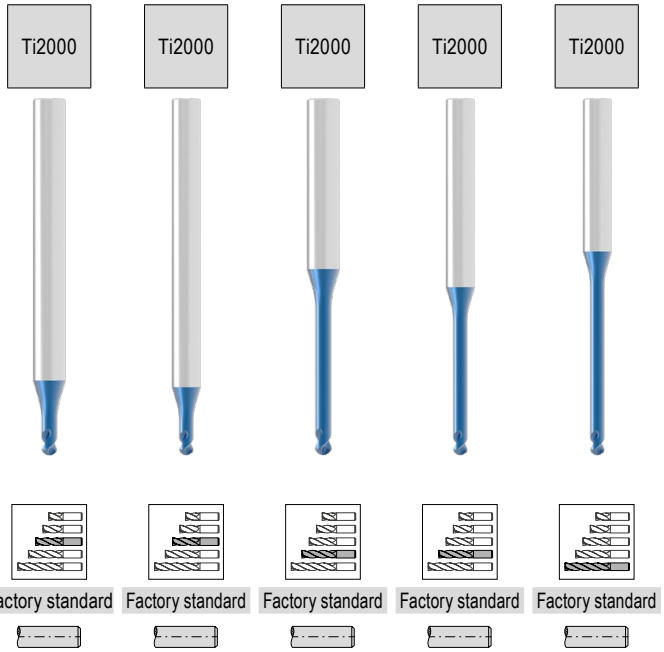
BlueLine – Micro-ball nosed cutter

The all-rounder for machining tempered steel

▲ T_x = maximum engagement depth





DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_X	ZEFP	52 356 ...	52 358 ...	52 357 ...	52 359 ...	52 360 ...
0,5	0,40	0,47	4,00	45	16	4	8 x DC	2	**805**				
0,5	0,40	0,47	4,50	45	16	4	9 x DC	2	**905**				
0,5	0,40	0,47	5,00	45	16	4	10 x DC	2			**305**		
0,5	0,40	0,47	5,50	45	16	4	11 x DC	2			**405**		
0,5	0,40	0,47	6,00	45	16	4	12 x DC	2			**505**		
0,5	0,40	0,47	7,00	45	16	4	14 x DC	2			**605**		
0,5	0,40	0,47	8,00	45	16	4	16 x DC	2			**705**		
0,5	0,40	0,47	9,00	45	16	4	18 x DC	2			**805**		
0,5	0,40	0,47	10,00	50	16	4	20 x DC	2					**305**
0,6	0,40	0,57	12,00	50	16	4	20 x DC	2					**306**
0,6	0,48	0,57	1,00	45	16	4	1,6 x DC	2	**306**				
0,6	0,48	0,57	2,00	45	16	4	3,3 x DC	2	**406**				
0,6	0,48	0,57	3,00	45	16	4	5 x DC	2	**506**				
0,6	0,48	0,57	4,00	45	16	4	6,6 x DC	2	**606**				
0,6	0,48	0,57	5,00	45	16	4	8,3 x DC	2	**706**				
0,6	0,48	0,57	6,00	45	16	4	10 x DC	2			**306**		
0,6	0,48	0,57	8,00	45	16	4	13,3 x DC	2			**406**		
0,6	0,48	0,57	10,00	50	16	4	16,6 x DC	2				**306**	
0,8	0,64	0,77	2,00	45	16	4	2,5 x DC	2	**308**				
0,8	0,64	0,77	3,00	45	16	4	3,75 x DC	2	**408**				
0,8	0,64	0,77	4,00	45	16	4	5 x DC	2	**508**				
0,8	0,64	0,77	5,00	45	16	4	6,2 x DC	2	**608**				
0,8	0,64	0,77	6,00	45	16	4	7,5 x DC	2	**708**				
0,8	0,64	0,77	7,00	45	16	4	8,7 x DC	2	**808**				
0,8	0,64	0,77	8,00	45	16	4	10 x DC	2			**308**		
0,8	0,64	0,77	9,00	45	16	4	11,2 x DC	2			**408**		
0,8	0,64	0,77	10,00	50	16	4	12,5 x DC	2				**308**	
1,0	0,80	0,96	3,00	45	16	4	3 x DC	2	**310**				
1,0	0,80	0,96	4,00	45	16	4	4 x DC	2	**410**				
1,0	0,80	0,96	5,00	45	16	4	5 x DC	2	**510**				
1,0	0,80	0,96	6,00	45	16	4	6 x DC	2	**610**				
1,0	0,80	0,96	7,00	45	16	4	7 x DC	2	**710**				
1,0	0,80	0,96	8,00	45	16	4	8 x DC	2	**810**				
1,0	0,80	0,96	9,00	45	16	4	9 x DC	2	**910**				
1,0	0,80	0,96	10,00	45	16	4	10 x DC	2			**310**		
1,0	0,80	0,96	12,00	45	16	4	12 x DC	2			**410**		
1,0	0,80	0,96	14,00	50	16	4	14 x DC	2				**310**	
1,0	0,80	0,96	16,00	50	16	4	16 x DC	2				**410**	
1,2	0,96	1,16	6,00	45	16	4	5 x DC	2	**312**				
1,2	0,96	1,16	8,00	45	16	4	6,6 x DC	2	**412**				
1,2	0,96	1,16	10,00	45	16	4	8,3 x DC	2	**512**				

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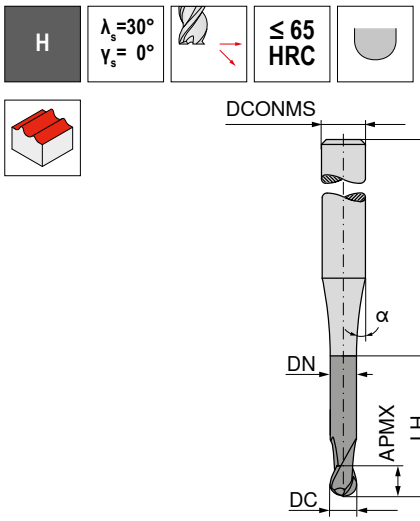
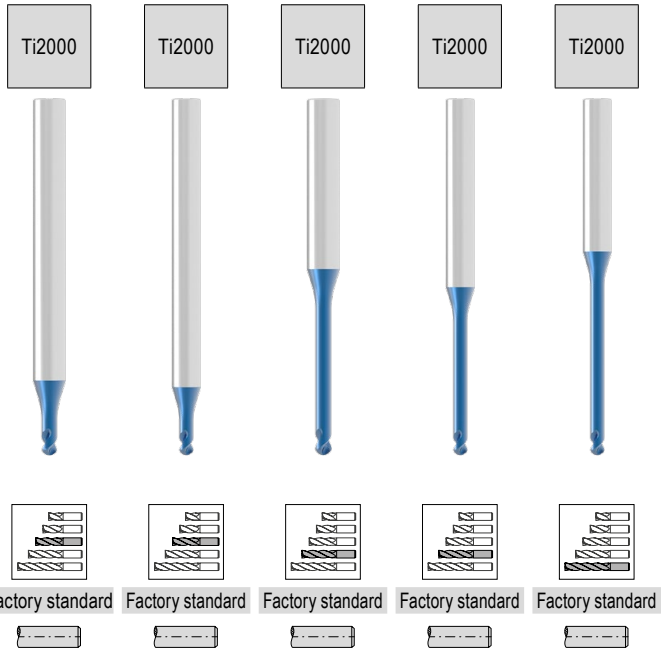
BlueLine – Micro-ball nosed cutter

The all-rounder for machining tempered steel

▲ T_x = maximum engagement depth





DC $_{-0,01}$ mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	T_X	ZEFP	52 356 ...	52 358 ...	52 357 ...	52 359 ...	52 360 ...
1,2	0,96	1,16	12,00	45	16	4	10 x DC	2			**312**		
1,2	0,96	1,16	14,00	50	16	4	11,6 x DC	2				**312**	
1,2	0,96	1,16	16,00	50	16	4	13,3 x DC	2				**412**	
1,4	1,12	1,34	8,00	45	16	4	5,7 x DC	2	**314**				
1,4	1,12	1,34	12,00	45	16	4	8,5 x DC	2	**414**				
1,4	1,12	1,34	16,00	50	16	4	11,4 x DC	2				**314**	
1,5	1,20	1,44	3,00	45	16	4	2 x DC	2	**315**				
1,5	1,20	1,44	4,00	45	16	4	2,6 x DC	2	**415**				
1,5	1,20	1,44	6,00	45	16	4	4 x DC	2	**515**				
1,5	1,20	1,44	8,00	45	16	4	5,3 x DC	2	**615**				
1,5	1,20	1,44	10,00	45	16	4	6,6 x DC	2	**715**				
1,5	1,20	1,44	12,00	45	16	4	8 x DC	2	**815**				
1,5	1,20	1,44	14,00	50	16	4	9,3 x DC	2		**315**			
1,5	1,20	1,44	16,00	50	16	4	10,6 x DC	2				**315**	
1,6	1,28	1,54	8,00	45	16	4	5 x DC	2	**316**				
1,6	1,28	1,54	12,00	45	16	4	7,5 x DC	2	**416**				
1,6	1,28	1,54	16,00	50	16	4	10 x DC	2				**316**	
1,8	1,44	1,74	8,00	45	16	4	4,4 x DC	2	**318**				
1,8	1,44	1,74	12,00	45	16	4	6,6 x DC	2	**418**				
1,8	1,44	1,74	16,00	50	16	4	8,8 x DC	2		**318**			
2,0	1,60	1,94	3,00	45	16	4	1,5 x DC	2	**320**				
2,0	1,60	1,94	4,00	45	16	4	2 x DC	2	**420**				
2,0	1,60	1,94	6,00	45	16	4	3 x DC	2	**520**				
2,0	1,60	1,94	8,00	45	16	4	4 x DC	2	**620**				
2,0	1,60	1,94	10,00	45	16	4	5 x DC	2	**720**				
2,0	1,60	1,94	12,00	45	16	4	6 x DC	2	**820**				
2,0	1,60	1,94	14,00	50	16	4	7 x DC	2		**320**			
2,0	1,60	1,94	16,00	50	16	4	8 x DC	2		**420**			
2,5	2,00	2,41	10,00	45	16	4	4 x DC	2	**325**				
2,5	2,00	2,41	15,00	50	16	4	6 x DC	2		**325**			
3,0	3,50	2,92	8,00	45	16	4	2,6 x DC	2	**330**				
3,0	3,50	2,92	10,00	45	16	4	3,3 x DC	2	**430**				
3,0	3,50	2,92	12,00	45	16	4	4 x DC	2	**530**				
3,0	3,50	2,92	16,00	45	16	4	5,3 x DC	2	**630**				
3,0	3,50	2,92	16,00	50	16	4	5,3 x DC	2		**330**			
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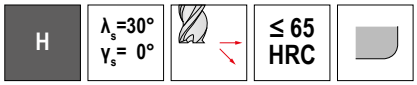
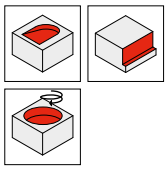
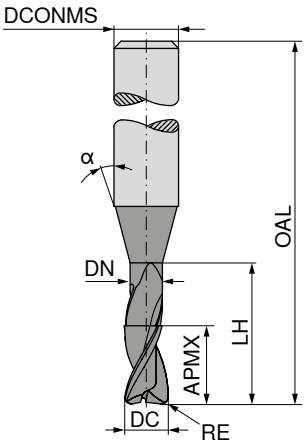
BlueLine – Micro-torus cutter

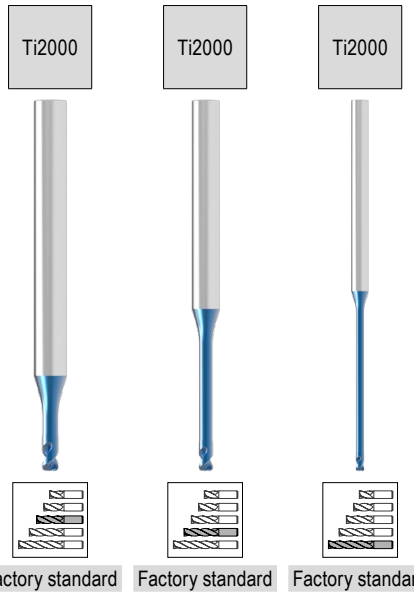
The all-rounder for machining tempered steel

▲ T_x = maximum engagement depth









Factory standard | Factory standard | Factory standard

DC -0,012 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 349 ...	52 350 ...	52 351 ...
0,4	0,1	0,4	0,38	1,0	50	16	4	2,5 x DC	2	**30401**		
0,4	0,1	0,4	0,38	1,5	50	16	4	3,75 x DC	2	**40401**		
0,4	0,1	0,4	0,38	2,0	50	16	4	5 x DC	2	**50401**		
0,4	0,1	0,4	0,38	3,0	50	16	4	7,5 x DC	2	**60401**		
0,4	0,1	0,4	0,38	4,0	50	16	4	10 x DC	2		**30401**	
0,5	0,1	0,5	0,48	1,0	50	16	4	2 x DC	2	**30501**		
0,5	0,1	0,5	0,48	2,0	50	16	4	4 x DC	2	**40501**		
0,5	0,1	0,5	0,48	3,0	50	16	4	6 x DC	2	**50501**		
0,5	0,1	0,5	0,48	4,0	50	16	4	8 x DC	2	**60501**		
0,5	0,1	0,5	0,48	5,0	50	16	4	10 x DC	2		**30501**	
0,5	0,1	0,5	0,48	6,0	50	16	4	12 x DC	2		**40501**	
0,6	0,1	0,6	0,58	2,0	50	16	4	3,3 x DC	2	**30601**		
0,6	0,1	0,6	0,58	3,0	50	16	4	5 x DC	2	**40601**		
0,6	0,1	0,6	0,58	4,0	50	16	4	6,6 x DC	2	**50601**		
0,6	0,1	0,6	0,58	6,0	50	16	4	10 x DC	2		**30601**	
0,6	0,1	0,6	0,58	8,0	50	16	4	13,3 x DC	2		**40601**	
0,7	0,1	0,7	0,68	4,0	50	16	4	5,7 x DC	2	**30701**		
0,7	0,1	0,7	0,68	6,0	50	16	4	8,5 x DC	2	**40701**		
0,8	0,1	0,8	0,78	4,0	50	16	4	5 x DC	2	**30801**		
0,8	0,1	0,8	0,78	6,0	50	16	4	7,5 x DC	2	**40801**		
0,8	0,2	0,8	0,78	4,0	50	16	4	5 x DC	2	**30802**		
0,8	0,2	0,8	0,78	6,0	50	16	4	7,5 x DC	2	**40802**		
1,0	0,1	1,0	0,95	2,0	50	16	4	2 x DC	2	**31001**		
1,0	0,1	1,0	0,95	4,0	50	16	4	4 x DC	2	**41001**		
1,0	0,1	1,0	0,95	6,0	50	16	4	6 x DC	2	**51001**		
1,0	0,1	1,0	0,95	8,0	50	16	4	8 x DC	2	**61001**		
1,0	0,1	1,0	0,95	10,0	50	16	4	10 x DC	2		**31001**	
1,0	0,1	1,0	0,95	12,0	54	16	4	12 x DC	2		**41001**	
1,0	0,1	1,0	0,95	16,0	60	16	4	16 x DC	2		**51001**	
1,0	0,1	1,0	0,95	20,0	60	16	4	20 x DC	2			**31001**
1,0	0,2	1,0	0,95	2,0	50	16	4	2 x DC	2	**31002**		
1,0	0,2	1,0	0,95	4,0	50	16	4	4 x DC	2	**41002**		
1,0	0,2	1,0	0,95	6,0	50	16	4	6 x DC	2	**51002**		
1,0	0,2	1,0	0,95	8,0	50	16	4	8 x DC	2	**61002**		
1,0	0,2	1,0	0,95	10,0	50	16	4	10 x DC	2		**31002**	
1,0	0,2	1,0	0,95	12,0	54	16	4	12 x DC	2		**41002**	
1,0	0,2	1,0	0,95	16,0	60	16	4	16 x DC	2		**51002**	
1,0	0,2	1,0	0,95	20,0	60	16	4	20 x DC	2			**31002**
1,0	0,3	1,0	0,95	2,0	50	16	4	2 x DC	2	**31003**		
1,0	0,3	1,0	0,95	4,0	50	16	4	4 x DC	2	**41003**		
1,0	0,3	1,0	0,95	6,0	50	16	4	6 x DC	2	**51003**		
1,0	0,3	1,0	0,95	8,0	50	16	4	8 x DC	2	**61003**		
1,0	0,3	1,0	0,95	10,0	50	16	4	10 x DC	2		**31003**	
1,0	0,3	1,0	0,95	12,0	54	16	4	12 x DC	2		**41003**	
1,0	0,3	1,0	0,95	16,0	60	16	4	16 x DC	2		**51003**	

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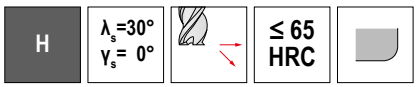
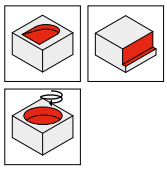
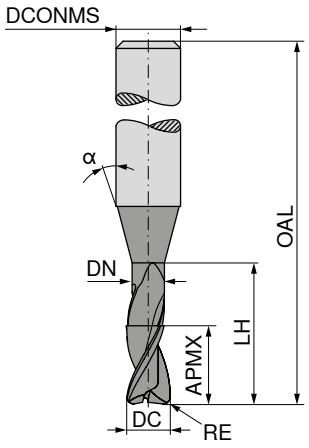
BlueLine – Micro-torus cutter

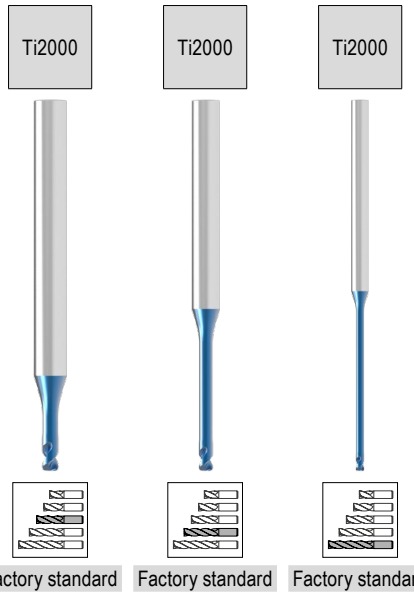
The all-rounder for machining tempered steel

▲ T_x = maximum engagement depth









Factory standard | Factory standard | Factory standard

DC -0,012 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 349 ...	52 350 ...	52 351 ...
1,0	0,3	1,0	0,95	20,0	60	16	4	20 x DC	2			**31003**
1,2	0,2	1,2	1,14	6,0	50	16	4	5 x DC	2	**31202**		
1,2	0,2	1,2	1,14	12,0	54	16	4	10 x DC	2		**31202**	
1,2	0,2	1,2	1,14	20,0	60	16	4	16,6 x DC	2		**41202**	
1,2	0,3	1,2	1,14	6,0	50	16	4	5 x DC	2	**31203**		
1,2	0,3	1,2	1,14	12,0	54	16	4	10 x DC	2		**31203**	
1,2	0,3	1,2	1,14	20,0	60	16	4	16,6 x DC	2		**41203**	
1,5	0,2	1,5	1,44	4,0	50	16	4	2,6 x DC	2	**31502**		
1,5	0,2	1,5	1,44	6,0	50	16	4	4 x DC	2	**41502**		
1,5	0,2	1,5	1,44	8,0	50	16	4	5,3 x DC	2	**51502**		
1,5	0,2	1,5	1,44	10,0	50	16	4	6,6 x DC	2	**61502**		
1,5	0,2	1,5	1,44	12,0	54	16	4	8 x DC	2	**71502**		
1,5	0,2	1,5	1,44	16,0	54	16	4	10,6 x DC	2		**31502**	
1,5	0,2	1,5	1,44	20,0	60	16	4	13,3 x DC	2		**41502**	
1,5	0,3	1,5	1,44	4,0	50	16	4	2,6 x DC	2	**31503**		
1,5	0,3	1,5	1,44	6,0	50	16	4	4 x DC	2	**41503**		
1,5	0,3	1,5	1,44	8,0	50	16	4	5,3 x DC	2	**51503**		
1,5	0,3	1,5	1,44	10,0	50	16	4	6,6 x DC	2	**61503**		
1,5	0,3	1,5	1,44	12,0	54	16	4	8 x DC	2	**71503**		
1,5	0,3	1,5	1,44	16,0	54	16	4	10,6 x DC	2		**31503**	
1,5	0,3	1,5	1,44	20,0	60	16	4	13,3 x DC	2		**41503**	
1,5	0,5	1,5	1,44	4,0	50	16	4	2,6 x DC	2	**31505**		
1,5	0,5	1,5	1,44	6,0	50	16	4	4 x DC	2	**41505**		
1,5	0,5	1,5	1,44	8,0	50	16	4	5,3 x DC	2	**51505**		
1,5	0,5	1,5	1,44	10,0	50	16	4	6,6 x DC	2	**61505**		
1,5	0,5	1,5	1,44	12,0	54	16	4	8 x DC	2	**71505**		
1,5	0,5	1,5	1,44	16,0	54	16	4	10,6 x DC	2		**31505**	
1,5	0,5	1,5	1,44	20,0	60	16	4	13,3 x DC	2		**41505**	
2,0	0,1	2,0	1,91	4,0	50	16	4	2 x DC	2	**32001**		
2,0	0,1	2,0	1,91	6,0	50	16	4	3 x DC	2	**42001**		
2,0	0,1	2,0	1,91	8,0	50	16	4	4 x DC	2	**52001**		
2,0	0,1	2,0	1,91	10,0	50	16	4	5 x DC	2	**62001**		
2,0	0,1	2,0	1,91	12,0	54	16	4	6 x DC	2	**72001**		
2,0	0,1	2,0	1,91	16,0	54	16	4	8 x DC	2	**82001**		
2,0	0,1	2,0	1,91	20,0	60	16	4	10 x DC	2		**32001**	
2,0	0,1	2,0	1,91	26,0	70	16	4	13 x DC	2		**42001**	
2,0	0,2	2,0	1,91	4,0	50	16	4	2 x DC	2	**32002**		
2,0	0,2	2,0	1,91	6,0	50	16	4	3 x DC	2	**42002**		
2,0	0,2	2,0	1,91	8,0	50	16	4	4 x DC	2	**52002**		
2,0	0,2	2,0	1,91	10,0	50	16	4	5 x DC	2	**62002**		
2,0	0,2	2,0	1,91	12,0	54	16	4	6 x DC	2	**72002**		
2,0	0,2	2,0	1,91	16,0	54	16	4	8 x DC	2	**82002**		
2,0	0,2	2,0	1,91	20,0	60	16	4	10 x DC	2		**32002**	
2,0	0,2	2,0	1,91	26,0	70	16	4	13 x DC	2		**42002**	
2,0	0,3	2,0	1,91	4,0	50	16	4	2 x DC	2	**32003**		

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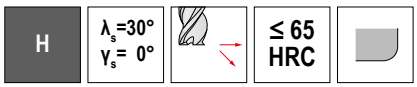
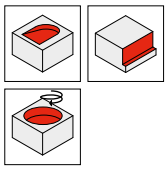
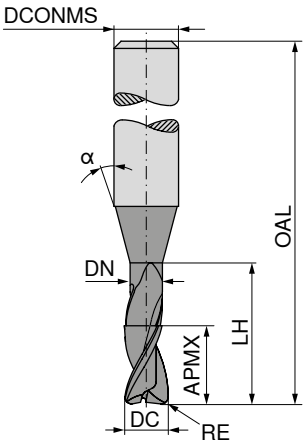
BlueLine – Micro-torus cutter

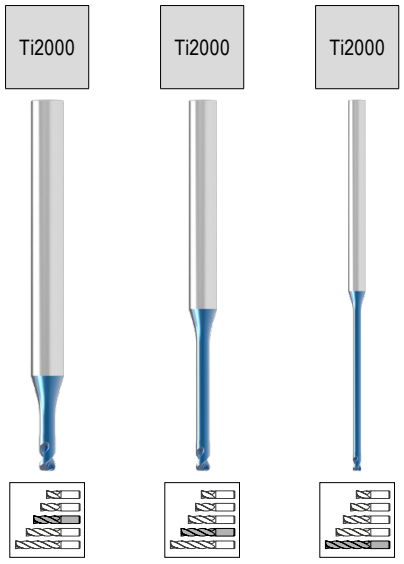
The all-rounder for machining tempered steel

▲ T_x = maximum engagement depth









Factory standard | Factory standard | Factory standard

DC -0,012 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 349 ...	52 350 ...	52 351 ...
2,0	0,3	2,0	1,91	6,0	50	16	4	3 x DC	2	**42003**		
2,0	0,3	2,0	1,91	8,0	50	16	4	4 x DC	2	**52003**		
2,0	0,3	2,0	1,91	10,0	50	16	4	5 x DC	2	**62003**		
2,0	0,3	2,0	1,91	12,0	54	16	4	6 x DC	2	**72003**		
2,0	0,3	2,0	1,91	16,0	54	16	4	8 x DC	2	**82003**		
2,0	0,3	2,0	1,91	20,0	60	16	4	10 x DC	2		**32003**	
2,0	0,3	2,0	1,91	26,0	70	16	4	13 x DC	2		**42003**	
2,0	0,5	2,0	1,91	4,0	50	16	4	2 x DC	2	**32005**		
2,0	0,5	2,0	1,91	6,0	50	16	4	3 x DC	2	**42005**		
2,0	0,5	2,0	1,91	8,0	50	16	4	4 x DC	2	**52005**		
2,0	0,5	2,0	1,91	10,0	50	16	4	5 x DC	2	**62005**		
2,0	0,5	2,0	1,91	12,0	54	16	4	6 x DC	2	**72005**		
2,0	0,5	2,0	1,91	16,0	54	16	4	8 x DC	2	**82005**		
2,0	0,5	2,0	1,91	20,0	60	16	4	10 x DC	2		**32005**	
2,0	0,5	2,0	1,91	26,0	70	16	4	13 x DC	2		**42005**	
2,5	0,3	2,5	2,41	10,0	50	16	4	4 x DC	2	**32503**		
2,5	0,3	2,5	2,41	12,0	60	16	4	4,8 x DC	2	**42503**		
2,5	0,3	2,5	2,41	30,0	70	16	4	12 x DC	2		**32503**	
2,5	0,5	2,5	2,41	10,0	50	16	4	4 x DC	2	**32505**		
2,5	0,5	2,5	2,41	12,0	60	16	4	4,8 x DC	2	**42505**		
2,5	0,5	2,5	2,41	30,0	70	16	4	12 x DC	2		**32505**	
3,0	0,3	3,0	2,92	10,0	50	16	4	3,3 x DC	2	**33003**		
3,0	0,3	3,0	2,92	12,0	50	16	4	4 x DC	2	**43003**		
3,0	0,3	3,0	2,92	30,0	70	16	4	10 x DC	2		**33003**	
3,0	0,5	3,0	2,92	10,0	50	16	4	3,3 x DC	2	**33005**		
3,0	0,5	3,0	2,92	12,0	50	16	4	4 x DC	2	**43005**		
3,0	0,5	3,0	2,92	30,0	70	16	4	10 x DC	2		**33005**	
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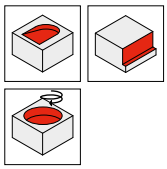
14

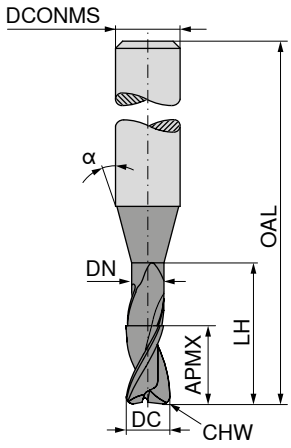
→ v_c/f_z Page 420+421

BlueLine – End milling cutter

The all-rounder for machining tempered steel

H | λ_s=30° γ_s= 0° | ≤ 65 HRC





Ti2000

Factory standard

52 344 ...

DC $_{e8}$ mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	CHW mm	ZEFP	
0,5	1,5			58	12	6	0,02	2	**905**
1,0	3,0			58	12	6	0,02	2	**010**
1,5	4,0			58	12	6	0,03	2	**015**
2,0	5,0	1,8	12	58	20	6	0,03	2	**020**
2,5	6,0	2,3	13	58	20	6	0,04	2	**025**
3,0	8,0	2,8	15	58	20	6	0,04	2	**030**
3,5	8,0	3,3	15	58	20	6	0,05	2	**035**
4,0	11,0	3,8	15	58	20	6	0,05	2	**040**
5,0	13,0	4,8	21	58	20	6	0,06	2	**050**
6,0	16,0	5,8	24	58		6	0,07	2	**060**
8,0	19,0	7,8	27	64		8	0,08	2	**080**
10,0	22,0	9,8	32	73		10	0,10	2	**100**
12,0	26,0	11,8	38	84		12	0,13	2	**120**
16,0	32,0	15,7	44	93		16	0,18	2	**160**
20,0	38,0	19,7	54	104		20	0,20	2	**200**

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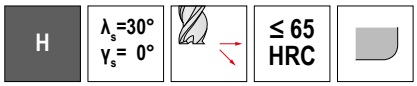
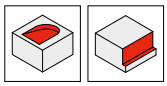
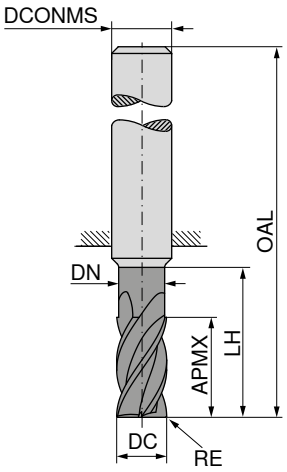
→ v_c/f_z Page 424+425

BlueLine – End milling cutter with corner radius

The all-rounder for machining tempered steel







DC e8	RE ±0,005	APMX	DN	LH	OAL	DCONMS h5	ZEFP	52 353 ...	52 354 ...
mm	mm	mm	mm	mm	mm	mm			
1	0,10	1,5	0,85	10	50	3	4	31001	
1	0,10	1,5	0,85	20	75	3	4		31001
1	0,20	1,5	0,85	10	50	3	4	31002	
1	0,20	1,5	0,85	20	75	3	4		31002
2	0,20	2,5	1,80	12	50	3	4	32002	
2	0,20	2,5	1,80	25	75	3	4		32002
2	0,30	2,5	1,80	12	50	3	4	32003	
2	0,30	2,5	1,80	25	75	3	4		32003
2	0,50	2,5	1,80	12	50	3	4	32005	
2	0,50	2,5	1,80	25	75	3	4		32005
3	0,25	4,0	2,70	14	50	3	4	33002	
3	0,25	4,0	2,70	32	75	3	4		33002
3	0,30	4,0	2,70	14	50	3	4	33003	
3	0,30	4,0	2,70	32	75	3	4		33003
3	0,50	4,0	2,70	14	50	3	4	33005	
3	0,50	4,0	2,70	32	75	3	4		33005
3	1,00	4,0	2,70	14	50	3	4	33010	
3	1,00	4,0	2,70	32	75	3	4		33010
4	0,20	5,0	3,70	16	50	4	4	44002	
4	0,20	5,0	3,70	36	75	4	4		44002
4	0,25	5,0	3,70	16	50	4	4	44003	
4	0,25	5,0	3,70	36	75	4	4		44003
4	0,40	5,0	3,70	16	50	4	4	44004	
4	0,40	5,0	3,70	36	75	4	4		44004
4	0,50	5,0	3,70	16	50	4	4	44005	
4	0,50	5,0	3,70	36	75	4	4		44005
4	1,00	5,0	3,70	16	50	4	4	44010	
4	1,00	5,0	3,70	36	75	4	4		44010
5	0,25	6,0	4,60	18	54	5	4	55002	
5	0,25	6,0	4,60	40	75	5	4		55002
5	0,50	6,0	4,60	18	54	5	4	55005	
5	0,50	6,0	4,60	40	75	5	4		55005
5	1,00	6,0	4,60	18	54	5	4	55010	
5	1,00	6,0	4,60	40	75	5	4		55010
6	0,25	7,0	5,50	21	58	6	4	06002	
6	0,25	7,0	5,50	44	80	6	4		06002
6	0,50	7,0	5,50	21	58	6	4	06005	
6	0,50	7,0	5,50	44	80	6	4		06005
6	0,80	7,0	5,50	21	58	6	4	06008	
6	1,00	7,0	5,50	21	58	6	4	06010	
6	1,00	7,0	5,50	44	80	6	4		06010
6	1,50	7,0	5,50	21	58	6	4	06015	
6	1,50	7,0	5,50	44	80	6	4		06015
6	2,00	7,0	5,50	21	58	6	4	06020	
8	0,25	9,0	7,40	27	64	8	4	08002	

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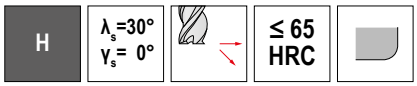
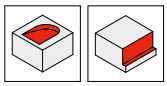
→ v_c/f_z Page 426+427

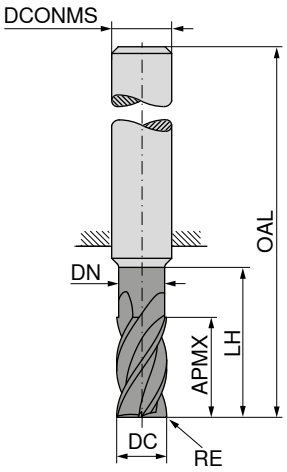
Continued on next page

BlueLine – End milling cutter with corner radius

The all-rounder for machining tempered steel







DC e8	RE ±0,005	APMX	DN	LH	OAL	DCONMS h5	ZEFP	52 353 ...	52 354 ...
mm	mm	mm	mm	mm	mm	mm			
8	0,25	9,0	7,40	54	100	8	4		08002
8	0,50	9,0	7,40	27	64	8	4	08005	
8	0,50	9,0	7,40	54	100	8	4		08005
8	0,80	9,0	7,40	27	64	8	4	08008	
8	0,80	9,0	7,40	54	100	8	4		08008
8	1,00	9,0	7,40	27	64	8	4	08010	
8	1,00	9,0	7,40	54	100	8	4		08010
8	1,50	9,0	7,40	27	64	8	4	08015	
8	1,50	9,0	7,40	54	100	8	4		08015
8	2,00	9,0	7,40	27	64	8	4	08020	
8	2,00	9,0	7,40	54	100	8	4		08020
8	2,50	9,0	7,40	27	64	8	4	08025	
8	3,00	9,0	7,40	27	64	8	4	08030	
8	3,00	9,0	7,40	54	100	8	4		08030
10	0,25	11,0	9,20	32	73	10	4	10002	
10	0,25	11,0	9,20	60	100	10	4		10002
10	0,50	11,0	9,20	32	73	10	4	10005	
10	0,50	11,0	9,20	60	100	10	4		10005
10	0,80	11,0	9,20	32	73	10	4	10008	
10	0,80	11,0	9,20	60	100	10	4		10008
10	1,00	11,0	9,20	32	73	10	4	10010	
10	1,00	11,0	9,20	60	100	10	4		10010
10	1,50	11,0	9,20	32	73	10	4	10015	
10	1,50	11,0	9,20	60	100	10	4		10015
10	2,00	11,0	9,20	32	73	10	4	10020	
10	2,00	11,0	9,20	60	100	10	4		10020
10	3,00	11,0	9,20	32	73	10	4	10030	
10	3,00	11,0	9,20	60	100	10	4		10030
10	3,50	11,0	9,20	32	73	10	4	10035	
12	0,50	12,0	11,00	38	84	12	4	12005	
12	0,50	12,0	11,00	75	120	12	4		12005
12	1,00	12,0	11,00	38	84	12	4	12010	
12	1,00	12,0	11,00	75	120	12	4		12010
12	1,50	12,0	11,00	38	84	12	4	12015	
12	1,50	12,0	11,00	75	120	12	4		12015
12	2,00	12,0	11,00	38	84	12	4	12020	
12	2,00	12,0	11,00	75	120	12	4		12020
12	3,00	12,0	11,00	38	84	12	4	12030	
12	3,00	12,0	11,00	75	120	12	4		12030
16	2,00	16,0	15,00	44	93	16	4	16020	
16	2,00	16,0	15,00	92	150	16	4		16020
16	3,00	16,0	15,00	44	93	16	4	16030	
16	3,00	16,0	15,00	92	150	16	4		16030

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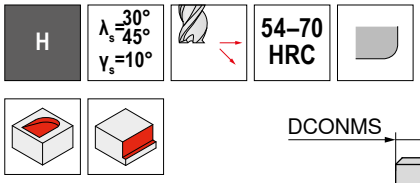
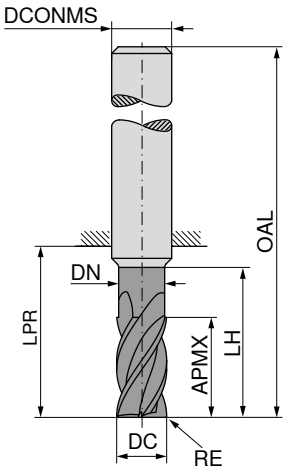
→ v_c/f_z Page 426+427

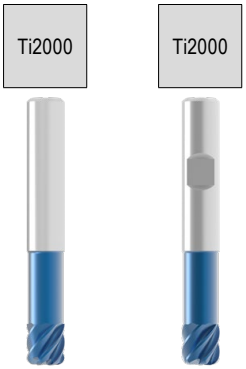
BlueLine – End milling cutter with corner radius

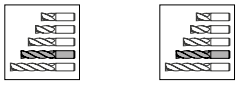
The all-rounder for machining tempered steel

▲ With decreasing helix angle for reduced machining noise & vibration









Factory standard | Factory standard

DC e8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 140 ...	52 141 ...
3	0,3	4	2,7	14	22	50	3	4	031	
3	0,5	4	2,7	14	22	50	3	4	033	
3	1,0	4	2,7	14	22	50	3	4	034	
4	0,4	5	3,7	16	22	50	4	4	042	
4	0,5	5	3,7	16	22	50	4	4	043	
4	1,0	5	3,7	16	22	50	4	4	044	
5	0,5	6	4,6	18	26	54	5	4	053	
5	1,0	6	4,6	18	26	54	5	4	054	
6	0,5	7	5,5	21	21	57	6	6	063	063
6	1,0	7	5,5	21	21	57	6	6	064	064
6	1,5	7	5,5	21	21	57	6	6	065	065
8	0,5	9	7,4	27	27	63	8	6	083	083
8	1,0	9	7,4	27	27	63	8	6	084	084
8	1,5	9	7,4	27	27	63	8	6	085	085
8	2,0	9	7,4	27	27	63	8	6	086	086
10	0,5	11	9,2	32	32	72	10	6	103	103
10	1,0	11	9,2	32	32	72	10	6	104	104
10	1,5	11	9,2	32	32	72	10	6	105	105
10	2,0	11	9,2	32	32	72	10	6	106	106
12	0,5	12	11,0	38	38	83	12	6	123	123
12	1,0	12	11,0	38	38	83	12	6	124	124
12	1,5	12	11,0	38	38	83	12	6	125	125
12	2,0	12	11,0	38	38	83	12	6	126	126
16	1,0	16	15,0	44	45	93	16	6	161	161
16	2,0	16	15,0	44	45	93	16	6	163	163
20	1,0	20	18,5	50	54	104	20	6	201	201
20	2,5	20	18,5	50	54	104	20	6	204	204
P									○	○
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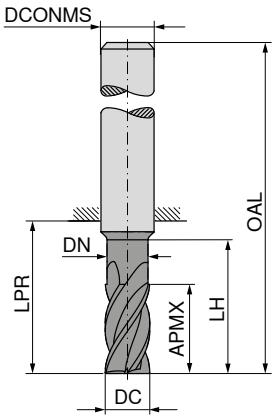
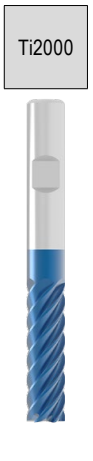
→ v_c/f_z Page 424+425

BlueLine – Finish milling cutter

The all-rounder for machining tempered steel

▲ With decreasing helix angle for reduced machining noise & vibration





	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
	52 133 ...	52 134 ...	52 135 ...	52 136 ...	52 348 ...

DC e8 mm	APMX mm	LPR mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP									
2	8	22			58	6	4			020						
2	8	22	2,0	10	58	6	4	020								
3	12	22			58	6	4			030						
3	12	22	3,0	14	58	6	4	030								
4	13	22			58	6	4			040						
4	13	22	4,0	15	58	6	4	040								
5	15	22			58	6	6			050						
5	15	22	5,0	17	58	6	6	050								
6	16	22			58	6	6	060		060						
6	16	44	5,8	40	80	6	6									060
6	21	29			65	6	6					060		060		
8	19	64	7,7	50	100	8	6									080
8	22	34			70	8	6	080		080						
8	28	39			75	8	6					080		080		
10	25	33			73	10	6	100		100						
10	25	60	9,7	60	100	10	6									100
10	35	45			85	10	6					100		100		
12	28	39			84	12	6	120		120						
12	30	75	11,6	60	120	12	6									120
12	45	55			100	12	6					120		120		
14	30	39			84	14	6	140		140						
14	45	55			100	14	6					140		140		
16	35	45			93	16	8	160		160						
16	40	102	15,6	100	150	16	8									160
16	50	62			110	16	8					160		160		
16	65	77			125	16	8					161		161		
18	35	45			93	18	10	180		180						
18	54	66			114	18	10					180		180		
20	40	54			104	20	10	200		200						
20	50	100	19,6	100	150	20	10									200
20	55	76			126	20	10					200		200		
20	70	85			135	20	10					201		201		

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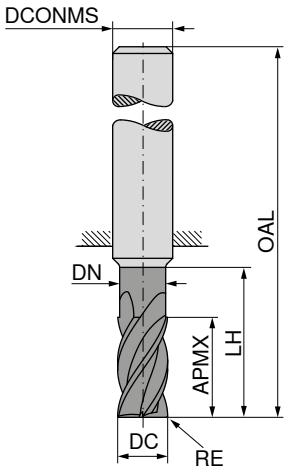
→ v_c/f_z Page 424–426

BlueLine – Finish milling cutter with corner radius

The all-rounder for machining tempered steel

H | λ_s=30°/45° γ_s= 0° | 54–70 HRC



Factory standard

Factory standard

DC e8 mm	RE +/-0,005 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	52 324 ...	52 325 ...
5	0,5	15	4,8	19	58	6	6	052	
5	1,0	15	4,8	19	58	6	6	053	
6	0,5	16	5,8	20	58	6	6	062	
6	0,5	21	5,8	29	65	6	6		062
6	1,0	16	5,8	20	58	6	6	063	
6	1,0	21	5,8	29	65	6	6		063
8	0,5	22	7,8	26	70	8	6	082	
8	0,5	28	7,8	39	75	8	6		082
8	1,0	22	7,8	26	70	8	6	083	
8	1,0	28	7,8	39	75	8	6		083
10	0,5	25	9,8	31	73	10	6	102	
10	0,5	35	9,8	45	85	10	6		102
10	1,0	25	9,8	31	73	10	6	103	
10	1,0	35	9,8	45	85	10	6		103
10	1,5	25	9,8	31	73	10	6	104	
10	1,5	35	9,8	45	85	10	6		104
12	0,5	28	11,8	37	84	12	6	122	
12	0,5	45	11,8	55	100	12	6		122
12	1,0	28	11,8	37	84	12	6	123	
12	1,0	45	11,8	55	100	12	6		123
12	1,5	28	11,8	37	84	12	6	124	
12	1,5	45	11,8	55	100	12	6		124
14	1,0	30	13,8	37	84	14	6	143	
14	1,0	45	13,8	55	100	14	6		143
16	1,0	35	15,8	43	93	16	8	163	
16	1,0	50	15,8	62	110	16	8		163
16	2,0	35	15,8	43	93	16	8	165	
16	2,0	50	15,8	62	110	16	8		165
18	1,0	35	17,8	43	93	18	10	183	
18	1,0	54	17,8	66	114	18	10		183
20	1,0	40	19,8	52	104	20	10	203	
20	1,0	55	19,8	76	126	20	10		203
20	2,0	40	19,8	52	104	20	10	205	
20	2,0	55	19,8	76	126	20	10		205

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→ v_c/f_z Page 424+425

14

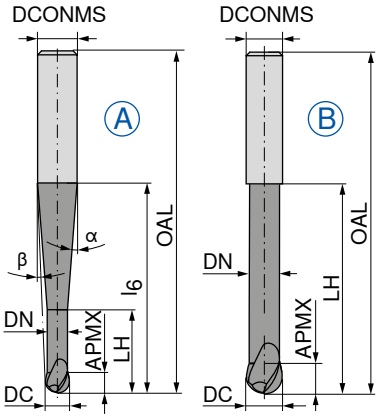
BlueLine – Ball Nosed Cutter

The all-rounder for machining tempered steel

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | 54–70 HRC

Ti2000



Factory standard

52 302 ...

DC mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	ZEFP	Fig.	
1,0	1,00	0,95	10	16,5	57	15	9	6	2	A	**010**
1,5	1,25	1,40	12	18,0	57	15	7,5	6	2	A	**015**
2,0	1,50	1,90	16	20,0	57	15	6	6	2	A	**020**
3,0	2,00	2,90	20	34,5	80	15	2,5	6	2	A	**030**
4,0	2,50	3,90	22	35,0	80	15	2	6	2	A	**040**
5,0	3,00	4,90	25	35,0	80	15	1	6	2	A	**050**
6,0	3,50	5,90	29		80			6	2	B	**060**

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→ v_c/f_z Page 428+429

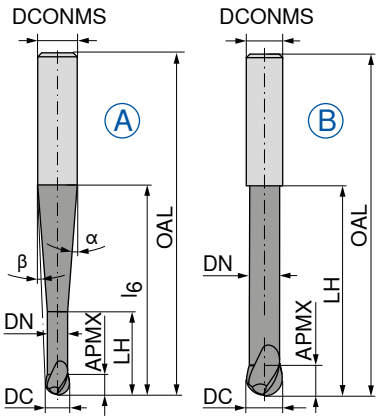
BlueLine – Ball Nosed Cutter

The all-rounder for machining tempered steel

▲ Radius accuracy: ± 0.005 mm for Ø ≤ 6.0 mm / ± 0.01 mm for Ø > 6,0 mm
▲ for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °

H | λ_s=30° γ_s= 0° | 54–70 HRC

Ti2000



Factory standard

52 303 ...

DC mm	DC Tol.	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	ZEFP	Fig.	
0,5	±0,01	1,0	0,45	2,0	20	57	10	8,5	6	2	A	**005**
1,0	±0,01	2,0	0,95	4,0	20	57	10	8	6	2	A	**010**
1,5	±0,01	2,5	1,40	7,5	20	57	12,5	7	6	2	A	**015**
2,0	±0,01	3,0	1,80	8,0	20	57	12	6,5	6	2	A	**020**
3,0	±0,01	3,5	2,80	10,0	20	57	11,5	5	6	2	A	**030**
4,0	±0,01	4,0	3,80	12,0	20	57	11	3,5	6	2	A	**040**
5,0	±0,01	5,0	4,70	14,0	20	57	10	2	6	2	A	**050**
6,0	±0,01	6,0	5,60	20,0		57			6	2	B	**060**
8,0	±0,02	7,0	7,60	25,0		63			8	2	B	**080**
10,0	±0,02	8,0	9,60	30,0		72			10	2	B	**100**
12,0	±0,02	10,0	11,50	35,0		83			12	2	B	**120**
12,0	±0,02	10,0	11,50	35,0	40	92	35	3,5	16	2	A	**121**
16,0	±0,02	12,0	15,50	40,0		92			16	2	B	**160**

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→ v_c/f_z Page 428+429

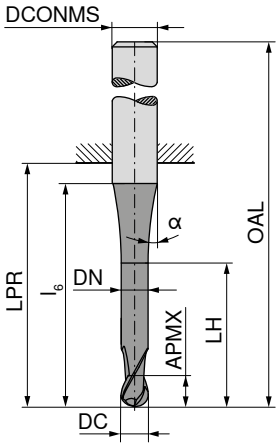
14

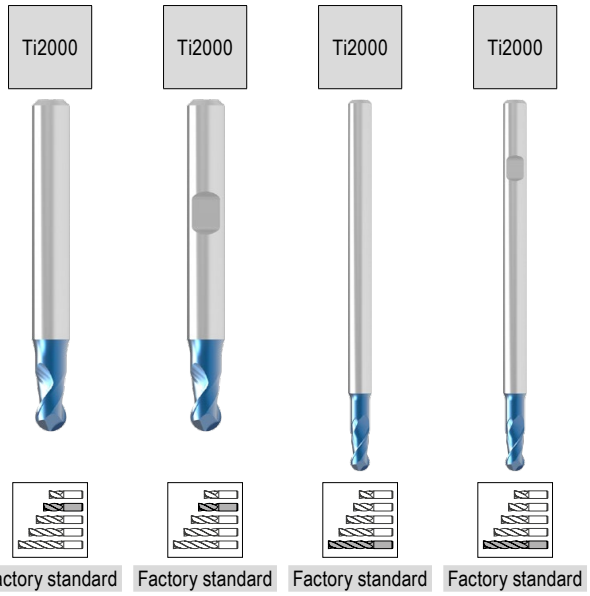
BlueLine – Ball Nosed Cutter

The all-rounder for machining tempered steel

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | 54–70 HRC





DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	α° ±0,5	ZEFP	52 256 ...	52 257 ...	52 258 ...	52 259 ...
0,10	0,2			11	10	38	3	8	2	**910**			
0,15	0,3			12	10	38	3	7,5	2	**915**			
0,20	0,4			12	10	38	3	7	2	**920**			
0,25	0,5	0,20	0,8	12	10	38	3	7	2	**925**			
0,30	1,0	0,25	1,3	12	10	38	3	7	2	**930**			
0,35	1,0	0,30	1,3	12	10	38	3	7	2	**935**			
0,40	1,0	0,35	1,3	12	10	38	3	7	2	**940**			
0,50	1,5	0,40	2,0	12	10	38	3	7,5	2	**950**			
0,50	1,5	0,40	2,0	17	18	54	6	10,5	2	**005**	**005**		
0,50	1,5	0,40	2,0	13	47	75	3	7	2			**950**	
0,50	1,5	0,40	2,0	17	44	80	6	10,5	2			**005**	**005**
0,60	1,5	0,50	2,0	12	10	38	3	7	2	**960**			
0,70	2,0	0,60	2,5	12	10	38	3	7,5	2	**970**			
0,80	2,0	0,70	2,5	13	10	38	3	7,5	2	**980**			
0,90	2,5	0,80	3,5	13	10	38	3	7	2	**990**			
1,00	2,0	0,90	3,0	13	22	50	3	6	2	**011**			
1,00	2,0	0,90	3,0	18	18	54	6	9,5	2	**106**	**010**		
1,00	3,0	0,90	4,0	14	47	75	3	6	2			**011**	
1,00	3,0	0,90	4,0	19	44	80	6	9,5	2			**010**	**010**
1,10	3,0	1,00	4,0	13	22	50	3	7	2	**911**			
1,20	3,0	1,10	4,0	13	22	50	3	7	2	**012**			
1,40	3,0	1,30	4,0	14	22	50	3	5	2	**014**			
1,50	3,0	1,40	4,0	13	22	50	3	5,5	2	**016**			
1,50	3,0	1,40	4,0	18	18	54	6	9	2	**156**	**015**		
1,50	4,0	1,40	6,0	13	47	75	3	7	2			**016**	
1,50	4,0	1,40	6,0	19	44	80	6	10	2			**015**	**015**
1,60	4,0	1,50	5,0	13	22	50	3	5	2	**916**			
1,80	4,0	1,70	5,0	13	22	50	3	5	2	**018**			
2,00	4,0	1,90	5,5	12	22	50	3	5	2	**021**			
2,00	4,0	1,90	5,5	18	18	54	6	9	2	**206**	**020**		
2,00	6,0	1,90	8,0	12	47	75	3	8	2			**021**	
2,00	6,0	1,90	8,0	20	44	80	6	11	2			**020**	**020**
2,50	5,0	2,30	6,5	10	22	50	3	7	2	**025**			
2,50	5,0	2,30	6,5	17	18	54	6	10	2	**026**	**026**		
2,50	8,0	2,30	10,0	14	47	75	3	5,5	2			**026**	
2,50	8,0	2,30	10,0	20	44	80	6	10	2			**025**	**025**
3,00	6,0	2,80	8,0		22	50	3		2	**031**			
3,00	6,0	2,80	8,0	18	18	54	6	9	2	**306**	**030**		

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→ v_c/f_z Page 428+429

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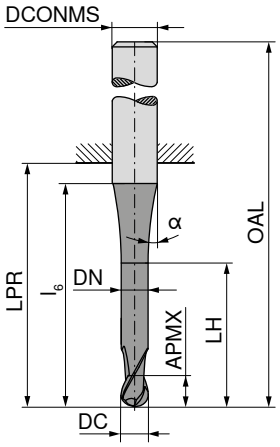
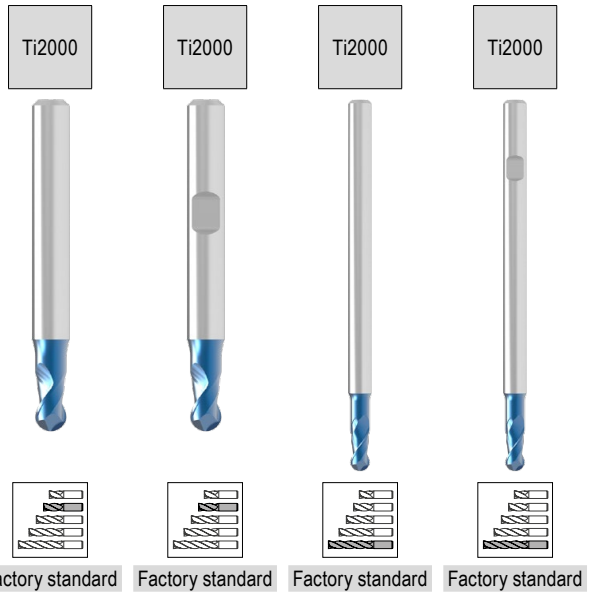
BlueLine – Ball Nosed Cutter

The all-rounder for machining tempered steel

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | 54–70 HRC





DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	α° ±0,5	ZEFP	52 256 ...		52 257 ...		52 258 ...		52 259 ...	
3,00	10,0	2,80	13,0		47	75	3		2						031		
3,00	10,0	2,80	15,0	23	44	80	6	11	2						030		030
4,00	7,0	3,80	10,0	18	18	54	6	11	2	406		040					
4,00	7,0	3,80	10,0		26	54	4		2	041							
4,00	13,0	3,80	20,0		47	75	4		2						041		
4,00	13,0	3,80	18,0	23	44	80	6	12,5	2						040		040
5,00	8,0	4,80	11,0	15	18	54	6	8	2	506		050					
5,00	8,0	4,80	11,0		26	54	5		2	051							
5,00	14,0	4,80	19,0		47	75	5		2						051		
5,00	14,0	4,80	19,0	21	64	100	6	13	2						050		050
6,00	10,0	5,80	15,0		18	54	6		2	061		060					
6,00	16,0	5,80	25,0		64	100	6		2						060		060
8,00	12,0	7,80	17,0		23	59	8		2	081		080					
8,00	22,0	7,80	35,0		64	100	8		2						080		080
10,00	13,0	9,80	18,0		27	67	10		2	101		100					
10,00	25,0	9,80	40,0		60	100	10		2						100		100
12,00	16,0	11,90	21,0		28	73	12		2	121		120					
12,00	26,0	11,80	40,0		55	100	12		2						120		120
14,00	16,0	13,80	21,0		30	75	14		2	141		140					
14,00	26,0	13,80	40,0		55	100	14		2						140		140
16,00	20,0	15,80	25,0		35	83	16		2	161		160					
16,00	30,0	15,80	50,0		102	150	16		2						160		160
20,00	25,0	19,80	30,0		43	93	20		2	201		200					
20,00	40,0	19,80	60,0		100	150	20		2						200		200
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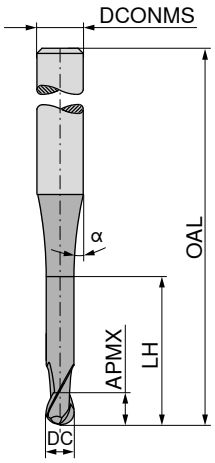
→ v_c/f_z Page 428+429

BlueLine – Ball Nosed Cutter

The all-rounder for machining tempered steel

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | ≤ 65 HRC | Ti2000



Factory standard

52 355 ...

DC f8 mm	APMX mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	
3	8	11	65	12	6	3	**030**
4	8	11	75	12	6	3	**040**
5	10	13	75	12	6	3	**050**
6	12		100		6	3	**060**
8	14		100		8	3	**080**
10	18		100		10	3	**100**
12	22		120		12	3	**120**

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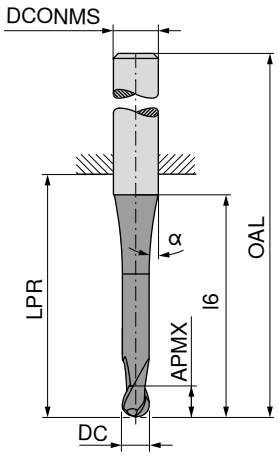
→ v_c/f_z Page 428

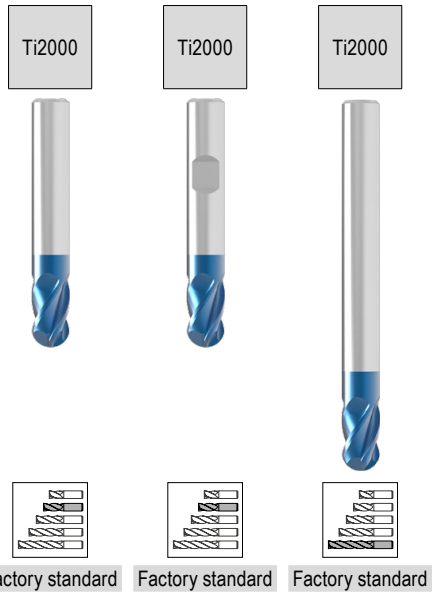
BlueLine – Ball Nosed Cutter

The all-rounder for machining tempered steel

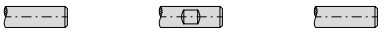
▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | 54–70 HRC





Factory standard | Factory standard | Factory standard



DC f8 mm	APMX mm	l_6 mm	LPR mm	OAL mm	α° ±1	DCONMS h6 mm	ZEFP	52 404 ...	52 405 ...	52 404 ...
2,0	4	10,0	22	50	8	3	4	020		
2,0	4	16,0	18	54	12	6	4	021	021	
2,0	4	10,0	47	75	8	3	4			022
2,0	4	16,0	44	80	12	6	4			023
2,5	5	16,0	18	54	12	6	4	025	025	
2,5	5	16,0	44	80	12	6	4			026
3,0	5		22	50		3	4	030		
3,0	5	14,0	18	54	12	6	4	031	031	
3,0	5		47	75		3	4			032
3,0	5	14,0	44	80	12	6	4			033
4,0	8	15,0	18	54	12	6	4	041	041	
4,0	8		26	54		4	4	040		
4,0	8		47	75		4	4			042
4,0	8	15,0	44	80	12	6	4			043
5,0	9	13,5	18	54	12	6	4	051	051	
5,0	9		26	54		5	4	050		
5,0	9		47	75		5	4			052
5,0	9	13,5	64	100	12	6	4			053
6,0	10		18	54		6	4	060	060	
6,0	10		64	100		6	4			062
7,0	12	15,0	23	59	12	8	4	070	070	
8,0	12		23	59		8	4	080	080	
8,0	12		64	100		8	4			082
9,0	14	17,0	27	67	12	10	4	090	090	
10,0	14	16,0	27	67		10	4	100	100	
10,0	14		60	100		10	4			102
12,0	16		29	74		12	4	120	120	
12,0	16		55	100		12	4			122
14,0	18		30	75		14	4	140	140	
14,0	18	20,0	55	100		14	4			142
16,0	22	24,0	35	83		16	4	160	160	
16,0	22	24,0	102	150		16	4			162
20,0	26	28,0	43	93		20	4	200	200	
20,0	26	28,0	100	150		20	4			202
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→ v_c/f_z Page 428+429

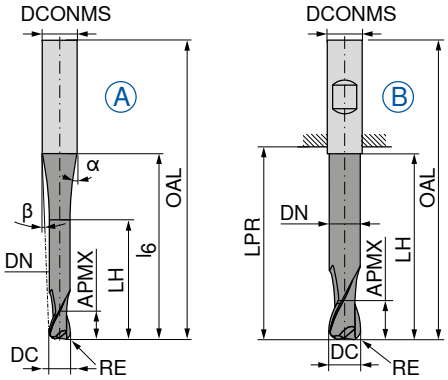
14

BlueLine – Torus Cutter

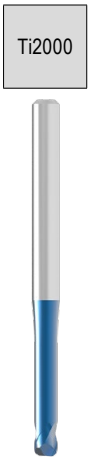
The all-rounder for machining tempered steel

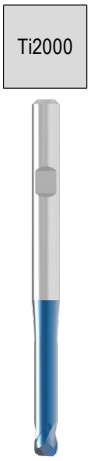
▲ Radius accuracy: ± 0,005 mm for Ø ≤ 6,0 mm / ± 0,01 mm for Ø > 6,0 mm
▲ or Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °

H | λ_s=30° γ_s= 0° | 54–70 HRC



LPR with Shank DIN 6535 HB





Factory standard | Factory standard

DC ±0,01 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	l_6 mm	OAL mm	α° ±0,5	β°	DCONMS h5 mm	ZEFP	Fig.	52 305 ...	52 305 ...
1,0	0,2	1,00	0,95	10	21	16,5	57	23	9	6	2	A	**010**	
1,5	0,3	1,25	1,40	12	21	18,0	57	21	7,5	6	2	A	**015**	
2,0	0,4	1,50	1,90	16	21	20,0	57	25	6	6	2	A	**020**	
3,0	0,5	2,00	2,90	20	44	34,5	80	6	2,5	6	2	A	**030**	
4,0	0,6	2,50	3,90	22	44	35,0	80	4,5	2	6	2	A	**040**	
5,0	0,8	3,00	4,90	25	44	35,0	80	3,5	1	6	2	A	**050**	
6,0	1,0	3,50	5,90	29	44		80			6	2	B		**060**
P													○	○
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S														
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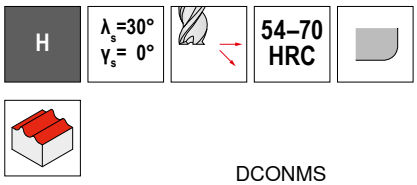
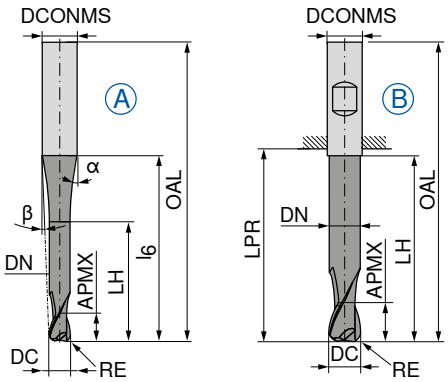
→ v_c/f_z Page 430+431

BlueLine – Torus Cutter

The all-rounder for machining tempered steel

▲ Radius accuracy: ± 0,005 mm for Ø ≤ 6,0 mm / ± 0,01 mm for Ø > 6,0 mm
▲ or Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °





LPR with Shank DIN 6535 HB

Factory standard

Factory standard

DC mm	DC Tol.	RE mm	APMX mm	DN mm	LH mm	LPR mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	ZEFP	Fig.	52 304 ...	52 304 ...
0,5	±0,01	0,10	1,0	0,45	2,0	21	20	57	10	8,5	6	2	A	**005**	
1,0	±0,01	0,25	2,0	0,95	4,0	21	20	57	10	8	6	2	A	**010**	
1,5	±0,01	0,30	2,5	1,40	7,5	21	20	57	12,5	7	6	2	A	**015**	
2,0	±0,01	0,50	3,0	1,80	8,0	21	20	57	12	6,5	6	2	A	**020**	
3,0	±0,01	0,50	3,5	2,80	10,0	21	20	57	11,5	5	6	2	A	**030**	
4,0	±0,01	1,00	4,0	3,80	12,0	21	20	57	11	3,5	6	2	A	**040**	
5,0	±0,01	1,50	5,0	4,70	14,0	21	20	57	10	2	6	2	A	**050**	
6,0	±0,01	2,00	6,0	5,60	20,0	21		57			6	2	B		**060**
8,0	±0,02	2,00	7,0	7,60	25,0	27		63			8	2	B		**080**
10,0	±0,02	3,00	8,0	9,60	30,0	32		72			10	2	B		**100**
12,0	±0,02	4,00	10,0	11,50	35,0	38		83			12	2	B		**120**
12,0	±0,02	4,00	10,0	11,50	35,0	44	40	92	37	3,5	16	2	A	**121**	
16,0	±0,02	5,00	12,0	15,50	40,0	44		92			16	2	B		**160**
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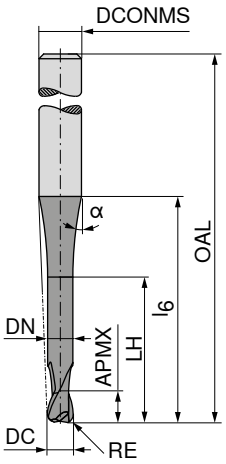
→ v_c/f_z Page 430+431

BlueLine – Torus Cutter

The all-rounder for machining tempered steel

H | λ_s=30° γ_s= 0° | ≤ 65 HRC | Ti2000



Factory standard

52 361 ...

DC e8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	l6 mm	OAL mm	α°	DCONMS h5 mm	ZEFP	
0,8	0,08	1,0	0,75	1,6	27	75	1,5	3	2	**90801**
1,0	0,10	1,2	0,95	2,0	27	75	1,5	3	2	**31001**
1,0	0,25	2,0	0,85	4,0	40	80	1,5	6	2	**01002**
1,2	0,12	1,4	1,15	2,4	27	75	1,5	3	2	**31201**
1,5	0,15	1,8	1,45	3,0	27	75	1,5	3	2	**31501**
2,0	0,20	2,4	1,95	4,0	27	75	1,5	3	2	**32002**
2,0	0,50	2,0	1,80	8,0	40	80	1,5	6	2	**02005**
3,0	0,30	3,6	2,95	6,0	27	75	1,5	4	2	**43003**
3,0	0,50	2,0	2,80	12,0	40	80	1,5	6	2	**03005**
3,0	1,00	2,0	2,80	12,0	40	80	1,5	6	2	**03010**
4,0	1,00	3,0	3,80	16,0	40	80	1,5	6	2	**04010**
6,0	1,00	4,0	5,80	25,0	50	100	1,5	8	2	**06010**
6,0	2,00	4,0	5,80	25,0	50	100	1,5	8	2	**06020**
8,0	1,00	4,0	7,80	32,0	60	120	1,5	10	2	**08010**
8,0	2,00	4,0	7,80	32,0	60	120	1,5	10	2	**08020**
10,0	1,50	6,0	9,80	40,0	80	160	1,5	12	2	**10015**
12,0	1,50	8,0	11,80	50,0	100	200	1,5	16	2	**12015**

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→ v_c/f_z Page 430+431

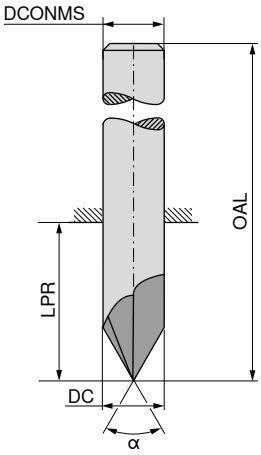
BlueLine – NC deburring cutter

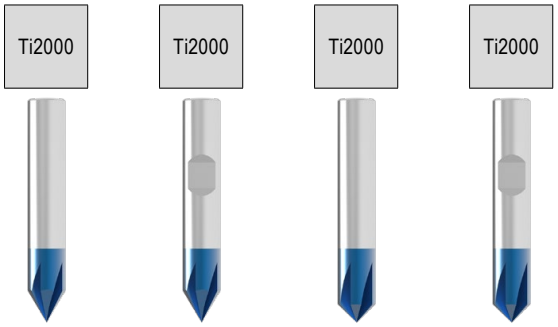
The all-rounder for machining tempered steel

▲ 52 562 ... / 52 563 ... – Point angle α = 60°
▲ 52 560 ... / 52 561 ... – Point angle α = 90°

H

λ_s = 0°
γ_s=-5°





					α = 60° Factory standard	α = 60° Factory standard	α = 90° Factory standard	α = 90° Factory standard
					52 562 ...	52 563 ...	52 560 ...	52 561 ...
DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP				
4	50	22	4	5	**04000**		**04000**	
6	57	21	6	6	**06000**	**06000**	**06000**	**06000**
8	63	27	8	6	**08000**	**08000**	**08000**	**08000**
10	72	32	10	6	**10000**	**10000**	**10000**	**10000**
12	83	38	12	6	**12000**	**12000**	**12000**	**12000**
16	92	44	16	8	**16000**	**16000**	**16000**	**16000**
P					●	●	●	●
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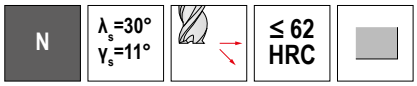
→ v_c/f_z Page 419

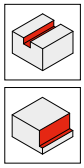
14

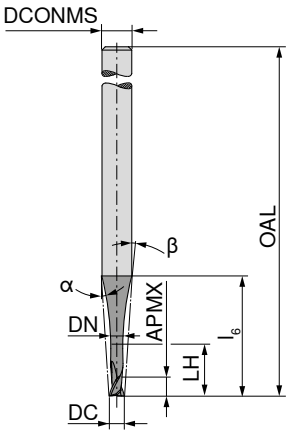
Micro-end milling cutter

The universal milling cutter for micro-cutting

▲ T_x = maximum engagement depth







DC mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	T_X	ZEFP	52 802 ...	52 802 ...
0,2	0,12	0,16	0,44	5,7	38	15	14	3	2,2 x DC	2	**021**	
0,2	0,20	0,16	1,00	6,4	38	15	13	3	5 x DC	2	**023**	
0,2	0,20	0,16	2,00	9,2	38	15	9	3	10 x DC	2	**025**	
0,2	0,20	0,16	0,44	5,7	43	15	14	3	2,2 x DC	2		**022**
0,2	0,20	0,16	1,00	6,4	43	15	13	3	5 x DC	2		**024**
0,2	0,20	0,16	2,00	9,2	43	15	9	3	10 x DC	2		**026**
0,3	0,18	0,24	0,66	5,8	38	16,5	14	3	2,2 x DC	2	**03100**	
0,3	0,30	0,24	1,50	6,9	38	16	11,5	3	5 x DC	2	**03300**	
0,3	0,30	0,24	3,00	9,7	38	13,5	8,5	3	10 x DC	2	**03500**	
0,4	0,24	0,32	0,88	5,8	38	16,5	13,5	3	2,2 x DC	2	**04100**	
0,4	0,40	0,32	2,00	7,4	38	15,5	10,5	3	5 x DC	2	**04300**	
0,4	0,40	0,32	4,00	10,2	38	14	8	3	10 x DC	2	**04500**	
0,5	0,30	0,40	1,10	5,8	38	15	13	3	2,2 x DC	2	**051**	
0,5	0,50	0,40	2,50	7,8	38	15	10	3	5 x DC	2	**053**	
0,5	0,50	0,40	5,00	10,7	38	13	7	3	10 x DC	2	**055**	
0,5	0,50	0,40	1,10	5,8	43	15	13	3	2,2 x DC	2		**052**
0,5	0,50	0,40	2,50	7,8	43	15	10	3	5 x DC	2		**054**
0,5	0,50	0,40	5,00	14,5	43	13	5	3	10 x DC	2		**056**
0,6	0,36	0,48	1,32	5,9	38	16,5	12	3	2,2 x DC	2	**06100**	
0,6	0,60	0,48	3,00	8,3	38	15	9	3	5 x DC	2	**06300**	
0,6	0,60	0,48	6,00	11,6	38	14	6,5	3	10 x DC	2	**06500**	
0,7	0,42	0,56	1,54	5,9	38	16,5	11,5	3	2,2 x DC	2	**07100**	
0,7	0,70	0,56	3,50	8,8	38	14,5	8	3	5 x DC	2	**07300**	
0,7	0,70	0,56	7,00	12,5	38	14	6	3	10 x DC	2	**07500**	
0,8	0,48	0,64	1,76	5,9	38	15	11	3	2,2 x DC	2	**081**	
0,8	0,80	0,64	4,00	9,0	38	15	7	3	5 x DC	2	**083**	
0,8	0,80	0,64	8,00	13,5	38	12	5	3	10 x DC	2	**085**	
0,8	0,80	0,64	1,76	5,9	43	15	11	3	2,2 x DC	2		**082**
0,8	0,80	0,64	4,00	9,0	43	15	7	3	5 x DC	2		**084**
0,8	0,80	0,64	8,00	15,5	43	9,8	5	3	10 x DC	2		**086**
0,9	0,54	0,72	1,98	5,9	38	17	10,5	3	2,2 x DC	2	**09100**	
0,9	0,90	0,72	4,50	9,5	38	14	7	3	5 x DC	2	**09300**	
0,9	0,90	0,72	9,00	14,4	38	13	5	3	10 x DC	2	**09500**	
1,0	0,60	0,80	2,20	5,9	38	15	10	3	2,2 x DC	2	**101**	
1,0	1,00	0,80	2,20	5,9	43	15	10	3	2,2 x DC	2		**102**
1,0	1,00	0,80	5,00	9,7	43	15	6	3	5 x DC	2	**103**	
1,0	1,00	0,80	10,00	15,3	43	11	4	3	10 x DC	2	**105**	
1,0	1,00	0,80	5,00	9,7	50	15	6	3	5 x DC	2		**104**
1,0	1,00	0,80	10,00	20,6	50	8,5	3	3	10 x DC	2		**106**
1,1	0,66	0,88	2,42	6,0	38	17	9,5	3	2,2 x DC	2	**11100**	
1,1	1,10	0,88	5,50	10,0	43	14	6	3	5 x DC	2	**11300**	

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→ v_c/f_z Page 432–439

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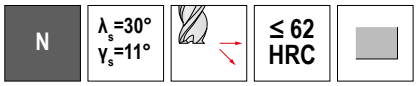
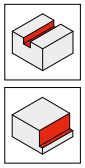
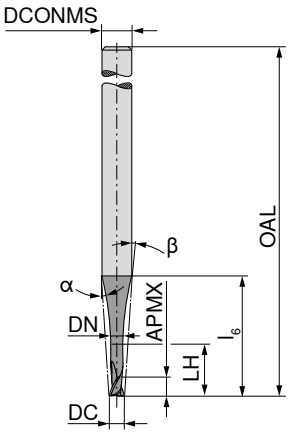
Micro-end milling cutter

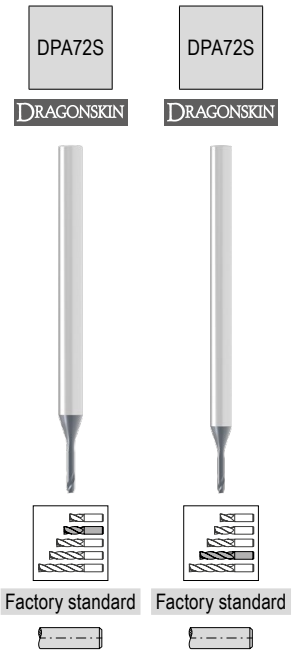
The universal milling cutter for micro-cutting

▲ T_x = maximum engagement depth









DC mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	T_X	ZEFP	52 802 ...	52 802 ...
1,1	1,10	0,88	11,00	15,9	43	13	4	3	10 x DC	2	**11500**	
1,2	0,72	0,96	2,64	6,0	38	17	9	3	2,2 x DC	2	**12100**	
1,2	1,20	0,96	6,00	10,5	43	13,5	5,5	3	5 x DC	2	**12300**	
1,2	1,20	0,96	12,00	16,5	43	13,5	4	3	10 x DC	2	**12500**	
1,3	0,78	1,04	2,86	6,0	38	17	8,5	3	2,2 x DC	2	**13100**	
1,3	1,30	1,04	6,50	11,0	43	12,5	5	3	5 x DC	2	**13300**	
1,3	1,30	1,04	13,00	17,1	43	14	3,5	3	10 x DC	2	**13500**	
1,4	0,84	1,12	3,08	6,1	38	17	8	3	2,2 x DC	2	**14100**	
1,4	1,40	1,12	7,00	11,5	43	12	4,5	3	5 x DC	2	**14300**	
1,4	1,40	1,12	14,00	17,6	43	15	3,5	3	10 x DC	2	**14500**	
1,5	0,90	1,20	3,30	6,1	38	15	8	3	2,2 x DC	2	**151**	
1,5	1,50	1,20	3,30	6,1	43	15	8	3	2,2 x DC	2		**152**
1,5	1,50	1,20	7,50	11,8	43	14	4	3	5 x DC	2	**153**	
1,5	1,50	1,20	15,00	18,1	43	14,6	3	3	10 x DC	2	**155**	
1,5	1,50	1,20	7,50	11,8	50	14	4	3	5 x DC	2		**154**
1,5	1,50	1,20	15,00	22,0	50	6,2	2	3	10 x DC	2		**156**
1,6	0,96	1,28	3,52	6,2	38	16,5	7	3	2,2 x DC	2	**16100**	
1,6	1,60	1,28	8,00	12,0	43	12	4	3	5 x DC	2	**16300**	
1,6	1,60	1,28	16,00	18,7	43	17	3	3	10 x DC	2	**16500**	
1,7	1,02	1,36	3,74	6,2	38	17	6,5	3	2,2 x DC	2	**17100**	
1,7	1,70	1,36	8,50	12,5	43	11	3,5	3	5 x DC	2	**17300**	
1,7	1,70	1,36	17,00	19,3	43	18,5	2,5	3	10 x DC	2	**17500**	
1,8	1,08	1,44	3,96	6,2	38	15	6	3	2,2 x DC	2	**181**	
1,8	1,80	1,44	3,96	6,2	43	15	6	3	2,2 x DC	2		**182**
1,8	1,80	1,44	9,00	12,9	43	12	3	3	5 x DC	2	**183**	
1,8	1,80	1,44	18,00	20,0	43	19,8	2	3	10 x DC	2	**185**	
1,8	1,80	1,44	9,00	12,9	50	12	3	3	5 x DC	2		**184**
1,8	1,80	1,44	18,00	22,0	50	5,3	2	3	10 x DC	2		**186**
1,9	1,14	1,52	4,18	6,2	38	17,5	5,5	3	2,2 x DC	2	**19100**	
1,9	1,90	1,52	9,50	13,2	43	10	3	3	5 x DC	2	**19300**	
1,9	1,90	1,52	19,00	20,5	43	23,5	2,5	3	10 x DC	2	**19500**	
2,0	1,20	1,60	4,40	11,9	50	15	10	6	2,2 x DC	2	**201**	
2,0	2,00	1,60	10,00	19,7	50	15	6	6	5 x DC	2	**203**	
2,0	2,00	1,60	20,00	25,0	50	22,1	5	6	10 x DC	2	**205**	
2,0	2,00	1,60	4,40	11,9	57	15	10	6	2,2 x DC	2		**202**
2,0	2,00	1,60	10,00	19,7	57	15	6	6	5 x DC	2		**204**
2,0	2,00	1,60	20,00	29,0	57	7,8	4	6	10 x DC	2		**206**

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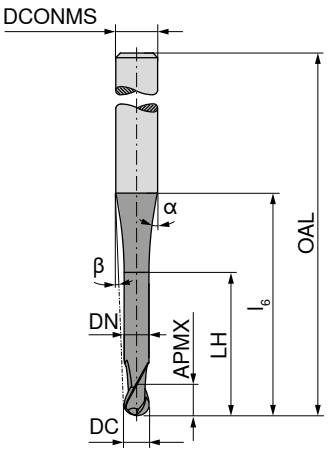
14

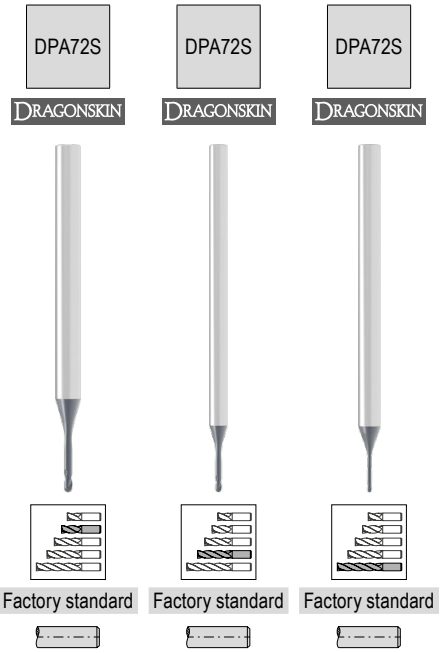
Micro-ball nosed cutter

The universal milling cutter for micro-cutting

▲ T_x = maximum engagement depth

N | λ_s=30° γ_s= 6° | ≤ 62 HRC





DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_x	ZEFP	52 804 ...	52 804 ...	52 804 ...
0,2	0,12	0,16	0,44	5,7	38	15	14	3	2,2 x DC	2	**021**		
0,2	0,20	0,16	1,00	6,4	38	15	13	3	5 x DC	2	**024**		
0,2	0,20	0,16	2,00	9,2	38	15	9	3	10 x DC	2	**027**		
0,2	0,12	0,16	0,44	5,7	50	15	14	3	2,2 x DC	2		**022**	
0,2	0,20	0,16	1,00	6,4	50	15	13	3	5 x DC	2		**025**	
0,2	0,20	0,16	2,00	9,2	50	15	9	3	10 x DC	2		**028**	
0,2	0,12	0,16	0,44	11,3	80	15	15	6	2,2 x DC	2			**023**
0,2	0,20	0,16	1,00	12,0	80	15	14	6	5 x DC	2			**026**
0,2	0,20	0,16	2,00	14,8	80	15	12	6	10 x DC	2			**029**
0,3	0,18	0,24	0,66	5,8	38	16,5	14	3	2,2 x DC	2	**03100**		
0,3	0,30	0,24	1,50	6,9	38	16	11,5	3	5 x DC	2	**03400**		
0,3	0,30	0,24	3,00	9,7	38	13,5	8,5	3	10 x DC	2	**03700**		
0,4	0,24	0,32	0,88	5,8	38	16,5	13	3	2,2 x DC	2	**04100**		
0,4	0,40	0,32	2,00	7,4	38	15,5	10,5	3	5 x DC	2	**04400**		
0,4	0,40	0,32	4,00	10,2	38	14	8	3	10 x DC	2	**04700**		
0,5	0,30	0,40	1,10	5,8	38	15	13	3	2,2 x DC	2	**051**		
0,5	0,50	0,40	2,50	7,8	38	15	10	3	5 x DC	2	**054**		
0,5	0,50	0,40	5,00	10,7	38	13	7	3	10 x DC	2	**057**		
0,5	0,30	0,40	1,10	5,8	50	15	13	3	2,2 x DC	2		**052**	
0,5	0,50	0,40	2,50	7,8	50	15	10	3	5 x DC	2		**055**	
0,5	0,50	0,40	5,00	14,5	50	13	5	3	10 x DC	2		**058**	
0,5	0,30	0,40	1,10	11,4	80	15	14	6	2,2 x DC	2			**053**
0,5	0,50	0,40	2,50	13,4	80	15	12	6	5 x DC	2			**056**
0,5	0,50	0,40	5,00	20,2	80	15	8	6	10 x DC	2			**059**
0,6	0,36	0,48	1,32	5,9	38	16,5	12	3	2,2 x DC	2	**06100**		
0,6	0,60	0,48	3,00	8,3	38	15	9	3	5 x DC	2	**06400**		
0,6	0,60	0,48	6,00	10,6	38	17	7	3	10 x DC	2	**06700**		
0,7	0,42	0,56	1,54	5,9	38	16,5	11,5	3	2,2 x DC	2	**07100**		
0,7	0,70	0,56	3,50	8,8	38	14	8	3	5 x DC	2	**07400**		
0,7	0,70	0,56	7,00	10,6	38	20,5	7	3	10 x DC	2	**07700**		
0,8	0,48	0,64	1,76	5,9	38	15	11	3	2,2 x DC	2	**081**		
0,8	0,80	0,64	4,00	9,0	38	15	7	3	5 x DC	2	**084**		
0,8	0,80	0,64	8,00	10,5	38	8,2	6	3	10 x DC	2	**087**		
0,8	0,48	0,64	1,76	5,9	50	15	11	3	2,2 x DC	2		**082**	
0,8	0,80	0,64	4,00	9,0	50	15	7	3	5 x DC	2		**085**	
0,8	0,80	0,64	8,00	18,7	50	9,8	4	3	10 x DC	2		**088**	
0,8	0,48	0,64	1,76	11,5	80	15	13	6	2,2 x DC	2			**083**
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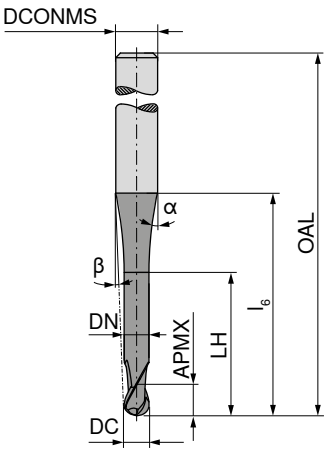
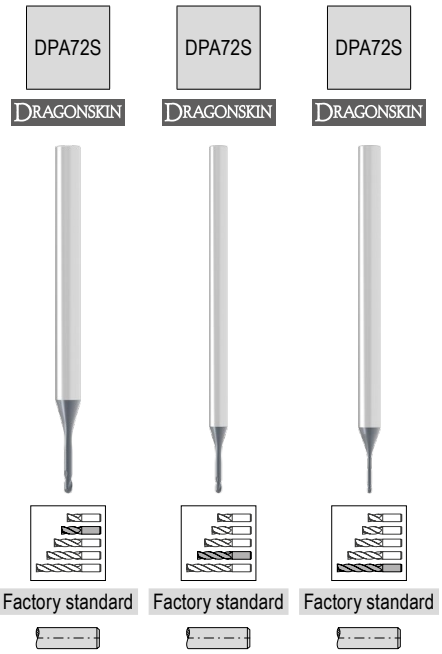
Micro-ball nosed cutter

The universal milling cutter for micro-cutting

▲ T_x = maximum engagement depth

N | λ_s=30° γ_s= 6° | ≤ 62 HRC





Factory standard | Factory standard | Factory standard

DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_x	ZEFP	52 804 ...	52 804 ...	52 804 ...
0,8	0,80	0,64	4,00	14,6	80	15	11	6	5 x DC	2			**086**
0,8	0,80	0,64	8,00	25,9	80	14,8	6	6	10 x DC	2			**089**
0,9	0,54	0,72	1,98	5,9	38	17	10,5	3	2,2 x DC	2	**09100**		
0,9	0,90	0,72	4,50	9,5	38	14	7	3	5 x DC	2	**09400**		
0,9	0,90	0,72	9,00	10,5	38	39,5	6,5	3	10 x DC	2	**09700**		
1,0	0,60	0,80	2,20	7,8	43	15	11	4	2,2 x DC	2	**101**		
1,0	1,00	0,80	5,00	11,6	43	15	8	4	5 x DC	2	**104**		
1,0	1,00	0,80	10,00	18,3	43	8	5	4	10 x DC	2	**107**		
1,0	0,60	0,80	2,20	7,8	60	15	11	4	2,2 x DC	2		**102**	
1,0	1,00	0,80	5,00	11,6	60	15	8	4	5 x DC	2		**105**	
1,0	1,00	0,80	10,00	23,7	60	10,2	4	4	10 x DC	2		**108**	
1,0	0,60	0,80	2,20	11,5	80	15	13	6	2,2 x DC	2			**103**
1,0	1,00	0,80	5,00	15,3	80	15	10	6	5 x DC	2			**106**
1,0	1,00	0,80	10,00	28,7	80	13	5	6	10 x DC	2			**109**
1,1	0,66	0,88	2,42	7,9	43	16,5	11	4	2,2 x DC	2	**11100**		
1,1	1,10	0,88	5,50	12,0	43	14,5	7,5	4	5 x DC	2	**11400**		
1,1	1,10	0,88	11,00	18,3	43	13,5	5,5	4	10 x DC	2	**11700**		
1,2	0,72	0,96	2,64	7,9	43	15	11	4	2,2 x DC	2	**121**		
1,2	1,20	0,96	6,00	12,4	43	15	7	4	5 x DC	2	**124**		
1,2	1,20	0,96	12,00	18,2	43	9,3	5	4	10 x DC	2	**127**		
1,2	0,72	0,96	2,64	7,9	60	15	11	4	2,2 x DC	2		**122**	
1,2	1,20	0,96	6,00	12,4	60	15	7	4	5 x DC	2		**125**	
1,2	1,20	0,96	12,00	26,1	60	9,1	4	4	10 x DC	2		**128**	
1,2	0,72	0,96	2,64	11,6	80	15	12	6	2,2 x DC	2			**123**
1,2	1,20	0,96	6,00	16,2	80	15	9	6	5 x DC	2			**126**
1,2	1,20	0,96	12,00	31,8	80	11,7	5	6	10 x DC	2			**129**
1,3	0,78	1,04	2,86	8,0	43	16,5	10,5	4	2,2 x DC	2	**13100**		
1,3	1,30	1,04	6,50	12,8	43	14	6,5	4	5 x DC	2	**13400**		
1,3	1,30	1,04	13,00	18,2	43	17	5	4	10 x DC	2	**13700**		
1,4	0,84	1,12	3,08	8,0	43	16,5	10	4	2,2 x DC	2	**14100**		
1,4	1,40	1,12	7,00	13,2	43	14	6,5	4	5 x DC	2	**14400**		
1,4	1,40	1,12	14,00	18,1	43	20,5	5	4	10 x DC	2	**14700**		
1,5	0,90	1,20	3,30	8,0	43	15	9	4	2,2 x DC	2	**151**		
1,5	1,50	1,20	7,50	13,7	43	15	6	4	5 x DC	2	**154**		
1,5	1,50	1,20	15,00	18,1	43	13,5	4	4	10 x DC	2	**157**		
1,5	0,90	1,20	3,30	8,0	60	15	9	4	2,2 x DC	2		**152**	
1,5	1,50	1,20	7,50	13,7	60	15	6	4	5 x DC	2		**155**	

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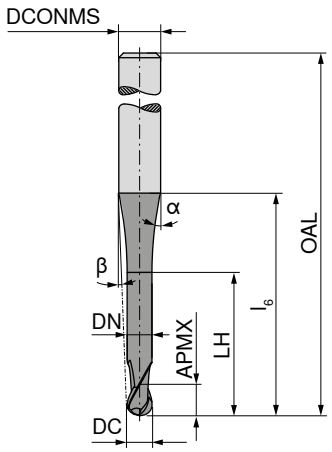
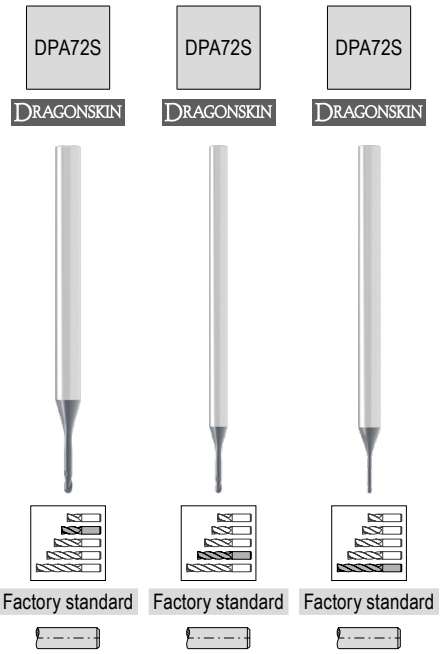
Micro-ball nosed cutter

The universal milling cutter for micro-cutting

▲ T_x = maximum engagement depth

N | λ_s=30° γ_s= 6° | ≤ 62 HRC





Factory standard | Factory standard | Factory standard

DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_x	ZEFP	52 804 ...	52 804 ...	52 804 ...
1,5	1,50	1,20	15,00	28,0	60	7,8	3	4	10 x DC	2		**158**	
1,5	0,90	1,20	3,30	11,7	80	15	11	6	2,2 x DC	2			**153**
1,5	1,50	1,20	7,50	17,4	80	15	8	6	5 x DC	2			**156**
1,5	1,50	1,20	15,00	35,8	80	10,2	4	6	10 x DC	2			**159**
1,6	0,96	1,28	3,52	8,1	43	16,5	9	4	2,2 x DC	2	**16100**		
1,6	1,60	1,28	8,00	14,1	43	13	5,5	4	5 x DC	2	**16400**		
1,6	1,60	1,28	16,00	18,5	43	29,5	4,5	4	10 x DC	2	**16700**		
1,7	1,02	1,36	3,74	8,1	43	16,5	9	4	2,2 x DC	2	**17100**		
1,7	1,70	1,36	8,50	14,5	43	12,5	5	4	5 x DC	2	**17400**		
1,7	1,70	1,36	17,00	18,9	43	35,5	4	4	10 x DC	2	**17700**		
1,8	1,08	1,44	3,96	8,1	43	15	8	4	2,2 x DC	2	**181**		
1,8	1,80	1,44	9,00	15,0	43	15	5	4	5 x DC	2	**184**		
1,8	1,80	1,44	18,00	19,5	43	31,1	4	4	10 x DC	2	**187**		
1,8	1,08	1,44	3,96	8,1	60	15	8	4	2,2 x DC	2		**182**	
1,8	1,80	1,44	9,00	15,0	60	15	5	4	5 x DC	2		**185**	
1,8	1,80	1,44	18,00	31,9	60	6,8	2	4	10 x DC	2		**188**	
1,8	1,08	1,44	3,96	11,8	80	15	11	6	2,2 x DC	2			**183**
1,8	1,80	1,44	9,00	18,7	80	15	7	6	5 x DC	2			**186**
1,8	1,80	1,44	18,00	39,3	80	9,1	4	6	10 x DC	2			**189**
1,9	1,14	1,52	4,18	8,2	43	16,5	8	4	2,2 x DC	2	**19100**		
1,9	1,90	1,52	9,50	15,5	43	11,5	4,5	4	5 x DC	2	**19400**		
1,9	1,90	1,52	19,00	19,9	43	54,5	3,5	4	10 x DC	2	**19700**		
2,0	1,20	1,60	4,40	11,9	57	15	10	6	2,2 x DC	2	**201**		
2,0	2,00	1,60	10,00	19,7	57	15	6	6	5 x DC	2	**204**		
2,0	2,00	1,60	20,00	32,0	57	9,5	4	6	10 x DC	2	**207**		
2,0	1,20	1,60	4,40	11,9	70	15	10	6	2,2 x DC	2		**202**	
2,0	2,00	1,60	10,00	19,7	70	15	6	6	5 x DC	2		**205**	
2,0	2,00	1,60	20,00	41,4	70	8,5	3	6	10 x DC	2		**208**	
2,0	1,20	1,60	4,40	11,9	80	15	10	6	2,2 x DC	2			**203**
2,0	2,00	1,60	10,00	19,7	80	15	6	6	5 x DC	2			**206**
2,0	2,00	1,60	20,00	41,4	80	8,5	3	6	10 x DC	2			**209**
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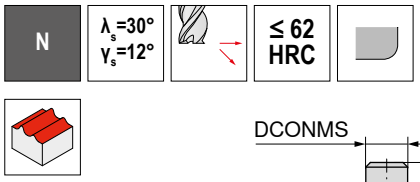
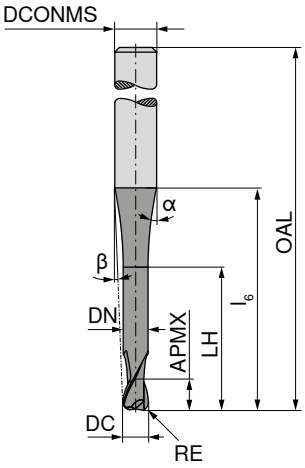
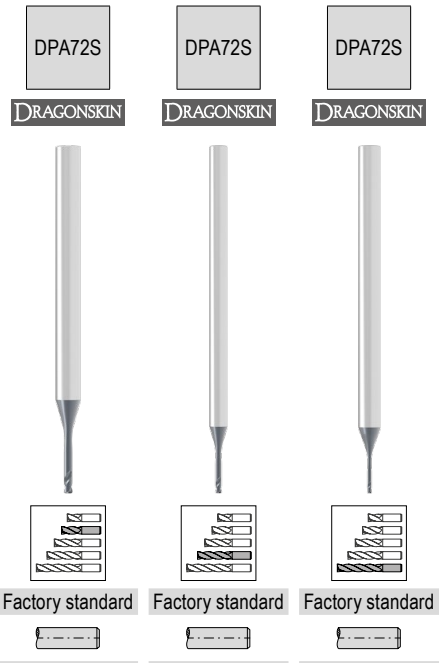
Micro-torus cutter

The universal milling cutter for micro-cutting

▲ T_x = maximum engagement depth







Factory standard | Factory standard | Factory standard

DC ±0,01 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_X	ZEFP	52 806 ...	52 806 ...	52 806 ...
0,5	0,1	0,30	0,40	1,10	5,8	38	15	13	3	2,2 x DC	2			
0,5	0,1	0,50	0,40	2,50	7,8	38	15	10	3	5 x DC	2			
0,5	0,1	0,50	0,40	5,00	10,7	38	13	7	3	10 x DC	2			
0,5	0,1	0,30	0,40	1,10	5,8	50	15	13	3	2,2 x DC	2			
0,5	0,1	0,50	0,40	2,50	7,8	50	15	10	3	5 x DC	2			
0,5	0,1	0,50	0,40	5,00	14,5	50	13	5	3	10 x DC	2			
0,5	0,1	0,30	0,40	1,10	11,4	80	15	14	6	2,2 x DC	2			
0,5	0,1	0,50	0,40	2,50	13,4	80	15	12	6	5 x DC	2			
0,5	0,1	0,50	0,40	5,00	20,2	80	15	8	6	10 x DC	2			
0,6	0,1	0,36	0,48	1,32	5,9	38	16,5	12	3	2,2 x DC	2			
0,6	0,1	0,60	0,48	3,00	8,3	38	15	9	3	5 x DC	2			
0,6	0,1	0,60	0,48	6,00	10,6	38	17	7	3	10 x DC	2			
0,8	0,2	0,48	0,64	1,76	5,9	38	16,5	11	3	2,2 x DC	2			
0,8	0,2	0,80	0,64	4,00	9,0	38	14,5	7,5	3	5 x DC	2			
0,8	0,2	0,80	0,64	8,00	10,5	38	27	6,5	3	10 x DC	2			
1,0	0,2	0,60	0,80	2,20	7,8	43	15	11	4	2,2 x DC	2			
1,0	0,2	1,00	0,80	5,00	11,6	43	15	8	4	5 x DC	2			
1,0	0,2	1,00	0,80	10,00	18,3	43	8	5	4	10 x DC	2			
1,0	0,2	0,60	0,80	2,20	7,8	60	15	11	4	2,2 x DC	2			
1,0	0,2	1,00	0,80	5,00	11,6	60	15	8	4	5 x DC	2			
1,0	0,2	1,00	0,80	10,00	23,7	60	10,2	4	4	10 x DC	2			
1,0	0,2	0,60	0,80	2,20	11,5	80	15	13	6	2,2 x DC	2			
1,0	0,2	1,00	0,80	5,00	15,3	80	15	10	6	5 x DC	2			
1,0	0,2	1,00	0,80	10,00	28,7	80	13	5	6	10 x DC	2			
1,2	0,2	0,72	0,96	2,64	7,9	43	16,5	10,5	4	2,2 x DC	2			
1,2	0,2	1,20	0,96	6,00	12,4	43	14,5	7	4	5 x DC	2			
1,2	0,2	1,20	0,96	12,00	18,2	43	15	5	4	10 x DC	2			
1,5	0,3	0,90	1,20	3,30	8,0	43	15	9	4	2,2 x DC	2			
1,5	0,3	1,50	1,20	7,50	13,7	43	15	6	4	5 x DC	2			
1,5	0,3	1,50	1,20	15,00	18,1	43	24	4	4	10 x DC	2			
1,5	0,3	0,90	1,20	3,30	8,0	60	15	9	4	2,2 x DC	2			
1,5	0,3	1,50	1,20	7,50	13,7	60	15	6	4	5 x DC	2			
1,5	0,3	1,50	1,20	15,00	29,2	60	7,8	3	4	10 x DC	2			
1,5	0,3	0,90	1,20	3,30	11,7	80	15	11	6	2,2 x DC	2			
1,5	0,3	1,50	1,20	7,50	17,4	80	15	8	6	5 x DC	2			
1,5	0,3	1,50	1,20	15,00	35,8	80	10,2	4	6	10 x DC	2			
1,6	0,3	0,96	1,28	3,52	8,1	43	16,5	9	4	2,2 x DC	2			

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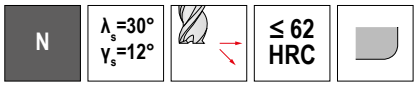
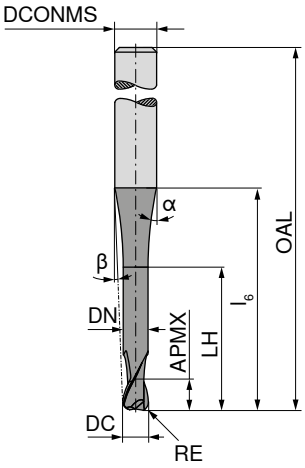
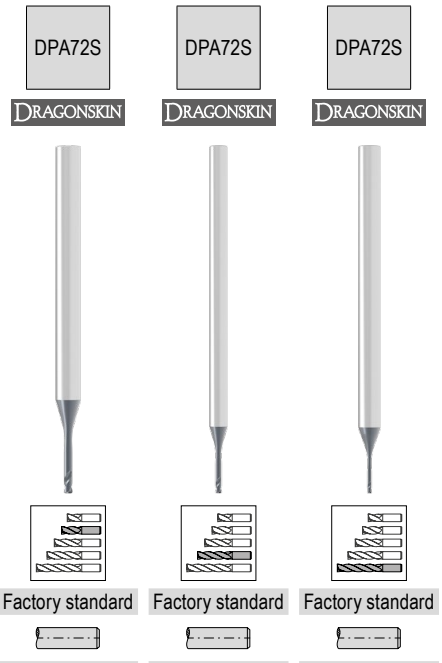
Micro-torus cutter

The universal milling cutter for micro-cutting

▲ T_x = maximum engagement depth







Factory standard | Factory standard | Factory standard

DC ±0,01 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_X	ZEFP	52 806 ...	52 806 ...	52 806 ...
1,6	0,3	1,60	1,28	8,00	14,1	43	13	5,5	4	5 x DC	2	**16403**		
1,6	0,3	1,60	1,28	16,00	18,5	43	29,5	4,5	4	10 x DC	2	**16703**		
1,8	0,4	1,08	1,44	3,96	8,1	43	16,5	8,5	4	2,2 x DC	2	**18104**		
1,8	0,4	1,80	1,44	9,00	15,0	43	12	5	4	5 x DC	2	**18404**		
1,8	0,4	1,80	1,44	18,00	19,5	43	41	4	4	10 x DC	2	**18704**		
2,0	0,5	1,20	1,60	4,40	11,9	57	15	10	6	2,2 x DC	2	**201**		
2,0	0,5	2,00	1,60	10,00	19,7	57	15	6	6	5 x DC	2	**204**		
2,0	0,5	2,00	1,60	20,00	32,0	57	9,5	4	6	10 x DC	2	**207**		
2,0	0,5	1,20	1,60	4,40	11,9	70	15	10	6	2,2 x DC	2		**202**	
2,0	0,5	2,00	1,60	10,00	19,7	70	15	6	6	5 x DC	2		**205**	
2,0	0,5	2,00	1,60	20,00	41,4	70	8,5	3	6	10 x DC	2		**208**	
2,0	0,5	1,20	1,60	4,40	11,9	80	15	10	6	2,2 x DC	2			**203**
2,0	0,5	2,00	1,60	10,00	19,7	80	15	6	6	5 x DC	2			**206**
2,0	0,5	2,00	1,60	20,00	41,4	80	8,5	3	6	10 x DC	2			**209**

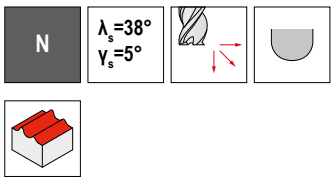
P	●	●	●
M	●	●	●
K	●	●	●
N	●	●	●
S	●	●	●
H	○	○	○
O	○	○	○

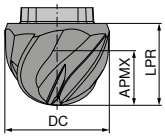
→ v_c/f_z Page 432–439

MultiLock – Ball Nosed Cutter

The sustainable exchangeable head system

▲ KLG = Coupling Size





DC mm	KLG	APMX mm	LPR mm	ZEFP	Factory standard 53 803 ...	Factory standard 53 804 ...
12	EL12	7,0	9	4	**01200**	**01200**
16	EL16	9,5	12	4	**01600**	**01600**
20	EL20	12,0	15	4	**02000**	**02000**
25	EL25	16,0	19	4	**02500**	**02500**

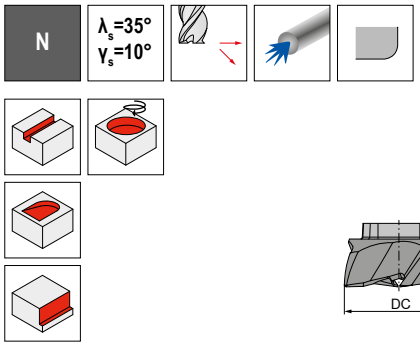
P		●
M		○
K		●
N		○
S	●	
H		
O		

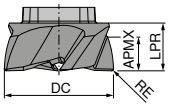
→ v_c/f_z Page 440

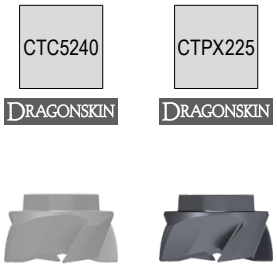
MultiLock – Torus Cutter

The sustainable exchangeable head system

▲ KLG = Coupling Size







DC mm	RE mm	KLG	APMX mm	LPR mm	ZEFP	Factory standard 53 805 ...	Factory standard 53 806 ...
12	0,2	EL12	3,0	5	4	**01205**	**01205**
16	0,3	EL16	4,5	7	4	**01607**	**01607**
20	0,3	EL20	6,0	8	5	**02008**	**02008**
25	0,5	EL25	8,0	10	6	**02510**	**02510**

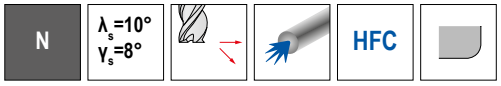
P		●
M		○
K		●
N		○
S	●	
H		
O		

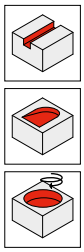
→ v_c/f_z Page 441

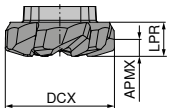
MultiLock – High Feed Cutter

The sustainable exchangeable head system

▲ KLG = Coupling size
▲ r_{3d} = programmed corner radius
▲ APMX does not correspond to the maximum depth of cut







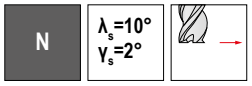
DCX mm	KLG	r_{3D} mm	APMX mm	LPR mm	ZEFP	Factory standard 53 801 ...	Factory standard 53 802 ...
12	EL12	0,7	3,18	4	5	01202	01202
16	EL16	1,2	3,73	5	6	01605	01605
20	EL20	1,2	4,31	6	6	02005	02005
25	EL25	1,2	5,32	7	6	02505	02505
P							●
M							○
K							●
N							
S						●	
H							
O							

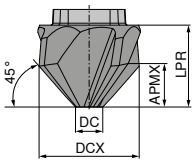
→ v_c/f_z Page 442

MultiLock – Deburring Cutter

The sustainable exchangeable head system

▲ KLG = Coupling Size



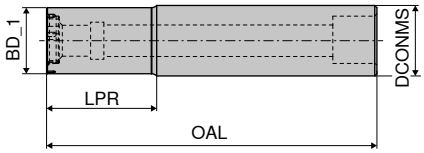


DCX mm	KLG	APMX mm	DC mm	LPR mm	ZEFP	Factory standard 53 800 ...
12	EL12	4	4	8	4	01200
16	EL16	6	4	12	4	01600
P						●
M						○
K						●
N						○
S						
H						
O						

→ v_c/f_z Page 443

MultiLock – Holders

▲ KLG = Coupling Size



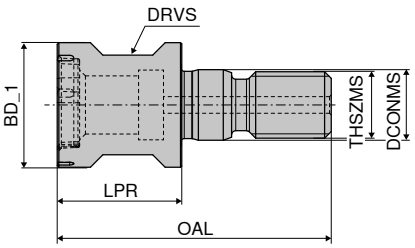
KLG	BD_1 mm	DCONMS mm	OAL mm	LPR mm	84 050 ...	84 051 ...
EL12	11	12	66	20	01200	01200
EL16	15	16	75	25	01600	01600
EL20	19	20	77	25	02000	02000
EL25	24	25	87	30	02500	02500

Spare parts for Article no.	Cylindrical screw 70 950 ...	TORX® blade 80 950 ...	Key D 80 950 ...	Molykote 70 950 ...	Clamping screw 70 950 ...	Threaded bush 70 950 ...	Torque screwdriver 80 950 ...	Bit 80 398 ...
84 051 01200 / 84 050 01200	42000	054	120	303	41900	42100	193	03500
84 051 01600 / 84 050 01600	42300	055	121	303	42200	42400	193	04500
84 051 02000 / 84 050 02000	42300	055	121	303	42200	42400	193	04500
84 051 02500 / 84 050 02500	42600	055	121	303	42500	42700	193	06000

MultiLock – Screw-in adapter, type A

▲ KLG = Coupling size

▲ For high-feed and torus cutters



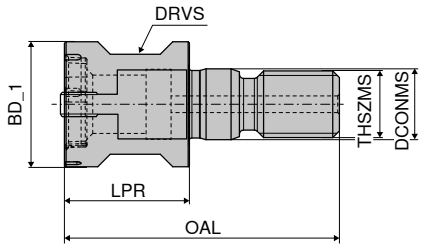
KLG	BD_1 mm	THSZMS	OAL mm	LPR mm	DCONMS mm	DRVS mm	84 052 ...
EL12	11	M6	28	13	6,5	9	01200
EL16	15	M8	33	14	8,5	12	01600
EL20	19	M10	37	18	10,5	15	02000
EL25	24	M12	42	20	12,5	17	02500

Spare parts for Article no.	TORX® blade 80 950 ...	Key D 80 950 ...	Molykote 70 950 ...	Clamping screw 70 950 ...	Threaded bush 70 950 ...	Torque screwdriver 80 950 ...	Bit 80 398 ...
84 052 01200	054	120	303	41900	42100	193	03500
84 052 01600	055	121	303	42200	42400	193	04500
84 052 02000	055	121	303	42200	42400	193	04500
84 052 02500	055	121	303	42500	42700	193	06000

14

MultiLock – Screw-in adapter, type B

▲ KLG = Coupling size
▲ For radius milling and deburring cutters



KLG	BD_1 mm	THSZMS	OAL mm	LPR mm	DCONMS mm	DRVS mm	84 053 ...
EL12	11	M6	28	13	6,5	9	**01200**
EL16	15	M8	33	14	8,5	12	**01600**
EL20	20	M10	37	18	10,5	15	**02000**
EL25	25	M12	42	20	12,5	17	**02500**

Spare parts for Article no.	TORX® blade 80 950 ...	Clamping screw 84 950 ...	Key D 80 950 ...	Molykote 70 950 ...	Torque screwdriver 80 950 ...	Mounting bush 84 950 ...
84 053 01200	**054**	**18600**	**120**	**303**	**193**	**18000**
84 053 01600	**055**	**18800**	**121**	**303**	**193**	**18100**
84 053 02000	**055**	**18700**	**121**	**303**	**193**	**18200**
84 053 02500	**055**	**18900**	**121**	**303**	**193**	**18300**

Information on how to correctly assemble the MultiLock adapters can be found on → **page 490**.

MultiChange – Programme Overview

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

Exchangeable heads

→ Chapter 2, Solid carbide drilling

Page No. 2|107

Solid Carbide NC Spot Drills

Ø 8, 10, 12, 16, 20 mm
NOF 2

SIG 90°

SIG 120°

SIG 142°

→ Chapter 4, Reaming and countersinking

Page No. 4|18 + 4|19

Replaceable reaming heads

Ø 8,00 – 30,20 mm

Through hole

Ø 12,20 – 30,20 mm

Blind hole

→ Chapter 14, Solid carbide milling cutters

Page No. 14|198 – 14|202

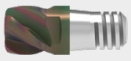
Solid carbide shoulder mills
Ø 8, 10, 12, 16, 20 mm /
ZEFP 3+4

Type PCR-UNI

Type PCR-ALU

Type N

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


Type W

Type N

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

Type NF

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

Type N

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

Type N

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

Type N

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

Type N

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

Type N

Type N

NOF / ZEFP = Number of cutting edges

Tool holder

→ Catalogue – Clamping technology, Chapter 16 Accessories

Page No. 16|259 – 16|261

OAL 60 – 90 mm

Tapered 87° / Steel

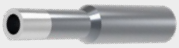
Cylindrical* / Steel

OAL 85 – 120 mm

Tapered 87° / Steel

Cylindrical* / Steel

Tapered 87° / Solid carbide


Cylindrical* / Solid carbide

OAL 110 – 150 mm

Tapered 87° / Solid carbide

Cylindrical* / Solid carbide

OAL 150 – 200 mm

Tapered 87° / Solid carbide

Cylindrical* / Steel

Cylindrical* / Solid carbide

OAL 200 – 250 mm

Cylindrical* / Steel

Cylindrical* / Solid carbide

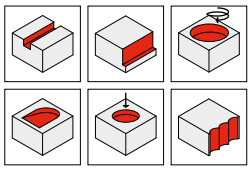
* only conditionally suitable for milling

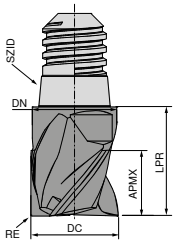
14

MultiChange – End Mill

The exchangeable head system for the highest demands and a wide range of applications

PCR UNI | λ_s=36° γ_s=10° | HPC | APA72S





Factory standard

52 871 ...

DC mm	RE mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	
10	0,32	08	7,5	9,8	13	4	**10000**
12	0,32	10	9,0	11,8	16	4	**12000**
16	0,32	12	12,0	15,8	20	4	**16000**
20	0,50	16	15,0	19,8	25	4	**20000**

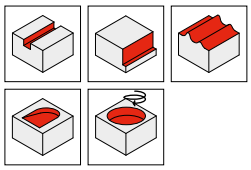
P	●
M	○
K	●
N	
S	
H	
O	

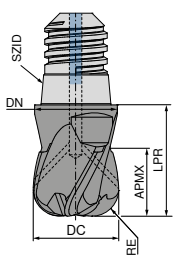
→ v_c/f_z Page 444+445

MultiChange – Torus Cutter

The exchangeable head system for the highest demands and a wide range of applications

W | λ_s=43° γ_s=24° | DLC | DRAGONSKIN





Factory standard

52 870 ...

DC mm	RE mm	SZID	APMX mm	DN mm	LPR mm	ZEFP	
10	0,5	08	7,5	9,8	13	3	**10005**
10	1,0	08	7,5	9,8	13	3	**10010**
12	0,5	10	9,0	11,8	16	3	**12005**
12	1,0	10	9,0	11,8	16	3	**12010**
12	2,0	10	9,0	11,8	16	3	**12020**
16	2,0	12	12,0	15,8	20	3	**16020**
16	4,0	12	12,0	15,8	20	3	**16040**
20	2,0	16	15,0	19,8	25	3	**20020**
20	3,0	16	15,0	19,8	25	3	**20030**
20	4,0	16	15,0	19,8	25	3	**20040**

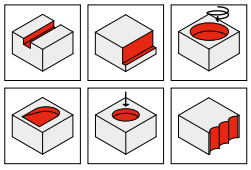
P	
M	
K	
N	●
S	
H	
O	

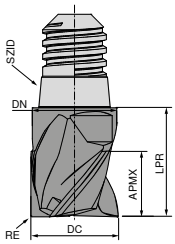
→ v_c/f_z Page 452

MultiChange – End Mill

The exchangeable head system for the highest demands and a wide range of applications

PCR ALU | λ_s=41° γ_s=15° | HPC | DLC | DRAGONSKIN





Factory standard

52 872 ...

DC mm	RE mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	
10	0,32	08	7,5	9,8	13	4	**10000**
12	0,32	10	9,0	11,8	16	4	**12000**
16	0,32	12	12,0	15,8	20	4	**16000**
20	0,50	16	15,0	19,8	25	4	**20000**

P	
M	
K	
N	●
S	
H	
O	

→ v_c/f_z Page 444+445

Assembly instructions

- ▲ SZID = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

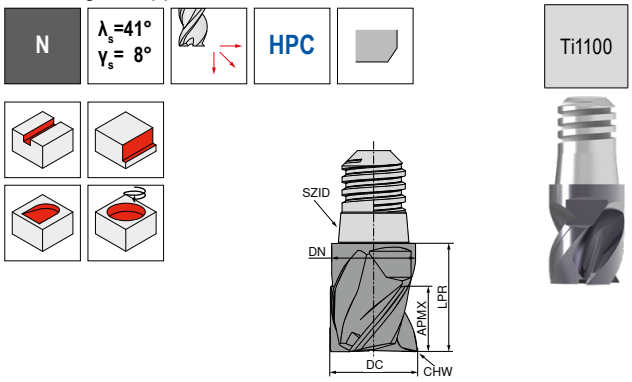
Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

Application Tips

APMX does not correspond to the maximum cutting depth

MultiChange – End Mill

The exchangeable head system for the highest demands and a wide range of applications



Factory standard

52 861 ...

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	CHW mm	ZEFP	
8	06	6,0	7,8	11	0,16	3	**080**
10	08	7,5	9,8	13	0,20	3	**100**
12	10	9,0	11,8	16	0,24	3	**120**
16	12	12,0	15,8	20	0,32	3	**160**
20	16	15,0	19,8	25	0,40	3	**200**

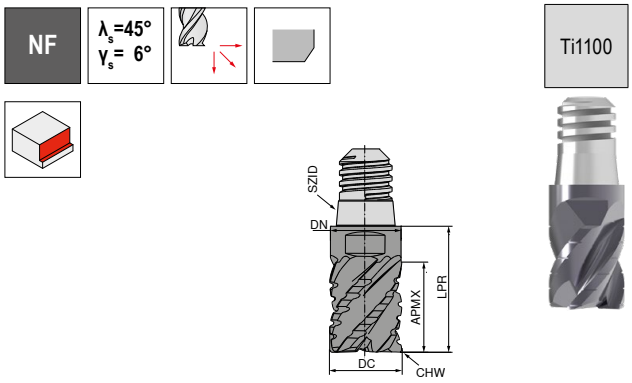
P	●
M	
K	●
N	
S	
H	
O	

→ v_c/f_z Page 446

MultiChange – Roughing-Finishing Cutter

The exchangeable head system for the highest demands and a wide range of applications

▲ With flat cord profile



Factory standard

52 862 ...

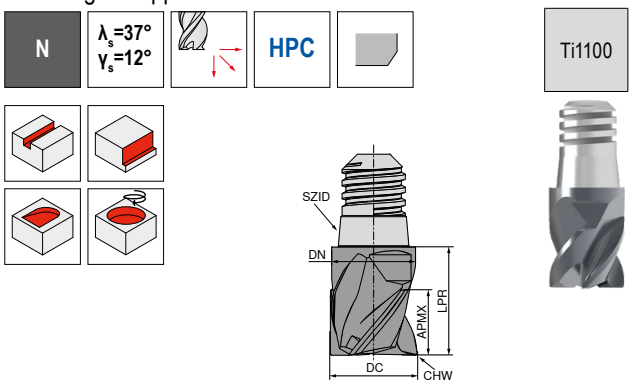
DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	CHW mm	ZEFP	
8	06	10,0	7,8	15	0,16	4	**080**
10	08	12,5	9,8	18	0,20	4	**100**
12	10	15,0	11,8	22	0,24	4	**120**
16	12	20,0	15,8	28	0,32	5	**160**
20	16	25,0	19,8	35	0,40	6	**200**

P	●
M	○
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 447

MultiChange – End Mill

The exchangeable head system for the highest demands and a wide range of applications



Factory standard

52 860 ...

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	CHW mm	ZEFP	
8	06	6,0	7,8	11	0,16	4	**080**
10	08	7,5	9,8	13	0,20	4	**100**
12	10	9,0	11,8	16	0,24	4	**120**
16	12	12,0	15,8	20	0,32	4	**160**
20	16	15,0	19,8	25	0,40	4	**200**

P	●
M	
K	●
N	
S	
H	
O	

→ v_c/f_z Page 446

Assembly instructions

▲ SZID = Coupling Size
▲ SW = Across Flats Size
▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
▲ In unstable applications, the cutting data should be reduced.

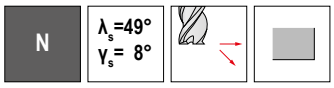
Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

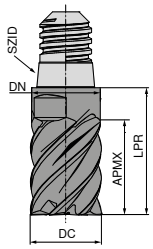
Application Tips

APMX does not correspond to the maximum cutting depth

MultiChange – Finish milling cutter

The exchangeable head system for the highest demands and a wide range of applications





Ti1100

Factory standard

52 863 ...

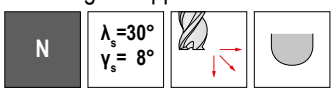
DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	
8	06	10,0	7,8	15	6	**080**
10	08	12,5	9,8	18	6	**100**
12	10	15,0	11,8	22	6	**120**
16	12	20,0	15,8	28	6	**160**
20	16	25,0	19,8	35	6	**200**

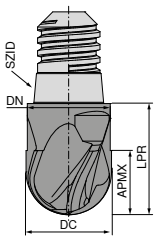
P	●
M	○
K	●
N	
S	
H	
O	

→ v_c/f_z Page 449

MultiChange – Ball Nosed Cutter

The exchangeable head system for the highest demands and a wide range of applications





Ti1100

Factory standard

52 866 ...

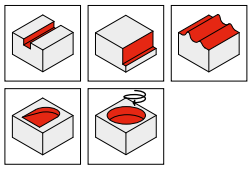
DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	
10	08	7,5	9,8	13	4	**100**
12	10	9,0	11,8	16	4	**120**
16	12	12,0	15,8	20	4	**160**
20	16	15,0	19,8	25	4	**200**

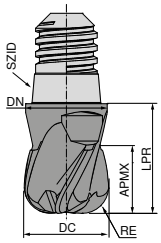
P	●
M	○
K	●
N	●
S	
H	
O	○

→ v_c/f_z Page 450+451

MultiChange – Torus Cutter

The exchangeable head system for the highest demands and a wide range of applications





Ti1100

Factory standard

52 865 ...

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	RE mm	ZEFP	
8	06	6,0	7,8	11	1,0	4	**081**
8	06	6,0	7,8	11	2,0	4	**082**
10	08	7,5	9,8	13	1,5	4	**101**
10	08	7,5	9,8	13	3,0	4	**103**
12	10	9,0	11,8	16	1,5	4	**121**
12	10	9,0	11,8	16	4,0	4	**124**
16	12	12,0	15,8	20	2,0	4	**162**
16	12	12,0	15,8	20	5,0	4	**165**
20	16	15,0	19,8	25	2,0	4	**202**
20	16	15,0	19,8	25	6,0	4	**206**

P	●
M	○
K	●
N	●
S	
H	
O	○

→ v_c/f_z Page 450+451

Assembly instructions

- ▲ SZID = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

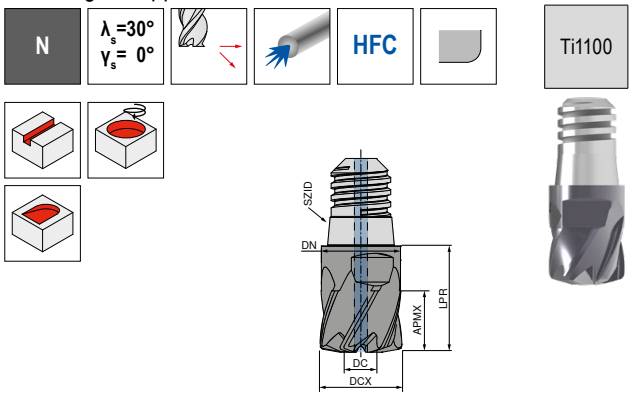
Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

Application Tips

APMX does not correspond to the maximum cutting depth

MultiChange –
High Feed Cutter

The exchangeable head system for the highest demands and a wide range of applications



Factory standard

52 864 ...

DCX mm	SZID	r_{3D} mm	APMX mm	LPR ±0,02 mm	ZEFP	
8	06	0,7	6,0	11	6	**080**
10	08	0,9	7,5	13	6	**100**
12	10	1,0	9,0	16	6	**120**
16	12	1,4	12,0	20	6	**160**
20	16	1,7	15,0	25	6	**200**

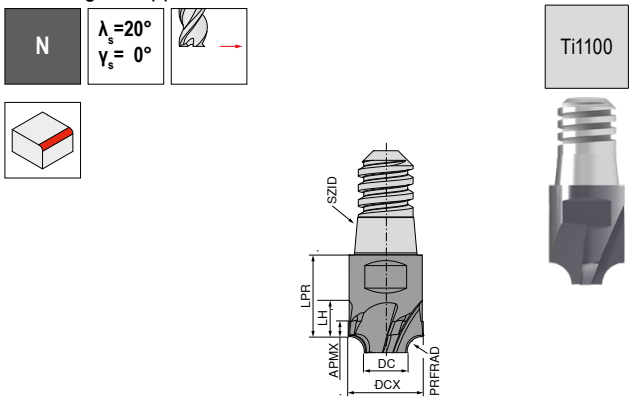
P	●
M	○
K	●
N	
S	
H	
O	

→ v_c/f_z Page 448

- ▲ r_{3D} = corner radius to be programmed
- ▲ Ø DCX tapered by 0.2 mm, resulting in Ø DN
- ▲ Ø DCX halved, resulting in Ø DC

MultiChange –
Quarter-round milling cutter

The exchangeable head system for the highest demands and a wide range of applications



Factory standard

52 869 ...

DCX mm	SZID	PRFRAD ±0,03 mm	APMX mm	DC mm	LPR ±0,02 mm	LH mm	ZEFP	
8	06	0,5	2,0	6,63	11	4,5	4	**080**
8	06	1,0	3,0	5,69	11	5,0	4	**081**
10	08	1,5	4,0	6,63	13	6,5	4	**100**
10	08	2,0	4,5	5,69	13	7,0	4	**101**
12	10	2,5	5,5	6,65	16	8,5	4	**120**
12	10	3,0	6,0	5,70	16	9,0	4	**121**
12	10	3,5	6,5	4,76	16	9,5	4	**122**
16	12	4,0	8,0	7,60	20	12,0	4	**160**
16	12	4,5	8,5	6,68	20	12,5	4	**161**
16	12	5,0	9,0	5,74	20	13,0	4	**162**
20	16	5,0	10,0	9,53	25	15,0	4	**200**
20	16	6,0	11,0	7,64	25	16,0	4	**201**

P	●
M	○
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 453

Assembly instructions

- ▲ SZID = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

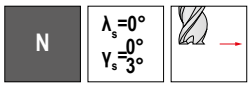
Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

Application Tips

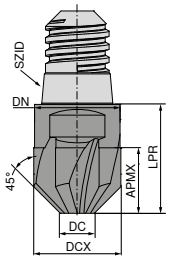
APMX does not correspond to the maximum cutting depth

MultiChange – Deburring Cutter

The exchangeable head system for the highest demands and a wide range of applications



Ti1050



Factory standard

52 867 ...

DCX mm	SZID	APMX mm	DC mm	DN mm	LPR ±0,02 mm	ZEFP	
10	08	7,5	0,02	9,8	13	4	**100**
12	10	9,0	0,02	11,8	16	4	**120**
16	12	12,0	6,40	15,8	20	6	**160**
20	16	15,0	8,00	19,8	25	6	**200**

P	●
M	○
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 454

Assembly instructions

- ▲ SZID = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

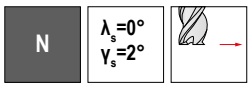
Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

Application Tips

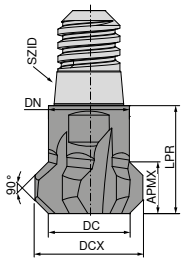
APMX does not correspond to the maximum cutting depth

MultiChange – Deburring Cutter

The exchangeable head system for the highest demands and a wide range of applications



Ti1100



Factory standard

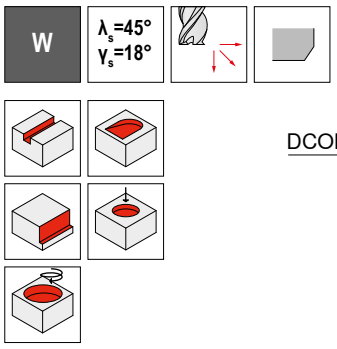
52 868 ...

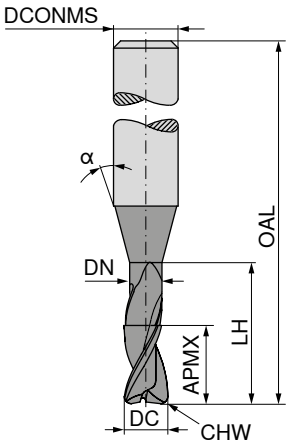
DCX mm	SZID	APMX mm	DC mm	DN mm	LPR ±0,02 mm	ZEFP	
10	06	4,8	7,5	8	11	6	**100**
12	08	5,5	9,0	10	13	6	**120**
16	10	8,0	12,0	12	16	6	**160**
20	12	9,5	15,0	16	20	6	**200**

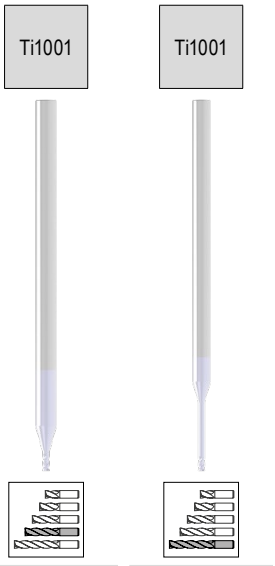
P	●
M	○
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 454

End milling cutter







Factory standard | Factory standard

DC f8	APMX	DN	LH	OAL	α°	DCONMS h5	CHW	ZEFP	50 900 ...	50 900 ...
mm	mm	mm	mm	mm		mm	mm			
0,2	0,2	0,18	0,6	55	15	3	0,02	2	**021**	
0,2	0,2	0,18	1,0	55	15	3	0,02	2	**022**	
0,2	0,2	0,18	1,6	55	15	3	0,02	2	**023**	
0,2	0,2	0,18	2,0	55	15	3	0,02	2	**024**	
0,3	0,3	0,28	0,9	55	15	3	0,03	2	**031**	
0,3	0,3	0,28	1,5	55	15	3	0,03	2	**032**	
0,3	0,3	0,28	2,4	55	15	3	0,03	2	**033**	
0,3	0,3	0,28	3,0	55	15	3	0,03	2	**034**	
0,4	0,4	0,37	1,2	55	15	3	0,04	2	**041**	
0,4	0,4	0,37	2,0	55	15	3	0,04	2	**042**	
0,4	0,4	0,37	3,2	55	15	3	0,04	2	**043**	
0,4	0,4	0,37	4,0	55	15	3	0,04	2	**044**	
0,5	0,5	0,45	1,5	55	15	3	0,05	2	**051**	
0,5	0,5	0,45	2,5	55	15	3	0,05	2	**052**	
0,5	0,5	0,45	4,0	55	15	3	0,05	2	**053**	
0,5	0,5	0,45	5,0	55	15	3	0,05	2	**054**	
0,6	0,6	0,58	2,0	55	15	3	0,06	2	**061**	
0,6	0,6	0,58	3,0	55	15	3	0,06	2	**062**	
0,6	0,6	0,58	5,0	65	15	3	0,06	2		**063**
0,6	0,6	0,58	6,0	65	15	3	0,06	2		**064**
0,8	0,8	0,77	2,5	55	15	3	0,08	2	**081**	
0,8	0,8	0,77	4,0	55	15	3	0,08	2	**082**	
0,8	0,8	0,77	6,5	65	15	3	0,08	2		**083**
0,8	0,8	0,77	8,0	65	15	3	0,08	2		**084**
1,0	1,0	0,95	3,0	55	15	3	0,10	2	**101**	
1,0	1,0	0,95	5,0	55	15	3	0,10	2	**102**	
1,0	1,0	0,95	8,0	65	15	3	0,10	2		**103**
1,0	1,0	0,95	10,0	65	15	3	0,10	2		**104**
1,0	1,0	0,95	12,0	65	15	3	0,10	2		**105**
1,2	1,2	1,15	3,0	55	15	3	0,10	2	**121**	
1,2	1,2	1,15	6,0	55	15	3	0,10	2	**122**	
1,2	1,2	1,15	10,0	65	15	3	0,10	2		**123**
1,2	1,2	1,15	12,0	65	15	3	0,10	2		**124**
1,3	1,3	1,25	4,0	55	15	3	0,10	2	**131**	
1,3	1,3	1,25	7,0	55	15	3	0,10	2	**132**	
1,3	1,3	1,25	11,0	65	15	3	0,10	2		**133**
1,3	1,3	1,25	13,0	65	15	3	0,10	2		**134**
1,5	1,5	1,44	5,0	55	15	3	0,10	2	**151**	
1,5	1,5	1,44	7,5	55	15	3	0,10	2	**152**	
1,5	1,5	1,44	12,0	65	15	3	0,10	2		**153**

P		
M		
K		
N	●	●
S		
H		
O		

→ v_c/f_z Page 480–485

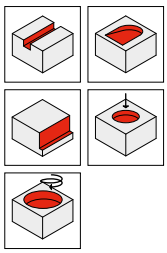
14

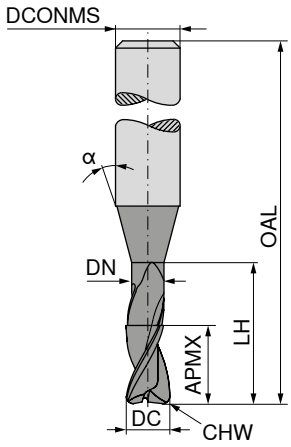
Continued on next page

End milling cutter

W

λ_s=45°
γ_s=18°





Ti1001

Factory standard

50 900 ...

Ti1001

Factory standard

50 900 ...

DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	CHW mm	ZEFP		
1,5	1,5	1,44	15,0	65	15	3	0,10	2		**154**
1,6	1,6	1,52	5,0	55	15	3	0,10	2	**161**	
1,6	1,6	1,52	8,0	55	15	3	0,10	2	**162**	
1,6	1,6	1,52	13,0	65	15	3	0,10	2		**163**
1,6	1,6	1,52	16,0	65	15	3	0,10	2		**164**
1,8	1,8	1,72	5,5	55	15	3	0,10	2	**181**	
1,8	1,8	1,72	9,0	55	15	3	0,10	2	**182**	
1,8	1,8	1,72	14,5	65	15	3	0,10	2		**183**
1,8	1,8	1,72	18,0	65	15	3	0,10	2		**184**
2,0	2,0	1,92	6,0	55	15	3	0,10	2	**201**	
2,0	2,0	1,92	10,0	55	15	3	0,10	2	**202**	
2,0	2,0	1,92	14,0	55	15	3	0,10	2	**203**	
2,0	2,0	1,92	16,0	65	15	3	0,10	2		**204**
2,0	2,0	1,92	20,0	65	15	3	0,10	2		**205**
2,3	2,3	2,22	7,0	55	15	3	0,10	2	**231**	
2,3	2,3	2,22	11,5	55	15	3	0,10	2	**232**	
2,3	2,3	2,22	18,5	65	15	3	0,10	2		**233**
2,3	2,3	2,22	20,0	65	15	3	0,10	2		**234**
2,3	2,3	2,22	23,0	65	15	3	0,10	2		**235**
3,0	3,0	2,90	9,0	65	15	6	0,10	2	**301**	
3,0	3,0	2,90	15,0	65	15	6	0,10	2	**302**	
3,0	3,0	2,90	24,0	100	15	6	0,10	2		**303**
3,0	3,0	2,90	30,0	100	15	6	0,10	2		**304**
4,0	4,0	3,90	12,0	65	15	6	0,10	2	**401**	
4,0	4,0	3,90	20,0	65	15	6	0,10	2	**402**	
4,0	4,0	3,90	32,0	100	15	6	0,10	2		**403**
4,0	4,0	3,90	40,0	100	15	6	0,10	2		**404**
5,0	5,0	4,90	15,0	65	15	6	0,10	2	**501**	
5,0	5,0	4,90	25,0	65	15	6	0,10	2	**502**	
5,0	5,0	4,90	40,0	100	15	6	0,10	2		**503**
5,0	5,0	4,90	50,0	100	15	6	0,10	2		**504**
6,0	6,0	5,90	18,0	65	15	6	0,10	2	**601**	
6,0	6,0	5,90	30,0	100	15	6	0,10	2		**602**
6,0	6,0	5,90	48,0	100	15	6	0,10	2		**603**
6,0	6,0	5,90	60,0	100	15	6	0,10	2		**604**

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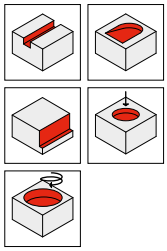
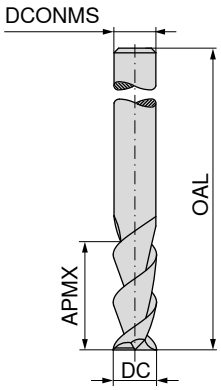
→ v_c/f_z Page 480–485

End milling cutter

W | λ_s=55° γ_s= 5° | HPC





≈DIN 6527

50 960 ...

DC h6 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	
3	12	50	3	2	**030**
4	15	50	4	2	**040**
5	20	50	5	2	**050**
6	20	57	6	2	**060**
8	20	63	8	2	**080**
10	25	73	10	2	**100**
12	25	83	12	2	**120**
14	30	83	14	2	**140**
16	30	92	16	2	**160**
20	38	104	20	2	**200**

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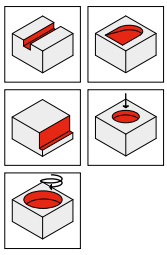
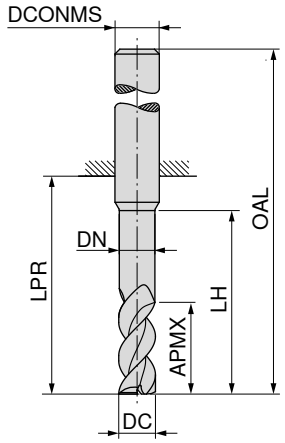
→ v_c/f_z Page 460+461

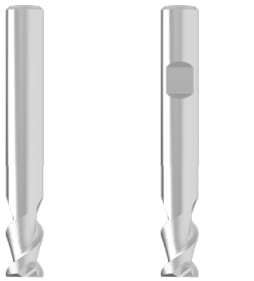
14

End milling cutter

W | λ_s=55° γ_s= 7° | HPC







	Factory standard	Factory standard
	54 590 ...	54 591 ...

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP		
2,7	5,0	2,5	12	19	55	6	2	**027**	**027**
3,0	3,5	2,8	12	19	55	6	2	**033**	
3,0	5,0	2,8	12	19	55	6	2	**031**	**031**
3,7	6,5	3,5	12	19	55	6	2	**037**	**037**
4,0	4,5	3,8	12	19	55	6	2	**043**	
4,0	6,5	3,8	12	19	55	6	2	**041**	**041**
4,7	8,0	4,5	15	22	58	6	2	**047**	**047**
5,0	5,5	4,8	15	22	58	6	2	**053**	
5,0	8,0	4,8	15	22	58	6	2	**051**	**051**
5,7	10,0	5,5	18	22	58	6	2	**057**	**057**
6,0	7,0	5,8	18	22	58	6	2	**063**	
6,0	10,0	5,8	18	22	58	6	2	**061**	**061**
6,7	13,0	6,4	24	28	64	8	2	**067**	**067**
7,0	13,0	6,7	24	28	64	8	2	**071**	**071**
7,7	13,0	7,4	24	28	64	8	2	**077**	**077**
8,0	9,0	7,7	24	28	64	8	2	**083**	
8,0	13,0	7,7	24	28	64	8	2	**081**	**081**
8,7	16,0	8,4	30	34	74	10	2	**087**	**087**
9,0	16,0	8,7	30	34	74	10	2	**091**	**091**
9,7	16,0	9,4	30	34	74	10	2	**097**	**097**
10,0	11,0	9,7	30	34	74	10	2	**103**	
10,0	16,0	9,7	30	34	74	10	2	**101**	**101**
10,7	19,0	10,3	36	40	85	12	2	**107**	**107**
11,0	19,0	10,6	36	40	85	12	2	**111**	**111**
11,7	19,0	11,3	36	40	85	12	2	**117**	**117**
12,0	13,0	11,6	36	40	85	12	2	**123**	
12,0	19,0	11,6	36	40	85	12	2	**121**	**121**
13,0	22,0	12,6	42	46	91	14	2	**131**	**131**
13,7	22,0	13,3	42	46	91	14	2	**137**	**137**
14,0	15,0	13,6	42	46	91	14	2	**143**	
14,0	22,0	13,6	42	46	91	14	2	**141**	**141**
15,0	25,0	14,5	48	52	100	16	2	**151**	**151**
15,7	25,0	15,2	48	52	100	16	2	**157**	**157**
16,0	17,0	15,5	48	52	100	16	2	**163**	
16,0	25,0	15,5	48	52	100	16	2	**161**	**161**
18,0	20,0	17,5	54	58	106	18	2	**183**	
18,0	29,0	17,5	54	58	106	18	2	**181**	**181**
19,7	32,0	19,2	60	64	114	20	2	**197**	**197**
20,0	22,0	19,5	60	64	114	20	2	**203**	
20,0	32,0	19,5	60	64	114	20	2	**201**	**201**
24,7	40,0	24,2	75	80	136	25	2	**247**	**247**
25,0	27,0	24,5	75	80	136	25	2	**253**	
25,0	40,0	24,5	75	80	136	25	2	**251**	**251**

P		
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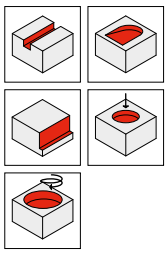
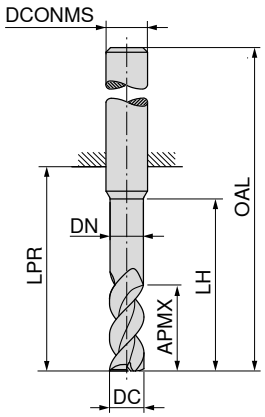
→ v_c/f_z Page 460+461

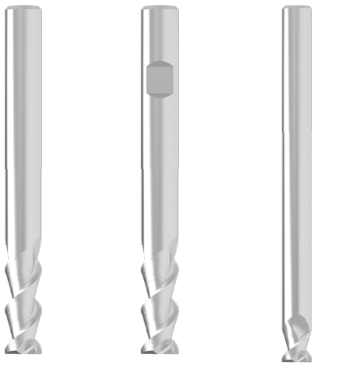
End milling cutter

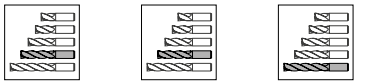
W | λ_s=55° γ_s= 7° | HPC



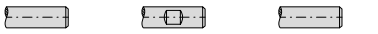


LPR with Shank DIN 6535 HB





Factory standard | Factory standard | Factory standard



								54 590 ...		54 591 ...		54 590 ...	
DC h6	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP						
mm	mm	mm	mm	mm	mm	mm							
2,7	8,0	2,5	15	22	58	6	2	**028**		**028**			
3,0	3,5	2,8	15	22	58	6	2	**034**					
3,0	8,0	2,8	15	22	58	6	2	**032**		**032**			
3,0	3,5	2,8	24	31	67	6	2						**035**
3,7	10,5	3,5	20	26	62	6	2	**038**		**038**			
4,0	4,5	3,8	20	26	62	6	2	**044**					
4,0	10,5	3,8	20	26	62	6	2	**042**		**042**			
4,0	4,5	3,8	32	38	74	6	2						**045**
4,7	13,0	4,5	25	34	70	6	2	**048**		**048**			
5,0	5,5	4,8	25	34	70	6	2	**054**					
5,0	13,0	4,8	25	34	70	6	2	**052**		**052**			
5,0	5,5	4,8	40	52	88	6	2						**055**
5,7	16,0	5,5	30	34	70	6	2	**058**		**058**			
6,0	7,0	5,8	30	34	70	6	2	**064**					
6,0	16,0	5,8	30	34	70	6	2	**062**		**062**			
6,0	7,0	5,8	48	52	88	6	2						**065**
6,7	21,0	6,4	40	44	80	8	2	**068**		**068**			
7,0	21,0	6,7	40	44	80	8	2	**072**		**072**			
7,7	21,0	7,4	40	44	80	8	2	**078**		**078**			
8,0	9,0	7,7	40	44	80	8	2	**084**					
8,0	21,0	7,7	40	44	80	8	2	**082**		**082**			
8,0	9,0	7,7	64	68	104	8	2						**085**
8,7	26,0	8,4	50	54	94	10	2	**088**		**088**			
9,0	26,0	8,7	50	54	94	10	2	**092**		**092**			
9,7	26,0	9,4	50	54	94	10	2	**098**		**098**			
10,0	11,0	9,7	50	54	94	10	2	**104**					
10,0	26,0	9,7	50	54	94	10	2	**102**		**102**			
10,0	11,0	9,7	80	84	124	10	2						**105**
10,7	31,0	10,3	60	64	109	12	2	**108**		**108**			
11,0	31,0	10,6	60	64	109	12	2	**112**		**112**			
11,7	31,0	11,3	60	64	109	12	2	**118**		**118**			
12,0	13,0	11,6	60	64	109	12	2	**124**					
12,0	31,0	11,6	60	64	109	12	2	**122**		**122**			
12,0	13,0	11,6	96	100	145	12	2						**125**
13,0	36,0	12,6	70	74	119	14	2	**132**		**132**			
13,7	36,0	13,3	70	74	119	14	2	**138**		**138**			
14,0	15,0	13,6	70	74	119	14	2	**144**					
14,0	36,0	13,6	70	74	119	14	2	**142**		**142**			
14,0	15,0	13,6	112	116	161	14	2						**145**
15,0	41,0	14,5	80	84	132	16	2	**152**		**152**			
P													
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N								●		●		●	
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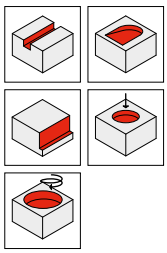
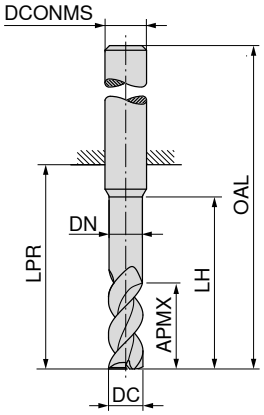
→ v_c/f_z Page 460+461

Continued on next page

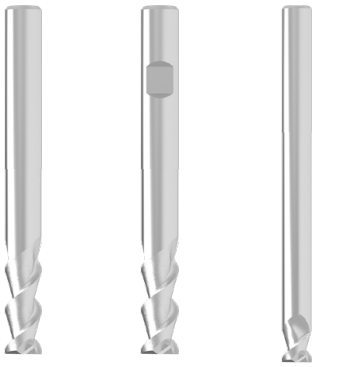
End milling cutter

W | λ_s=55° γ_s= 7° | HPC

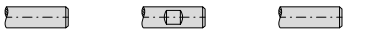




LPR with Shank DIN 6535 HB



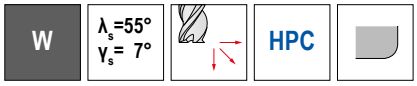
Factory standard | Factory standard | Factory standard

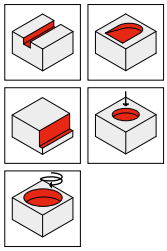


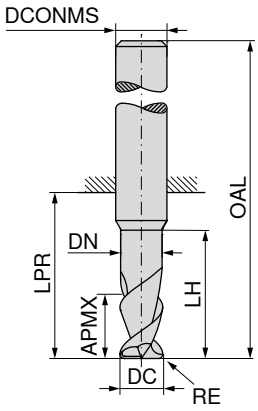
								54 590 ...		54 591 ...		54 590 ...	
DC $_{h6}$ **mm**	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP						
15,7	41,0	15,2	80	84	132	16	2	**158**		**158**			
16,0	17,0	15,5	80	84	132	16	2	**164**					
16,0	41,0	15,5	80	84	132	16	2	**162**		**162**			
16,0	17,0	15,5	128	132	180	16	2						**165**
18,0	20,0	17,5	90	94	142	18	2	**184**					
18,0	47,0	17,5	90	94	142	18	2	**182**		**182**			
18,0	20,0	17,5	144	148	196	18	2						**185**
19,7	52,0	19,2	100	104	154	20	2	**198**		**198**			
20,0	22,0	19,5	100	104	154	20	2	**204**					
20,0	52,0	19,5	100	104	154	20	2	**202**		**202**			
20,0	22,0	19,5	160	164	214	20	2						**205**
P													
M													
K													
N								●		●		●	
S													
H													
O													

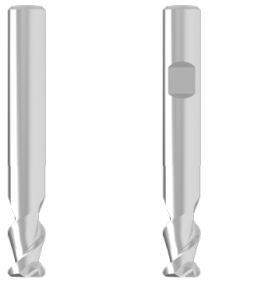
→ v_c/f_z Page 460+461

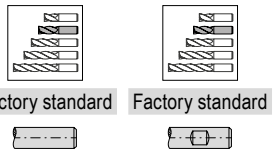
End milling cutter with corner radius











Factory standard | Factory standard

DC h6 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 594 ...		54 595 ...	
3	0,2	5,0	2,8	12	19	55	6	2	031		031	
3	0,3	5,0	2,8	12	19	55	6	2	033		033	
3	0,5	5,0	2,8	12	19	55	6	2	035		035	
4	0,3	6,5	3,8	12	19	55	6	2	041		041	
4	0,5	6,5	3,8	12	19	55	6	2	043		043	
4	1,0	6,5	3,8	12	19	55	6	2	045		045	
5	0,3	8,0	4,8	15	22	58	6	2	051		051	
5	0,5	8,0	4,8	15	22	58	6	2	053		053	
5	1,0	8,0	4,8	15	22	58	6	2	055		055	
6	0,3	10,0	5,8	18	22	58	6	2	061		061	
6	0,5	10,0	5,8	18	22	58	6	2	063		063	
6	1,0	10,0	5,8	18	22	58	6	2	065		065	
8	0,3	13,0	7,7	24	28	64	8	2	081		081	
8	0,5	13,0	7,7	24	28	64	8	2	083		083	
8	1,0	13,0	7,7	24	28	64	8	2	085		085	
10	0,3	16,0	9,7	30	34	74	10	2	101		101	
10	1,0	16,0	9,7	30	34	74	10	2	103		103	
10	1,5	16,0	9,7	30	34	74	10	2	105		105	
12	1,0	19,0	11,6	36	40	85	12	2	121		121	
12	1,5	19,0	11,6	36	40	85	12	2	123		123	
12	2,0	19,0	11,6	36	40	85	12	2	125		125	
16	2,0	25,0	15,5	48	52	100	16	2	161		161	
16	2,5	25,0	15,5	48	52	100	16	2	163		163	
16	3,0	25,0	15,5	48	52	100	16	2	165		165	
20	2,0	32,0	19,5	60	64	114	20	2	201		201	
20	2,5	32,0	19,5	60	64	114	20	2	203		203	
20	3,0	32,0	19,5	60	64	114	20	2	205		205	
20	4,0	32,0	19,5	60	64	114	20	2	206		206	
25	2,0	40,0	24,5	75	80	136	25	2	251		251	
25	4,0	40,0	24,5	75	80	136	25	2	253		253	

P		
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N	●	●
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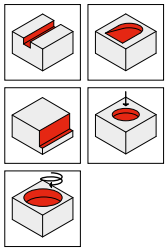
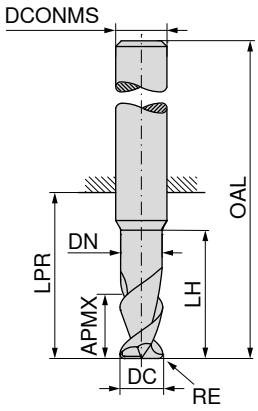
14

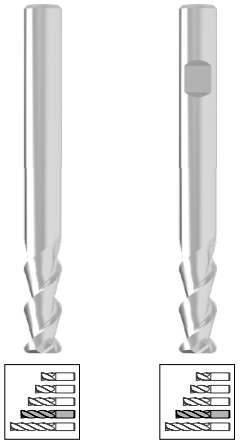
→ v_c/f_z Page 460+461

End milling cutter with corner radius

W | λ_s=55° γ_s= 7° | HPC





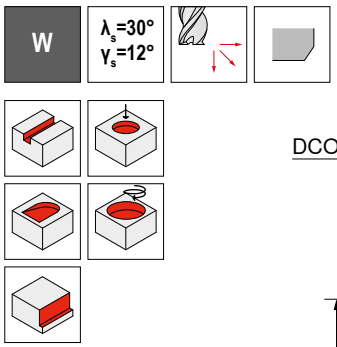


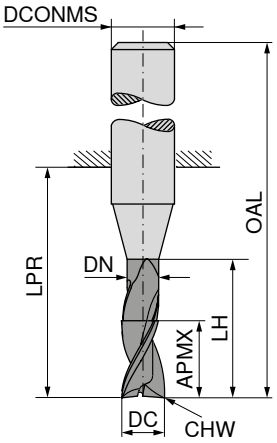
Factory standard | Factory standard

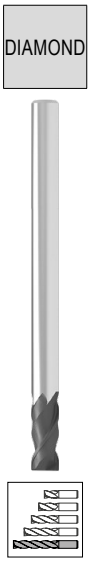
DC h6 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 594 ...	54 595 ...
3	0,2	8,0	2,8	15	22	58	6	2	032	032
3	0,3	8,0	2,8	15	22	58	6	2	034	034
3	0,5	8,0	2,8	15	22	58	6	2	036	036
4	0,3	10,5	3,8	20	26	62	6	2	042	042
4	0,5	10,5	3,8	20	26	62	6	2	044	044
4	1,0	10,5	3,8	20	26	62	6	2	046	046
5	0,3	13,0	4,8	25	34	70	6	2	052	052
5	0,5	13,0	4,8	25	34	70	6	2	054	054
5	1,0	13,0	4,8	25	34	70	6	2	056	056
6	0,3	16,0	5,8	30	34	70	6	2	062	062
6	0,5	16,0	5,8	30	34	70	6	2	064	064
6	1,0	16,0	5,8	30	34	70	6	2	066	066
8	0,3	21,0	7,7	40	44	80	8	2	082	082
8	0,5	21,0	7,7	40	44	80	8	2	084	084
8	1,0	21,0	7,7	40	44	80	8	2	086	086
10	0,5	26,0	9,7	50	54	94	10	2	102	102
10	1,0	26,0	9,7	50	54	94	10	2	104	104
10	1,5	26,0	9,7	50	54	94	10	2	106	106
12	1,0	31,0	11,6	60	64	109	12	2	122	122
12	1,5	31,0	11,6	60	64	109	12	2	124	124
12	2,0	31,0	11,6	60	64	109	12	2	126	126
16	2,0	41,0	15,5	80	84	132	16	2	162	162
16	2,5	41,0	15,5	80	84	132	16	2	164	164
16	4,0	41,0	15,5	80	84	132	16	2	166	166
20	2,0	52,0	19,5	100	104	154	20	2	202	202
20	2,5	52,0	19,5	100	104	154	20	2	204	204
20	4,0	52,0	19,5	100	104	154	20	2	207	207
25	2,0	65,0	24,5	125	130	186	25	2	252	252
25	4,0	65,0	24,5	125	130	186	25	2	254	254
P										
M										
K										
N									●	●
S										
H										
O										

→ v_c/f_z Page 460+461

Slot milling cutter







Factory standard

52 762 ...

DC mm	DC Tol.	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	
2	h10	8	1,8	31	32	60	2	0,04	2	**020**
3	h10	12	2,8	41	42	70	3	0,07	2	**030**
4	h10	15	3,8	51	52	80	4	0,07	2	**040**
5	h10	20	4,8	71	72	100	5	0,12	2	**050**
6	h10	20	5,8	63	64	100	6	0,12	2	**060**
8	h10	20	7,8	83	84	120	8	0,12	2	**080**
10	h10	25	9,8	99	100	140	10	0,20	2	**100**
12	h10	25	11,8	104	105	150	12	0,20	2	**120**

P	
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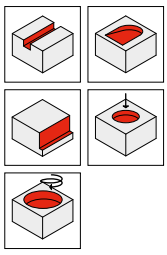
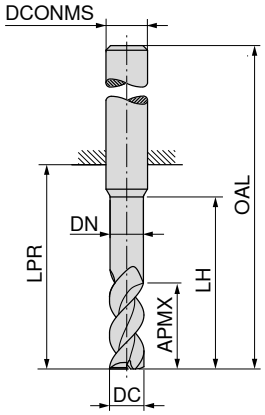
O	●

→ v_c/f_z Page 418

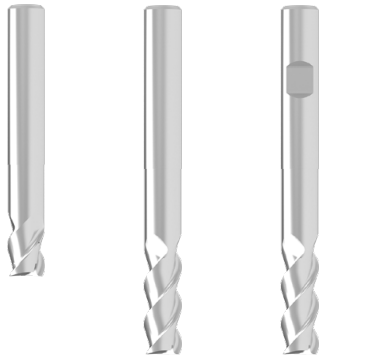
End milling cutter

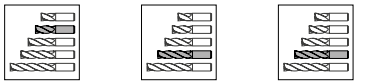
W | λ_s=45° γ_s= 7° | HPC





LPR with Shank DIN 6535 HB





Factory standard | Factory standard | Factory standard

DC h6	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	54 610 ...		54 610 ...		54 611 ...	
mm	mm	mm	mm	mm	mm	mm							
3	3,5	2,8	12	19	55	6	3		033				
3	3,5	2,8	15	22	58	6	3				034		
3	8,0	2,8	15	22	58	6	3				032		032
4	4,5	3,8	12	19	55	6	3		043				
4	4,5	3,8	20	26	62	6	3				044		
4	10,5	3,8	20	26	62	6	3				042		042
5	5,5	4,8	15	22	58	6	3		053				
5	5,5	4,8	25	34	70	6	3				054		
5	13,0	4,8	25	34	70	6	3				052		052
6	7,0	5,8	18	22	58	6	3		063				
6	7,0	5,8	30	34	70	6	3				064		
6	16,0	5,8	30	34	70	6	3				062		062
7	21,0	6,7	40	44	80	8	3				072		072
8	9,0	7,7	24	28	64	8	3		083				
8	9,0	7,7	40	44	80	8	3				084		
8	21,0	7,7	40	44	80	8	3				082		082
9	26,0	8,7	50	54	94	10	3				092		092
10	11,0	9,7	30	34	74	10	3		103				
10	11,0	9,7	50	54	94	10	3				104		
10	26,0	9,7	50	54	94	10	3				102		102
11	31,0	10,6	60	64	109	12	3				112		112
12	13,0	11,6	36	40	85	12	3		123				
12	13,0	11,6	60	64	109	12	3				124		
12	31,0	11,6	60	64	109	12	3				122		122
13	36,0	12,6	70	74	119	14	3				132		132
14	15,0	13,6	42	46	91	14	3		143				
14	15,0	13,6	70	74	119	14	3				144		
14	36,0	13,6	70	74	119	14	3				142		142
15	17,0	14,5	48	52	100	16	3		153				
15	17,0	14,5	80	84	132	16	3				154		
15	41,0	14,5	80	84	132	16	3				152		152
16	17,0	15,5	48	52	100	16	3		163				
16	17,0	15,5	80	84	132	16	3				164		
16	41,0	15,5	80	84	132	16	3				162		162
18	20,0	17,5	54	58	106	18	3		183				
18	20,0	17,5	90	94	142	18	3				184		
18	47,0	17,5	90	94	142	18	3				182		182
20	22,0	19,5	60	64	114	20	3		203				
20	22,0	19,5	100	104	154	20	3				204		
20	52,0	19,5	100	104	154	20	3				202		202
25	27,0	24,5	75	80	136	25	3		253				
25	27,0	24,5	125	130	186	25	3				254		
P													
M													
K													
N									●		●		●
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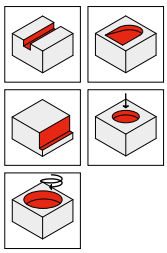
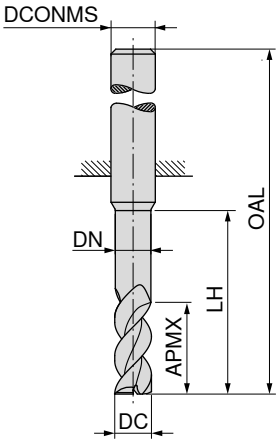
H													
O													

→ v_c/f_z Page 460+461

End milling cutter

W | λ_s=45° γ_s= 7° | HPC





Factory standard

54 610 ...

DC h6 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	
3	3,5	2,8	24	67	6	3	**035**
4	4,5	3,8	32	74	6	3	**045**
5	5,5	4,8	40	88	6	3	**055**
6	7,0	5,8	48	88	6	3	**065**
8	9,0	7,7	64	104	8	3	**085**
10	11,0	9,7	80	124	10	3	**105**
12	13,0	11,6	96	145	12	3	**125**
14	15,0	13,6	112	161	14	3	**145**
16	17,0	15,5	128	180	16	3	**165**
18	20,0	17,5	144	196	18	3	**185**
20	22,0	19,5	160	214	20	3	**205**

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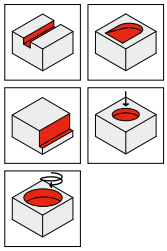
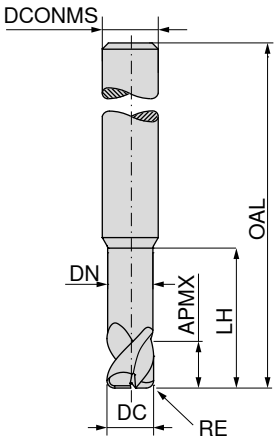
→ v_c/f_z Page 460+461

End milling cutter with corner radius

W | λ_s=45° γ_s= 7° | HPC





Factory standard

54 620 ...

DC h6 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	
3	0,4	3,5	2,8	12	55	6	3	**034**
3	0,6	3,5	2,8	12	55	6	3	**035**
4	0,4	4,5	3,8	12	55	6	3	**044**
4	0,6	4,5	3,8	12	55	6	3	**046**
5	0,4	5,5	4,8	15	58	6	3	**054**
5	0,6	5,5	4,8	15	58	6	3	**056**
6	0,4	7,0	5,8	18	58	6	3	**064**
6	0,6	7,0	5,8	18	58	6	3	**066**
8	0,4	9,0	7,7	24	64	8	3	**084**
8	0,6	9,0	7,7	24	64	8	3	**086**
8	0,8	9,0	7,7	24	64	8	3	**087**
10	1,6	11,0	9,7	30	74	10	3	**103**
12	2,0	13,0	11,6	36	85	12	3	**124**
14	0,6	15,0	13,6	42	91	14	3	**146**
14	0,8	15,0	13,6	42	91	14	3	**147**
16	1,6	17,0	15,5	48	100	16	3	**163**
16	3,2	17,0	15,5	48	100	16	3	**167**
18	1,6	20,0	17,5	54	106	18	3	**183**
20	3,2	22,0	19,5	60	114	20	3	**207**
20	5,0	22,0	19,5	60	114	20	3	**209**

P	
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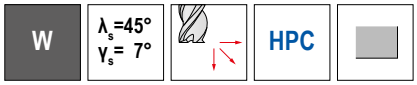
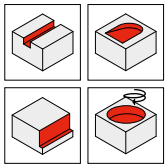
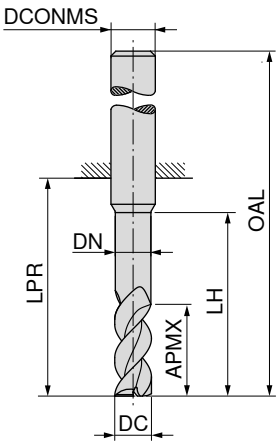
→ v_c/f_z Page 460+461

End milling cutter





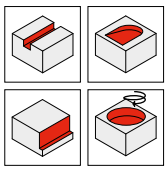


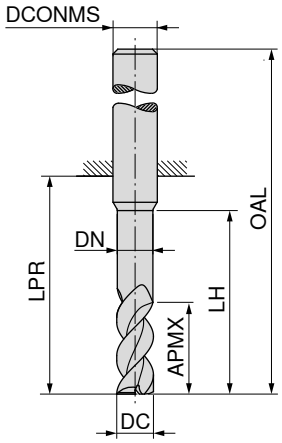
								Factory standard	Factory standard
								54 630 ...	54 631 ...
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP		
6	10	5,8	18	22	58	6	4	061	061
7	13	6,7	24	28	64	8	4	071	071
8	13	7,7	24	28	64	8	4	081	081
9	16	8,7	30	34	74	10	4	091	091
10	16	9,7	30	34	74	10	4	101	101
11	19	10,6	36	40	85	12	4	111	111
12	19	11,6	36	40	85	12	4	121	121
13	22	12,6	42	46	91	14	4	131	131
14	22	13,6	42	46	91	14	4	141	141
15	25	14,5	48	52	100	16	4	151	151
16	25	15,5	48	52	100	16	4	161	161
18	29	17,5	54	58	106	18	4	181	181
20	32	19,5	60	64	114	20	4	201	201
P									
M									
K									
N								●	●
S									
H									
O									

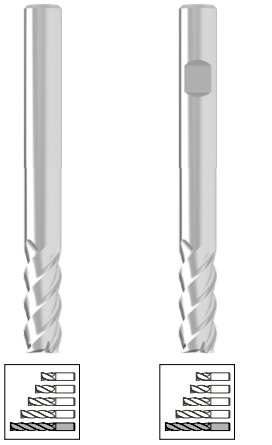
→ v_c/f_z Page 460+461

End milling cutter

W | λ_s=45° γ_s= 7° | HPC







Factory standard | Factory standard

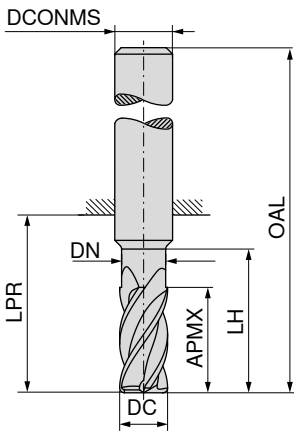
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 630 ...	54 631 ...
6	16	5,8	30	34	70	6	4	**062**	**062**
7	21	6,7	40	44	80	8	4	**072**	**072**
8	21	7,7	40	44	80	8	4	**082**	**082**
9	26	8,7	50	54	94	10	4	**092**	**092**
10	26	9,7	50	54	94	10	4	**102**	**102**
11	31	10,6	60	64	109	12	4	**112**	**112**
12	31	11,6	60	64	109	12	4	**122**	**122**
13	36	12,6	70	74	119	14	4	**132**	**132**
14	36	13,6	70	74	119	14	4	**142**	**142**
15	41	14,5	80	84	132	16	4	**152**	**152**
16	41	15,5	80	84	132	16	4	**162**	**162**
18	47	17,5	90	94	142	18	4	**182**	**182**
20	52	19,5	100	104	154	20	4	**202**	**202**

P		
M		
K		
N	●	●
S		
H		
O		

→ v_c/f_z Page 460+461

End milling cutter

W | λ_s=38° γ_s=17° | HPC



Factory standard

54 650 ...

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	
6	19	5,8	30	34	70	6	5	**062**
8	25	7,7	40	44	80	8	5	**082**
10	31	9,7	50	54	94	10	5	**102**
12	37	11,6	60	64	109	12	5	**122**
14	43	13,6	70	74	119	14	5	**142**
16	49	15,5	80	84	132	16	7	**162**
18	56	17,5	90	94	142	18	7	**182**
20	62	19,5	100	104	154	20	7	**202**

P	
M	
K	
N	●
S	
H	
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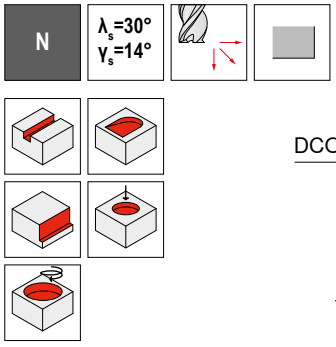
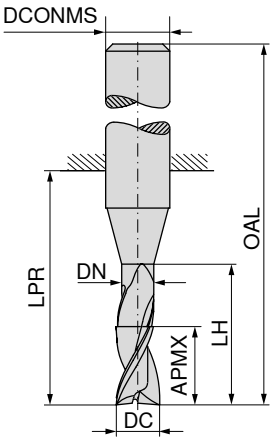
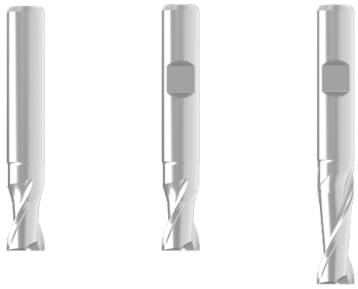
→ v_c/f_z Page 460+461

End milling cutter







Factory standard | Factory standard | Factory standard

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 942 ...	52 941 ...	52 948 ...
0,20	0,4			10	38	3	2	92000		
0,25	0,5			10	38	3	2	92500		
0,30	1,0			10	38	3	2	93000		
0,35	1,0			10	38	3	2	93500		
0,40	1,0			10	38	3	2	94000		
0,50	1,5			10	38	3	2	95000		
0,60	1,5			10	38	3	2	96000		
0,70	2,0			10	38	3	2	97000		
0,80	2,0			10	38	3	2	98000		
0,90	2,5			10	38	3	2	99000		
1,00	3,0			10	38	3	2	31000		
1,00	4,0	0,90	6	22	58	6	2			01000
1,10	3,0			10	38	3	2	31100		
1,20	4,0			10	38	3	2	31200		
1,30	4,0			10	38	3	2	31300		
1,40	4,0			10	38	3	2	31400		
1,50	3,0	1,40	6	18	54	6	2	01500	01500	
1,50	4,0			10	38	3	2	31500		
1,50	6,0	1,40	8	22	58	6	2			01500
1,60	4,0			10	38	3	2	31600		
1,80	5,0			10	38	3	2	31800		
2,00	4,0	1,90	8	18	54	6	2	02000	02000	
2,00	7,0	1,90	10	22	58	6	2			02000
2,50	4,0	2,40	8	18	54	6	2		02500	
2,50	6,0			10	38	3	2	32500		
2,80	4,0	2,70	9	18	54	6	2	02800	02800	
2,80	7,0	2,70	12	22	58	6	2			02800
3,00	6,0	2,90	9	18	54	6	2	03000	03000	
3,00	10,0	2,90	14	22	58	6	2			03000
3,50	6,0	3,30	9	18	54	6	2		03500	
3,80	7,0	3,60	12	18	54	6	2	03800	03800	
3,80	10,0	3,60	18	22	58	6	2			03800
4,00	7,0	3,80	12	18	54	6	2	04000	04000	
4,00	13,0	3,80	18	22	58	6	2			04000
4,50	7,0	4,30	12	18	54	6	2		04500	
4,80	8,0	4,60	16	18	54	6	2	04800	04800	
4,80	13,0	4,60	18	22	58	6	2			04800
5,00	8,0	4,80	16	18	54	6	2	05000	05000	
5,00	15,0	4,80	18	22	58	6	2			05000
5,50	8,0	5,30	16	18	54	6	2		05500	
5,75	10,0	5,55	16	18	54	6	2	05700	05700	

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→ v_c/f_z Page 480–483

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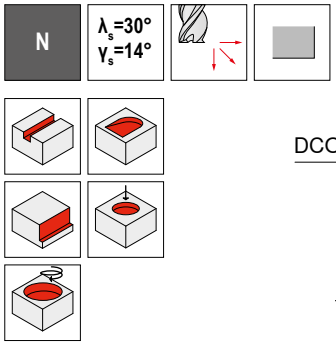
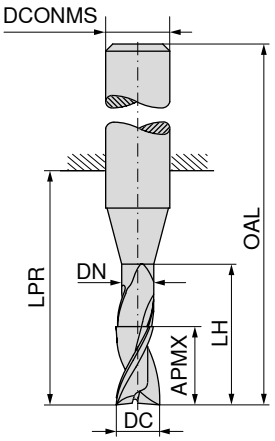
End milling cutter





Factory standard | Factory standard | Factory standard

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 942 ...	52 941 ...	52 948 ...
5,75	15,0	5,55	18	22	58	6	2			**05700**
6,00	10,0	5,80	16	18	54	6	2	**06000**	**06000**	
6,00	16,0	5,80	20	22	58	6	2			**06000**
6,75	10,0	6,45	16	23	59	8	2	**06700**	**06700**	
6,75	16,0	6,45	23	34	70	8	2			**06700**
7,00	12,0	6,70	18	23	59	8	2		**07000**	
7,00	16,0	6,70	23	34	70	8	2			**07000**
7,75	12,0	7,45	18	23	59	8	2	**07700**	**07700**	
7,75	16,0	7,45	23	34	70	8	2			**07700**
8,00	12,0	7,70	20	23	59	8	2	**08000**	**08000**	
8,00	22,0	7,70	25	34	70	8	2			**08000**
8,70	12,0	8,40	12	27	67	10	2	**08700**	**08700**	
9,70	13,0	9,40	13	27	67	10	2	**09700**	**09700**	
9,70	22,0	9,40	22	33	73	10	2			**09700**
10,00	13,0	9,70	13	27	67	10	2	**10000**	**10000**	
10,00	25,0	9,70	25	33	73	10	2			**10000**
11,00	25,0	10,60	25	39	84	12	2			**11000**
12,00	16,0	11,60	16	28	73	12	2	**12000**	**12000**	
12,00	26,0	11,60	26	39	84	12	2			**12000**
13,70	16,0	13,30	26	30	75	14	2	**13700**	**13700**	
13,70	26,0	13,30	35	39	84	14	2			**13700**
14,00	16,0	13,60	28	30	75	14	2	**14000**	**14000**	
14,00	26,0	13,60	35	39	84	14	2			**14000**
16,00	20,0	15,50	32	35	83	16	2	**16000**	**16000**	
16,00	30,0	15,50	40	45	93	16	2			**16000**
20,00	25,0	19,50	40	43	93	20	2	**20000**	**20000**	
20,00	40,0	19,50	50	54	104	20	2			**20000**

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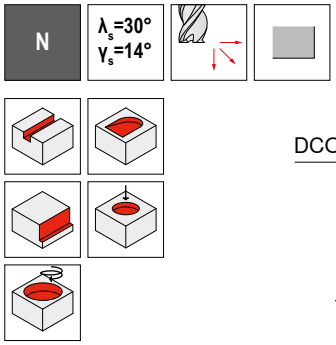
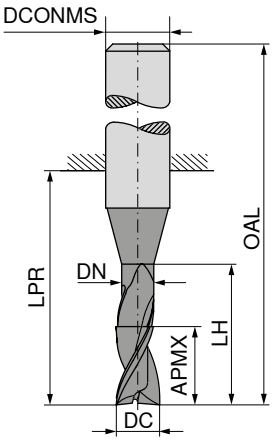
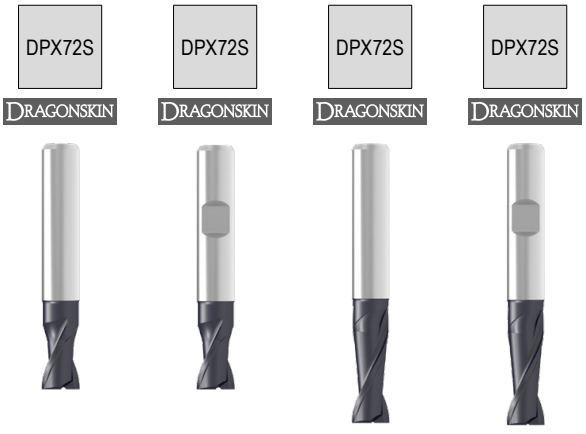
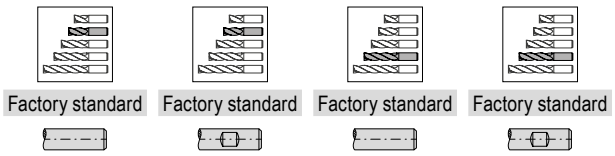
End milling cutter









DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 943 ...		52 944 ...		52 947 ...		52 949 ...	
0,20	0,4			10	38	3	2	**92000**							
0,25	0,5			10	38	3	2	**92500**							
0,30	1,0			10	38	3	2	**93000**							
0,35	1,0			10	38	3	2	**93500**							
0,40	1,0			10	38	3	2	**94000**							
0,50	1,5			10	38	3	2	**95000**							
0,60	1,5			10	38	3	2	**96000**							
0,70	2,0			10	38	3	2	**97000**							
0,80	2,0			10	38	3	2	**98000**							
0,90	2,5			10	38	3	2	**99000**							
1,00	3,0			10	38	3	2	**31000**							
1,00	4,0	0,90	6	22	58	6	2						**01000**		**01000**
1,10	3,0			10	38	3	2	**31100**							
1,20	4,0			10	38	3	2	**31200**							
1,30	4,0			10	38	3	2	**31300**							
1,40	4,0			10	38	3	2	**31400**							
1,50	4,0			10	38	3	2	**31500**							
1,50	6,0	1,40	8	22	58	6	2						**01500**		**01500**
1,50	3,0	1,40	6	18	54	6	2	**01500**		**01500**					
1,60	4,0			10	38	3	2	**31600**							
1,80	5,0			10	38	3	2	**31800**							
2,00	4,0	1,90	8	18	54	6	2	**02000**		**02000**					
2,00	7,0	1,90	10	22	58	6	2						**02000**		**02000**
2,00	5,0			10	38	3	2	**32000**							
2,50	4,0	2,40	8	18	54	6	2	**02500**		**02500**					
2,50	6,0			10	38	3	2	**32500**							
2,80	4,0	2,70	9	18	54	6	2	**02800**		**02800**					
2,80	7,0	2,70	12	22	58	6	2						**02800**		**02800**
3,00	6,0	2,90	9	18	54	6	2	**03000**		**03000**					
3,00	10,0	2,90	14	22	58	6	2						**03000**		**03000**
3,00	6,0			10	38	3	2	**33000**							
3,50	6,0	3,30	9	18	54	6	2	**03500**		**03500**					
3,80	7,0	3,60	12	18	54	6	2	**03800**		**03800**					
3,80	10,0	3,60	18	22	58	6	2						**03800**		**03800**
4,00	7,0	3,80	12	18	54	6	2	**04000**		**04000**					
4,00	13,0	3,80	18	22	58	6	2						**04000**		**04000**
4,50	7,0	4,30	12	18	54	6	2	**04500**		**04500**					
4,80	8,0	4,60	16	18	54	6	2	**04800**		**04800**					
4,80	13,0	4,60	18	22	58	6	2						**04800**		**04800**
5,00	8,0	4,80	16	18	54	6	2	**05000**		**05000**					

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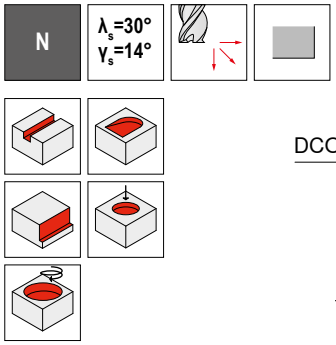
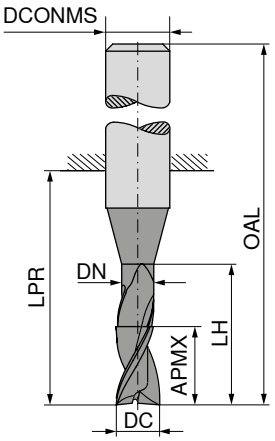
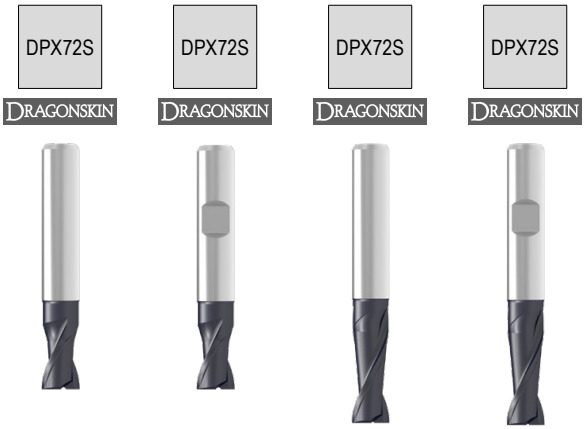
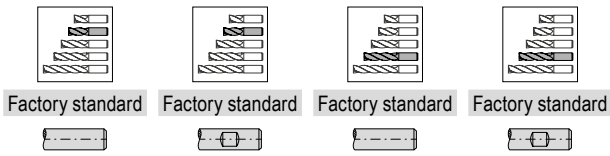
End milling cutter









DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 943 ...	52 944 ...	52 947 ...	52 949 ...
5,00	15,0	4,80	18	22	58	6	2			05000	05000
5,50	8,0	5,30	16	18	54	6	2	05500	05500		
5,75	10,0	5,55	16	18	54	6	2	05700	05700		
5,75	15,0	5,55	18	22	58	6	2			05700	05700
6,00	10,0	5,80	16	18	54	6	2	06000	06000		
6,00	16,0	5,80	20	22	58	6	2			06000	06000
6,75	10,0	6,45	16	23	59	8	2		06700		
6,75	16,0	6,45	23	34	70	8	2			06700	06700
7,00	12,0	6,70	18	23	59	8	2	07000	07000		
7,00	16,0	6,70	23	34	70	8	2			07000	07000
7,75	12,0	7,45	18	23	59	8	2	07700	07700		
7,75	16,0	7,45	23	34	70	8	2			07700	07700
8,00	12,0	7,70	20	23	59	8	2	08000	08000		
8,00	22,0	7,70	25	34	70	8	2			08000	08000
8,70	12,0	8,40	12	27	67	10	2		08700		
9,00	13,0	8,70	13	27	67	10	2	09000	09000		
9,00	22,0	8,70	22	33	73	10	2			09000	09000
9,70	13,0	9,40	13	27	67	10	2	09700	09700		
9,70	22,0	9,40	22	33	73	10	2			09700	09700
10,00	13,0	9,70	13	27	67	10	2	10000	10000		
10,00	25,0	9,70	25	33	73	10	2			10000	10000
11,00	25,0	10,60	25	39	84	12	2			11000	11000
11,70	16,0	11,30	16	28	73	12	2	11700	11700		
12,00	16,0	11,60	16	28	73	12	2	12000	12000		
12,00	26,0	11,60	26	39	84	12	2			12000	12000
13,70	16,0	13,30	26	30	75	14	2		13700		
14,00	16,0	13,60	28	30	75	14	2	14000	14000		
16,00	20,0	15,50	32	35	83	16	2	16000	16000		
16,00	30,0	15,50	40	45	93	16	2			16000	16000
18,00	20,0	17,50	34	37	85	18	2	18000	18000		
20,00	25,0	19,50	40	43	93	20	2	20000	20000		
20,00	40,0	19,50	50	54	104	20	2			20000	20000

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→ v_c/f_z Page 480–483

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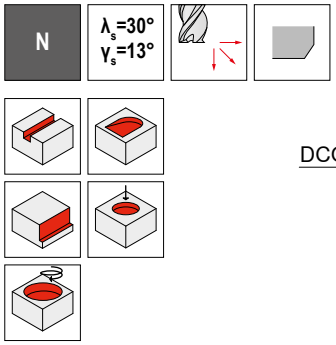
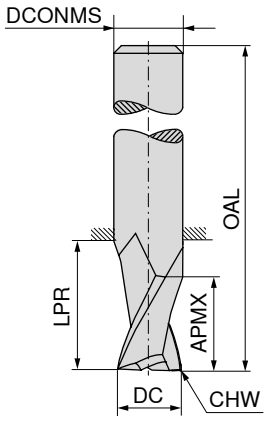
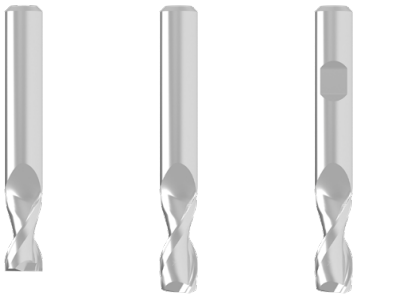
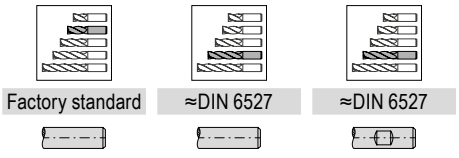
End milling cutter









							Factory standard	≈DIN 6527	≈DIN 6527
							50 593 ...	50 594 ...	50 594 ...
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP			
0,25	0,5	10	38	3,0		2		925	
0,30	1,0	10	38	3,0		2		930	
0,35	1,0	10	38	3,0		2		935	
0,40	1,0	10	38	3,0		2		940	
0,50	1,5	10	38	3,0		2		950	
0,60	1,5	10	38	3,0		2		960	
0,70	2,0	10	38	3,0		2		970	
0,80	2,0	10	38	3,0		2		980	
0,90	2,5	10	38	3,0		2		990	
1,00	3,0	22	50	3,0		2		010	
1,10	3,0	22	50	3,0		2		011	
1,20	4,0	22	50	3,0		2		012	
1,40	4,0	22	50	3,0		2		014	
1,50	4,0	22	50	3,0		2		015	
1,60	4,0	22	50	3,0		2		016	
1,80	5,0	22	50	3,0		2		018	
2,00	5,0	22	50	3,0	0,07	2		020	
2,00	8,0	8	32	2,0	0,07	2	020		
2,50	6,0	22	50	3,0	0,07	2		025	
2,50	8,0	8	32	2,5	0,07	2	025		
2,80	8,0	21	57	6,0	0,07	2			028
3,00	8,0	21	57	6,0	0,15	2			030
3,00	12,0	12	32	3,0	0,15	2	030		
3,50	12,0	12	32	3,5	0,15	2	035		
3,80	11,0	21	57	6,0	0,15	2			038
4,00	11,0	21	57	6,0	0,15	2			040
4,00	12,0	12	40	4,0	0,15	2	040		
4,50	14,0	22	50	4,5	0,15	2	045		
4,80	13,0	21	57	6,0	0,15	2			048
5,00	13,0	21	57	6,0	0,15	2			050
5,00	14,0	22	50	5,0	0,15	2	050		
5,50	16,0	22	50	5,5	0,15	2	055		
5,80	13,0	21	57	6,0	0,15	2			058
6,00	13,0	21	57	6,0	0,15	2			060
6,50	16,0	16	50	6,5	0,15	2	065		
6,80	16,0	27	63	8,0	0,15	2			068
7,00	16,0	27	63	8,0	0,15	2			070
7,00	20,0	24	60	7,0	0,15	2	070		
7,50	20,0	24	60	7,5	0,15	2	075		
7,80	19,0	27	63	8,0	0,15	2			078
P							●	●	●
M							○	○	○
K							●	●	●
N							○	○	○
S							○	○	○
H									
O							○	○	○

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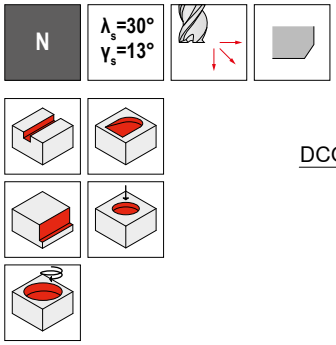
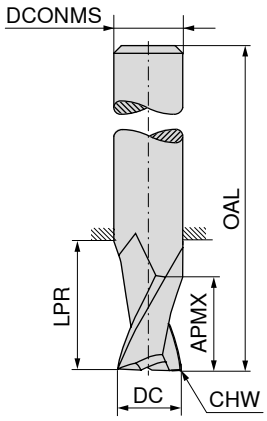
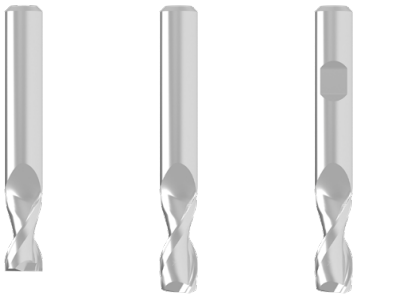
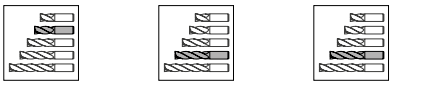
Continued on next page

End milling cutter









	Factory standard	≈DIN 6527	≈DIN 6527
	50 593 ...	50 594 ...	50 594 ...

DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP			
8,00	19,0	27	63	8,0	0,15	2			**080**
8,50	20,0	24	60	8,5	0,15	2	**085**		
8,70	19,0	32	72	10,0	0,15	2			**087**
9,00	19,0	32	72	10,0	0,15	2			**090**
9,00	20,0	24	60	9,0	0,15	2	**090**		
9,50	22,0	34	70	9,5	0,15	2	**095**		
9,70	22,0	32	72	10,0	0,15	2			**097**
10,00	22,0	32	72	10,0	0,15	2			**100**
10,70	26,0	38	83	12,0	0,15	2			**107**
11,00	22,0	30	70	11,0	0,15	2	**110**		
11,00	26,0	38	83	12,0	0,15	2			**110**
11,70	26,0	38	83	12,0	0,15	2			**117**
12,00	26,0	38	83	12,0	0,15	2			**120**
13,00	25,0	30	75	13,0	0,15	2	**130**		
13,70	26,0	38	83	14,0	0,15	2			**137**
14,00	22,0	30	75	14,0	0,15	2	**140**		
14,00	26,0	38	83	14,0	0,15	2			**140**
15,00	25,0	30	75	15,0	0,15	2	**150**		
15,70	32,0	44	92	16,0	0,15	2			**157**
16,00	32,0	44	92	16,0	0,15	2			**160**
17,70	32,0	44	92	18,0	0,15	2			**177**
18,00	32,0	44	92	18,0	0,15	2			**180**
19,70	38,0	54	104	20,0	0,15	2			**197**
20,00	38,0	54	104	20,0	0,15	2			**200**

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

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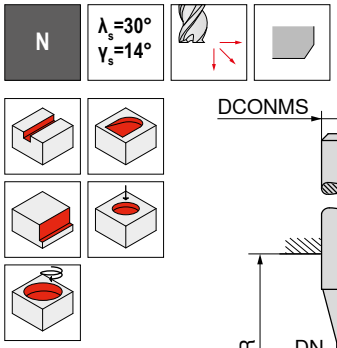
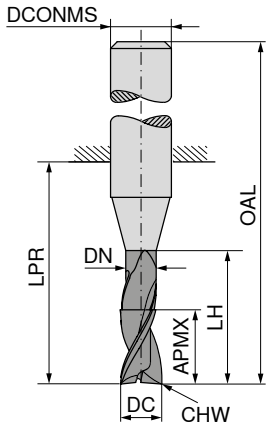
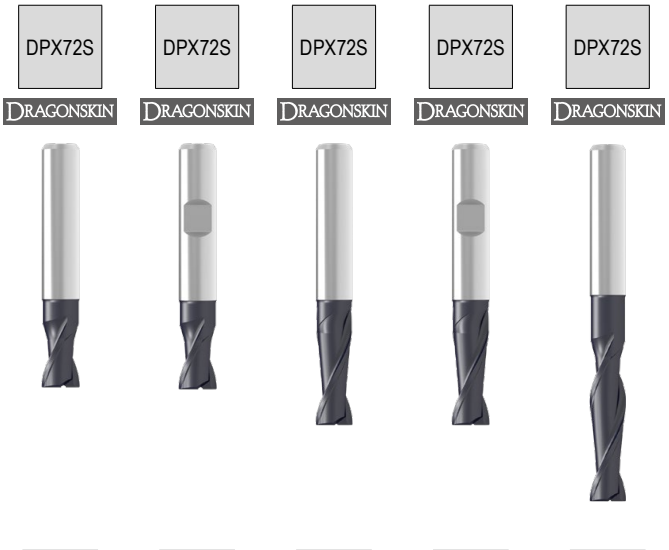
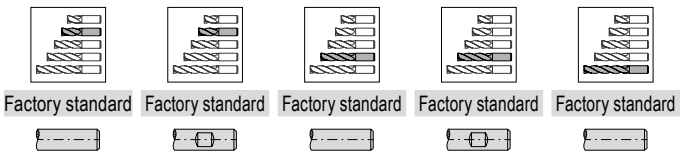
End milling cutter









DC e8	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	52 939 ...	52 940 ...	52 945 ...	52 946 ...	52 950 ...
mm	mm	mm	mm	mm	mm	mm	mm						
2,00	4	1,90	8	18	54	6	0,04	2	**02000**	**02000**			
2,00	5			10	38	3	0,04	2	**32000**				
2,00	6			10	38	2	0,04	2			**22000**		
2,00	7	1,90	10	22	58	6	0,04	2				**02000**	
2,50	4	2,40	8	18	54	6	0,07	2	**02500**	**02500**			
2,50	6			10	38	3	0,07	2	**32500**				
2,80	4	2,70	9	18	54	6	0,07	2	**02800**	**02800**			
2,80	7			10	38	3	0,07	2			**32800**		
2,80	7	2,70	12	22	58	6	0,07	2				**02800**	
3,00	6	2,90	9	18	54	6	0,07	2	**03000**	**03000**			
3,00	6			10	38	3	0,07	2	**33000**				
3,00	7			10	38	3	0,07	2			**33000**		
3,00	10	2,90	14	22	58	6	0,07	2				**03000**	
3,00	20	2,90	24	32	60	3	0,07	2					**33000**
3,50	6	3,30	9	18	54	6	0,07	2	**03500**	**03500**			
3,80	7	3,60	12	18	54	6	0,07	2	**03800**	**03800**			
3,80	8	3,60	20	22	50	4	0,07	2			**43800**		
3,80	10	3,60	18	22	58	6	0,07	2				**03800**	
4,00	7	3,80	12	18	54	6	0,07	2	**04000**	**04000**			
4,00	8	3,80	20	22	50	4	0,07	2			**44000**		
4,00	13	3,80	18	22	58	6	0,07	2				**04000**	
4,00	30	3,80	35	47	75	4	0,07	2					**44000**
4,50	7	4,30	12	18	54	6	0,12	2	**04500**	**04500**			
4,80	8	4,60	16	18	54	6	0,12	2	**04800**	**04800**			
4,80	10	4,60	20	22	50	5	0,12	2			**54800**		
4,80	13	4,60	18	22	58	6	0,12	2				**04800**	
5,00	8	4,80	16	18	54	6	0,12	2	**05000**	**05000**			
5,00	10	4,80	20	22	50	5	0,12	2			**55000**		
5,00	15	4,80	18	22	58	6	0,12	2				**05000**	
5,00	30	4,80	35	47	75	5	0,12	2					**55000**
5,50	8	5,30	16	18	54	6	0,12	2	**05500**	**05500**			
5,75	10	5,55	16	18	54	6	0,12	2	**05700**	**05700**			
5,75	15	5,55	18	22	58	6	0,12	2			**05700**	**05700**	
6,00	10	5,80	16	18	54	6	0,12	2	**06000**	**06000**			
6,00	16	5,80	20	22	58	6	0,12	2			**06000**	**06000**	
6,00	40	5,80	60	64	100	6	0,12	2					**06000**
6,75	16	6,45	23	34	70	8	0,12	2			**06700**	**06700**	
7,00	12	6,70	18	23	59	8	0,12	2	**07000**	**07000**			

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

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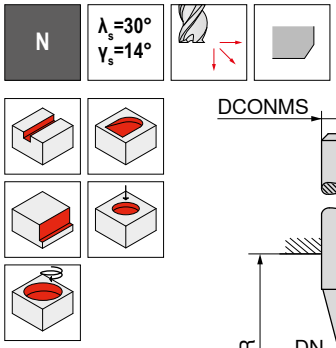
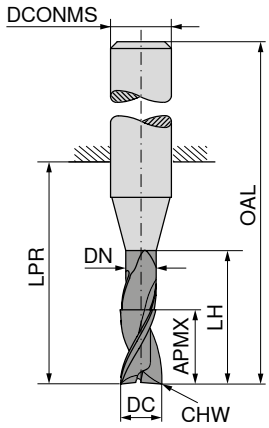
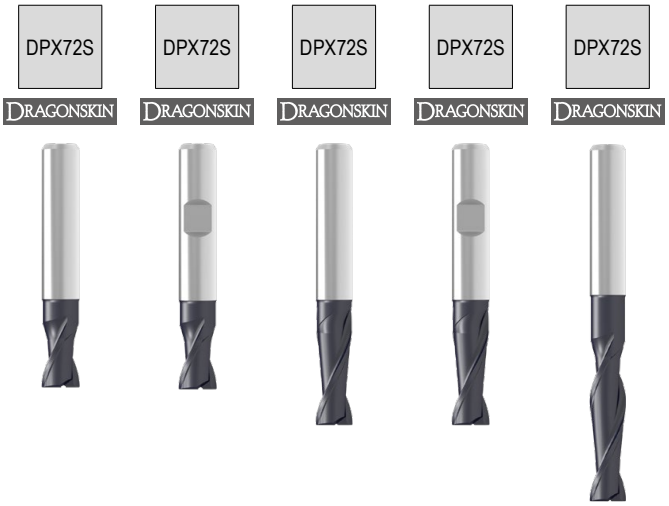
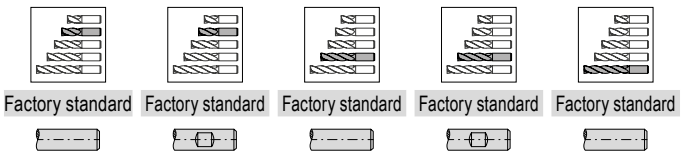
End milling cutter









DC e8	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	52 939 ...		52 940 ...		52 945 ...		52 946 ...		52 950 ...	
mm	mm	mm	mm	mm	mm	mm	mm											
7,00	16	6,70	23	34	70	8	0,12	2						07000		07000		
7,75	12	7,45	18	23	59	8	0,12	2	07700		07700							
7,75	16	7,45	23	34	70	8	0,12	2						07700		07700		
8,00	12	7,70	20	23	59	8	0,12	2	08000		08000							
8,00	22	7,70	25	34	70	8	0,12	2						08000		08000		
8,00	40	7,70	60	64	100	8	0,12	2										08000
9,00	13	8,70	22	27	67	10	0,20	2	09000		09000							
9,00	22	8,70	28	33	73	10	0,20	2						09000		09000		
9,70	13	9,40	22	27	67	10	0,20	2	09700		09700							
9,70	22	9,40	28	33	73	10	0,20	2						09700		09700		
10,00	13	9,70	24	27	67	10	0,20	2	10000		10000							
10,00	25	9,70	30	33	73	10	0,20	2						10000		10000		
10,00	40	9,70	55	60	100	10	0,20	2										10000
11,00	25	10,60	32	39	84	12	0,20	2						11000		11000		
12,00	16	11,60	26	28	73	12	0,20	2	12000		12000							
12,00	26	11,60	35	39	84	12	0,20	2						12000		12000		
12,00	45	11,60	50	55	100	12	0,20	2										12000
13,70	26	13,30	35	39	84	14	0,20	2						13700		13700		
14,00	16	13,60	28	30	75	14	0,20	2	14000		14000							
14,00	26	13,60	35	39	84	14	0,20	2						14000		14000		
16,00	20	15,50	32	35	83	16	0,20	2	16000		16000							
16,00	30	15,50	40	45	93	16	0,20	2						16000		16000		
16,00	65	15,50	90	102	150	16	0,20	2										16000
20,00	25	19,50	40	43	93	20	0,30	2	20000		20000							
20,00	40	19,50	50	54	104	20	0,30	2						20000		20000		
20,00	65	19,50	90	100	150	20	0,30	2										20000

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

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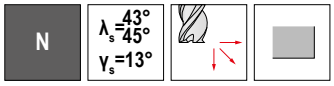
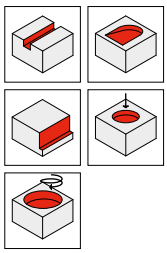
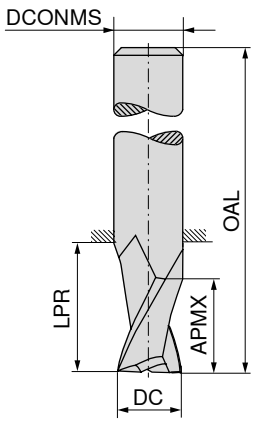
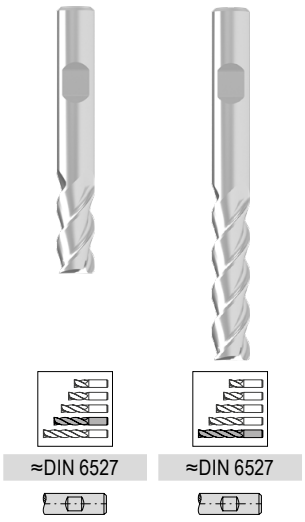
End milling cutter





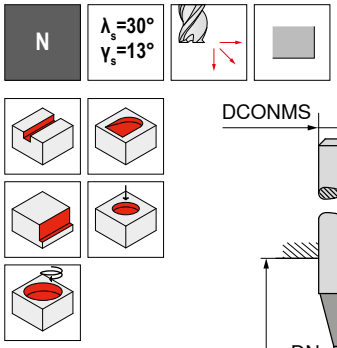


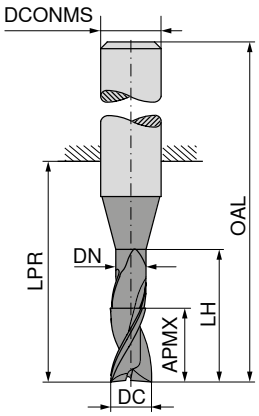


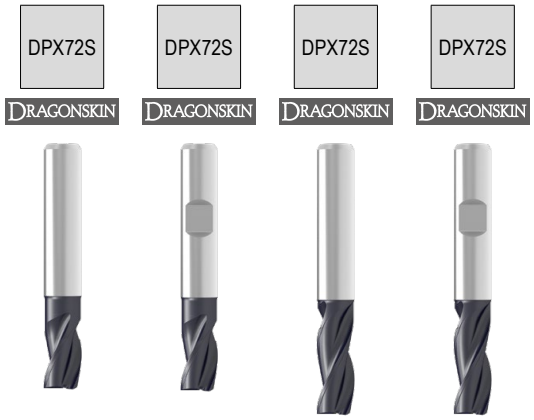
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 614 ...	50 614 ...
3,0	8	21	57	6	3	030	
3,5	11	21	57	6	3	035	
3,5	15	23	59	6	3		036
4,0	11	21	57	6	3	040	
4,0	19	27	63	6	3		041
4,5	13	21	57	6	3	045	
4,5	19	27	63	6	3		046
5,0	13	21	57	6	3	050	
5,0	24	32	68	6	3		051
5,5	13	21	57	6	3	055	
5,5	24	32	68	6	3		056
6,0	13	21	57	6	3	060	
6,0	24	32	68	6	3		061
6,5	16	27	63	8	3	065	
6,5	30	44	80	8	3		066
7,0	16	27	63	8	3	070	
7,0	30	44	80	8	3		071
7,5	19	27	63	8	3	075	
7,5	30	44	80	8	3		076
8,0	19	27	63	8	3	080	
8,0	38	52	88	8	3		081
8,5	19	32	72	10	3	085	
8,5	38	48	88	10	3		086
9,0	19	32	72	10	3	090	
9,0	38	48	88	10	3		091
9,5	22	32	72	10	3	095	
9,5	38	48	88	10	3		096
10,0	22	32	72	10	3	100	
10,0	45	55	95	10	3		101
11,0	26	38	83	12	3	110	
11,0	45	57	102	12	3		111
12,0	26	38	83	12	3	120	
12,0	53	65	110	12	3		121
14,0	26	38	83	14	3	140	
14,0	53	65	110	14	3		141
16,0	32	44	92	16	3	160	
16,0	63	75	123	16	3		161
18,0	32	44	92	18	3	180	
18,0	63	75	123	18	3		181
20,0	38	54	104	20	3	200	
20,0	75	91	141	20	3		201
P						○	○
M						●	●
K						○	○
N						○	○
S						●	●
H							
O						○	○

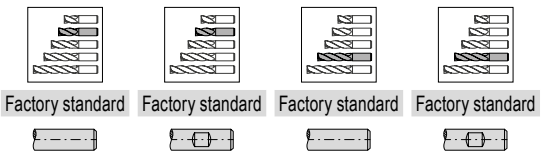
→ v_c/f_z Page 480–485

End milling cutter







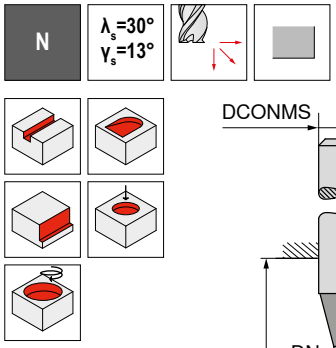


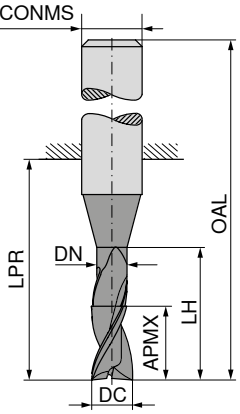
								52 921 ...		52 922 ...		52 926 ...		52 927 ...	
DC e8	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP								
mm	mm	mm	mm	mm	mm	mm									
1,00	4	0,90	5	22	58	6	3						01000		
1,00	4			22	58	6	3								01000
1,50	3	1,40	6	18	54	6	3	01500		01500					
1,50	3	1,40	6	10	38	3	3	31500							
1,50	6	1,40	7	22	58	6	3						01500		
1,50	6			22	58	6	3								01500
2,00	4	1,90	8	18	54	6	3	02000		02000					
2,00	4	1,90	8	10	38	3	3	32000							
2,00	7	1,90	8	22	58	6	3						02000		
2,00	7			22	58	6	3								02000
2,50	4	2,40	8	18	54	6	3	02500		02500					
2,50	4	2,40	8	10	38	3	3	32500							
2,80	6	2,70	9	18	54	6	3	02800		02800					
3,00	6	2,90	9	18	54	6	3	03000		03000					
3,00	6	2,90	9	10	38	3	3	33000							
3,00	10	2,90	14	22	58	6	3						03000		03000
3,50	6	3,30	9	18	54	6	3	03500		03500					
3,80	6	3,60	12	18	54	6	3	03800		03800					
4,00	7	3,80	12	18	54	6	3	04000		04000					
4,00	13	3,80	17	22	58	6	3						04000		04000
4,50	7	4,30	12	18	54	6	3	04500		04500					
4,80	8	4,60	16	18	54	6	3	04800		04800					
5,00	8	4,80	16	18	54	6	3	05000		05000					
5,00	15	4,80	19	22	58	6	3						05000		05000
5,50	8	5,30	16	18	54	6	3	05500		05500					
5,75	8	5,55	16	18	54	6	3	05700		05700					
6,00	10	5,80	16	18	54	6	3	06000		06000					
6,00	16	5,80	20	22	58	6	3						06000		06000
7,00	19	6,70	23	28	64	8	3						07000		07000
7,75	10	7,45	18	22	58	8	3	07700		07700					
8,00	12	7,70	20	23	59	8	3	08000		08000					
8,00	22	7,70	26	34	70	8	3						08000		08000
9,00	23	8,70	28	32	72	10	3						09000		09000
9,70	12	9,40	18	19	59	10	3	09700		09700					
10,00	13	9,70	24	27	67	10	3	10000		10000					
10,00	25	9,70	31	33	73	10	3						10000		10000
11,00	25	10,60	34	38	83	12	3						11000		11000
11,70	16	11,30	20	22	67	12	3	11700		11700					
P								●		●		●		●	
M								○		○		○		○	
K								●		●		●		●	
N								○		○		○		○	
S								○		○		○		○	
H								○		○		○		○	
O								○		○		○		○	

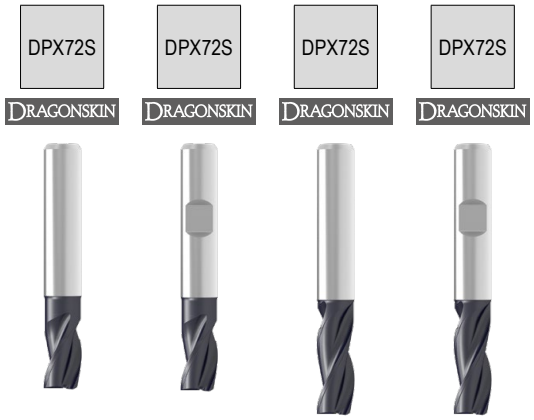
→ v_c/f_z Page 480–483

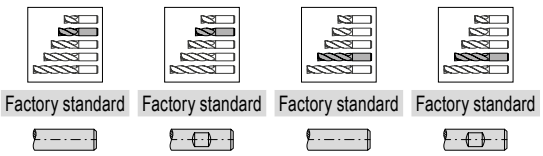
Continued on next page

End milling cutter







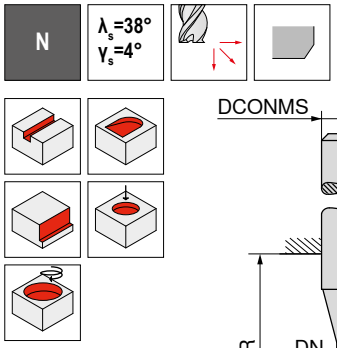


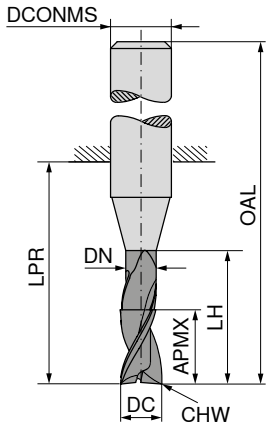
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 921 ...		52 922 ...		52 926 ...		52 927 ...	
12,00	16	11,60	26	28	73	12	3	**12000**		**12000**					
12,00	26	11,60	37	39	84	12	3					**12000**		**12000**	
14,00	16	13,60	28	30	75	14	3	**14000**		**14000**					
14,00	26	13,60	37	39	84	14	3					**14000**		**14000**	
16,00	20	15,50	32	35	83	16	3	**16000**		**16000**					
16,00	32	15,50	43	45	93	16	3					**16000**		**16000**	
20,00	25	19,50	40	43	93	20	3	**20000**		**20000**					
20,00	40	19,50	52	54	104	20	3					**20000**		**20000**	

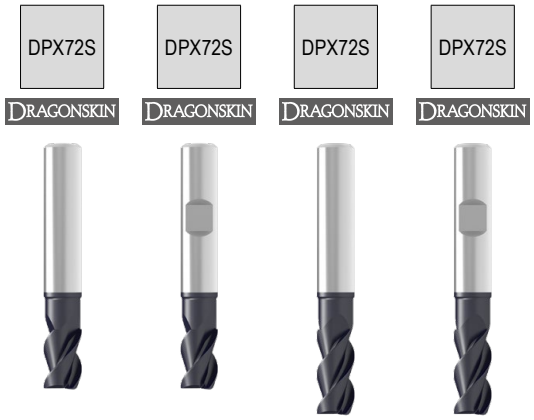
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

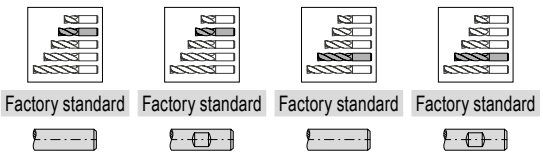
→ v_c/f_z Page 480–483

End milling cutter









DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	CHW mm	DCONMS h6 mm	ZEFP	52 929 ...	52 930 ...	52 932 ...	52 933 ...
2,0	4	1,9	8	18	54	0,04	6	3	02000	02000		
2,0	7	1,9	10	22	58	0,04	6	3			02000	02000
2,5	5	2,4	8	18	54	0,07	6	3	02500	02500		
3,0	6	2,9	9	18	54	0,07	6	3	03000	03000		
3,0	10	2,9	14	22	58	0,07	6	3			03000	03000
4,0	7	3,8	12	18	54	0,07	6	3	04000	04000		
4,0	13	3,8	17	22	58	0,07	6	3			04000	04000
5,0	8	4,8	16	18	54	0,12	6	3	05000	05000		
5,0	15	4,8	19	22	58	0,07	6	3			05000	05000
6,0	10	5,8	16	18	54	0,12	6	3	06000	06000		
6,0	16	5,8	20	22	58	0,12	6	3			06000	06000
7,0	11	6,7	18	23	59	0,12	8	3	07000	07000		
7,0	19	6,7	23	34	70	0,12	8	3			07000	07000
8,0	12	7,7	20	23	59	0,12	8	3	08000	08000		
8,0	22	7,7	26	34	70	0,12	8	3			08000	08000
9,0	13	8,7	22	27	67	0,20	10	3	09000	09000		
9,0	23	8,7	28	33	73	0,12	10	3			09000	09000
10,0	14	9,7	24	27	67	0,20	10	3	10000	10000		
10,0	25	9,7	31	33	73	0,20	10	3			10000	10000
12,0	16	11,6	26	28	73	0,20	12	3	12000	12000		
12,0	28	11,6	37	39	84	0,20	12	3			12000	12000
14,0	18	13,6	28	30	75	0,20	14	3	14000	14000		
14,0	30	13,6	37	39	84	0,20	14	3			14000	14000
16,0	20	15,5	32	35	83	0,20	16	3	16000	16000		
16,0	35	15,5	43	45	93	0,20	16	3			16000	16000
20,0	25	19,5	40	43	93	0,30	20	3	20000	20000		
20,0	40	19,5	52	54	104	0,20	20	3			20000	20000
P									○	○	○	○
M									●	●	●	●
K									○	○	○	○
N									●	●	●	●
S									●	●	●	●
H												
O									●	●	●	●

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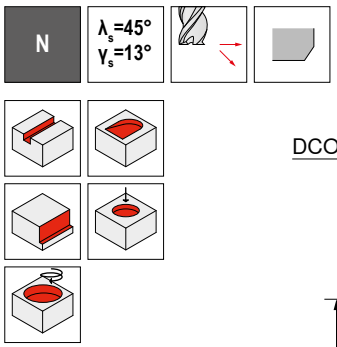
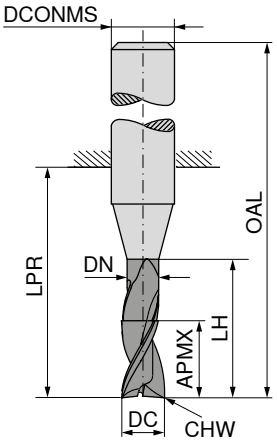
End milling cutter





DPX72S

DRAGONSKIN

Factory standard

52 935 ...

DC e8 mm	DN mm	APMX mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
3	3,0	20	20	24	60	6	0,07	3	**03000**
4	3,8	30	35	39	75	6	0,07	3	**04000**
5	4,8	30	35	39	75	6	0,12	3	**05000**
6	5,8	40	60	64	100	6	0,12	3	**06000**
8	7,7	40	60	64	100	8	0,12	3	**08000**
10	9,7	40	55	60	100	10	0,20	3	**10000**
12	11,6	45	50	55	100	12	0,20	3	**12000**
14	13,6	45	50	55	100	14	0,20	3	**14000**
16	15,5	65	90	102	150	16	0,20	3	**16000**
20	19,5	65	90	100	150	20	0,30	3	**20000**

P	○
M	●
K	○
N	●
S	●
H	
O	●

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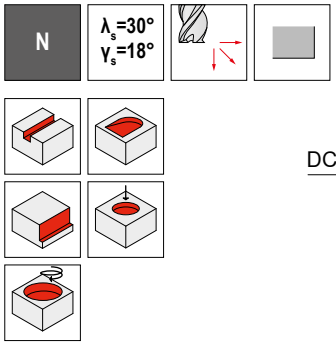
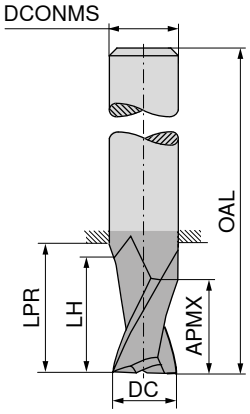
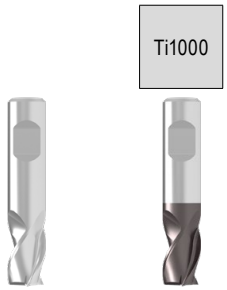
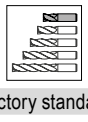
Mini milling cutter

▲ Shank similar to DIN 6535









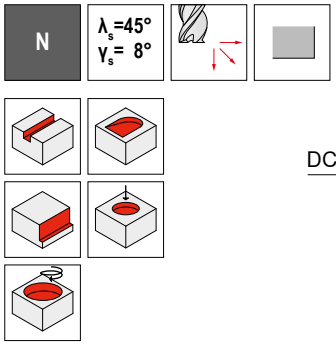
Factory standard | Factory standard

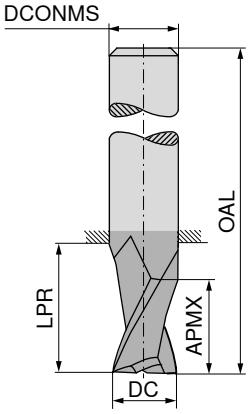
DC e8 mm	APMX mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 598 ...	50 599 ...
2,00	4	4,0	10	35	6	3	020	020
2,50	4	4,0	10	35	6	3	025	025
3,00	5	5,0	10	36	6	3	030	030
3,50	5	5,0	10	36	6	3	035	035
4,00	7	7,0	12	38	6	3	040	040
4,50	7	7,0	12	38	6	3	045	045
5,00	8	8,0	13	39	6	3	050	050
5,50	8	8,0	13	39	6	3	055	055
5,75	8	8,0	13	39	6	3	057	057
6,00	8	8,5	13	39	6	3	060	060
6,75	11	11,5	16	43	8	3	067	067
7,00	11	11,5	16	43	8	3	070	070
7,75	11	11,5	16	43	8	3	077	077
8,00	11	11,5	16	43	8	3	080	080
8,70	13	13,5	18	50	10	3	087	087
9,00	13	13,5	18	50	10	3	090	090
9,70	13	13,5	18	50	10	3	097	097
10,00	13	13,5	18	50	10	3	100	100
12,00	15	15,5	24	55	12	3	120	120
14,00	15	15,5	26	58	14	3	140	140
16,00	18	18,5	28	62	16	3	160	160
18,00	20	20,5	35	70	18	3	180	180
20,00	22	22,5	40	75	20	3	200	200
P							○	●
M							○	○
K							○	●
N							●	○
S							○	○
H								○
O							●	○

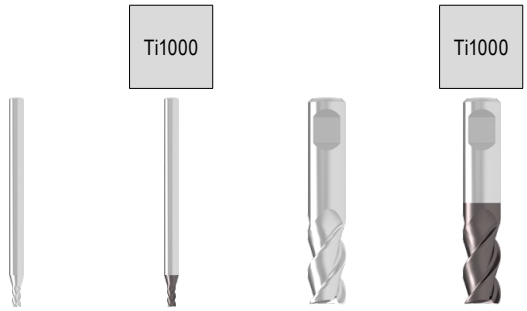
→ v_c/f_z Page 480–483

Mini milling cutter

▲ Shank similar to DIN 6535





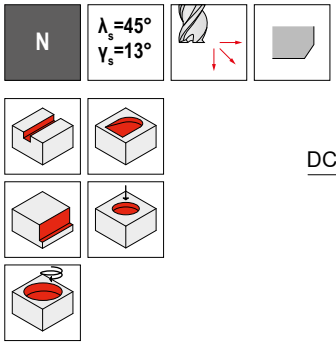


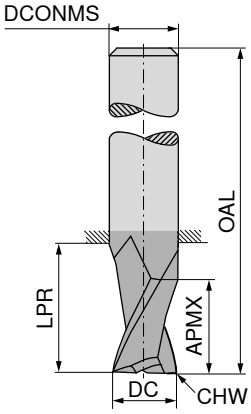
						Factory standard	Factory standard	Factory standard	Factory standard
						50 664 ...	50 691 ...	50 664 ...	50 691 ...
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP				
0,50	1,5	17	45	3	3	30500	30500		
1,00	2,0	12	45	6	3			01000	01000
1,00	2,0	17	45	3	3	31000	31000		
1,20	2,0	12	45	6	3			01200	01200
1,20	3,0	17	45	3	3	31200	31200		
1,50	3,0	12	45	6	3			01500	01500
1,50	3,0	17	45	3	3	31500	31500		
1,80	3,0	12	45	6	3			01800	01800
1,80	3,0	17	45	3	3	31800	31800		
2,00	4,0	13	45	6	3			02000	02000
2,50	6,0	13	45	6	3			02500	02500
2,80	6,0	13	45	6	3			02800	02800
3,00	6,0	13	45	6	3			03000	03000
3,50	7,0	13	45	6	3			03500	03500
3,80	7,0	13	45	6	3			03800	03800
4,00	7,0	12	45	6	3			04000	04000
4,50	8,0	11	45	6	3			04500	04500
4,80	8,0	11	45	6	3			04800	04800
5,00	8,0	11	45	6	3			05000	05000
5,50	8,0	9	45	6	3			05500	05500
5,75	8,0	9	45	6	3			05700	05700
6,00	8,0	9	45	6	3			06000	06000
6,70	10,0	19	55	8	3			06700	06700
7,00	12,0	19	55	8	3			07000	07000
7,70	12,0	19	55	8	3			07700	07700
8,00	13,0	19	55	8	3			08000	08000
8,70	14,0	17	55	10	3			08700	08700
9,00	16,0	17	55	10	3			09000	09000
9,70	16,0	17	55	10	3			09700	09700
10,00	16,0	17	55	10	3			10000	10000
P							●		●
M							●		●
K							●		●
N						●	○	●	○
S						○	●	○	●
H									
O									

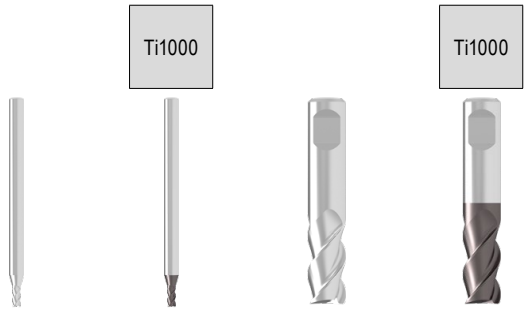
→ v_c/f_z Page 456–459

Mini milling cutter

▲ Shank similar to DIN 6535





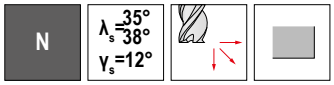


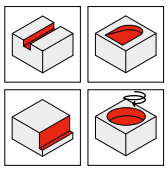
							Factory standard	Factory standard	Factory standard	Factory standard
							50 608 ...	50 609 ...	50 608 ...	50 609 ...
DC e8 mm	CHW mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP				
0,50	0,05	1,5	17	45	3	3	30500	30500		
1,00	0,05	2,0	12	45	6	3			01000	01000
1,00	0,05	2,0	17	45	3	3	31000	31000		
1,20	0,05	2,0	12	45	6	3			01200	01200
1,20	0,05	3,0	17	45	3	3	31200	31200		
1,50	0,05	3,0	12	45	6	3			01500	01500
1,50	0,05	3,0	17	45	3	3	31500	31500		
1,80	0,05	3,0	12	45	6	3			01800	01800
1,80	0,05	3,0	17	45	3	3	31800	31800		
2,00	0,05	4,0	13	45	6	3			020	02000
2,50	0,05	6,0	13	45	6	3			025	02500
2,80	0,05	6,0	13	45	6	3			02800	02800
3,00	0,10	6,0	13	45	6	3			030	03000
3,50	0,10	7,0	13	45	6	3			03500	03500
3,80	0,10	7,0	13	45	6	3			03800	03800
4,00	0,10	7,0	12	45	6	3			040	04000
4,50	0,10	8,0	11	45	6	3			04500	04500
4,80	0,10	8,0	11	45	6	3			04800	04800
5,00	0,10	8,0	11	45	6	3			050	05000
5,50	0,10	8,0	9	45	6	3			05500	05500
5,75	0,10	8,0	9	45	6	3			05700	05700
6,00	0,10	8,0	9	45	6	3			060	06000
6,70	0,10	10,0	19	55	8	3			06700	06700
7,00	0,10	12,0	19	55	8	3			070	07000
7,70	0,10	12,0	19	55	8	3			07700	07700
8,00	0,10	13,0	19	55	8	3			080	08000
8,70	0,10	14,0	17	55	10	3			08700	08700
9,00	0,10	16,0	17	55	10	3			09000	09000
9,70	0,10	16,0	17	55	10	3			09700	09700
10,00	0,10	16,0	17	55	10	3			100	10000
P								●		●
M								●		●
K								●		●
N							●	○	●	○
S							○	●	○	●
H										
O										

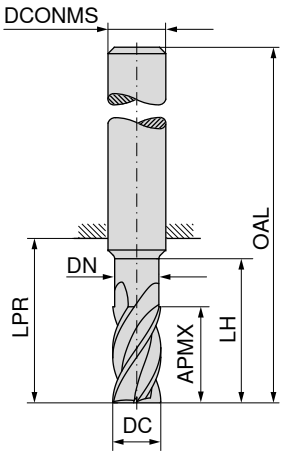
14

→ v_c/f_z Page 456–459

End milling cutter





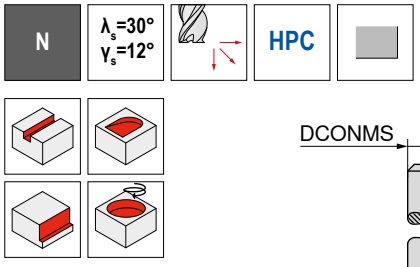


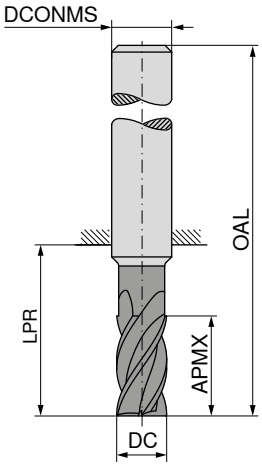
								Factory standard	Factory standard
								52 209 ...	**52 213 ...**
DC e8 **mm**	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP		
2	4	1,9	8	18	54	6	4	**02000**	
2	7			22	58	6	4		**02000**
3	6	2,9	9	18	54	6	4	**03000**	
3	10	2,8	14	22	58	6	4		**03000**
4	7	3,8	12	18	54	6	4	**04000**	
4	13	3,8	17	22	58	6	4		**04000**
5	8	4,8	16	18	54	6	4	**05000**	
5	15	4,8	19	22	58	6	4		**05000**
6	10	5,8	16	18	54	6	4	**06000**	
6	16	5,7	20	22	58	6	4		**06000**
8	12	7,7	20	22	58	8	4	**08000**	
8	22	7,7	26	34	70	8	4		**08000**
10	14	9,7	24	26	66	10	4	**10000**	
10	25	9,6	31	33	73	10	4		**10000**
12	16	11,6	26	28	73	12	4	**12000**	
12	28	11,6	37	39	84	12	4		**12000**
14	18	13,6	28	30	75	14	4	**14000**	
16	22	15,5	32	34	82	16	4	**16000**	
16	35	15,6	43	45	93	16	4		**16000**
18	20	17,5	34	32	80	18	4	**18000**	
20	25	19,5	40	42	92	20	4	**20000**	
20	40	19,6	52	54	104	20	4		**20000**
P								●	●
M								○	○
K								●	●
N								○	○
S								○	○
H									
O								○	○

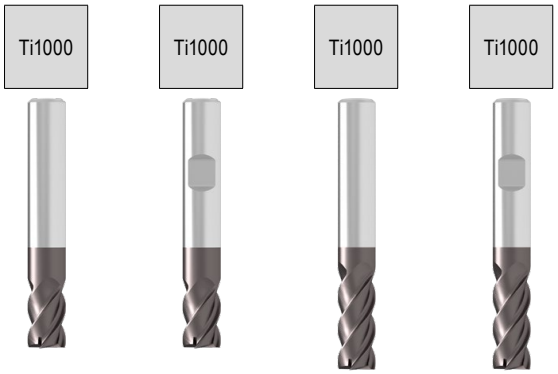
→ v_c/f_z Page 480–483

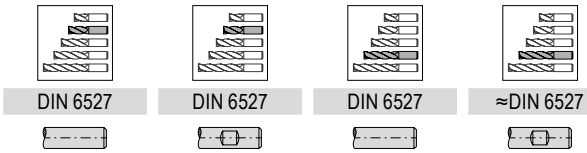
End milling cutter

▲ Cutting edges with irregular pitch









	DIN 6527	DIN 6527	DIN 6527	≈DIN 6527
	52 121 ...	52 131 ...	52 126 ...	52 132 ...
DC e8 mm				
3,0	030	030		
3,0			030	030
3,5	035	035		
3,5			035	035
4,0	040	040		
4,0			040	040
4,5	045	045		
4,5			045	045
5,0	050	050		
5,0			050	050
6,0	060	060		
6,0			060	060
8,0	080	080		
8,0			080	080
10,0	100	100		
10,0			100	100
12,0	120	120		
12,0			120	120
14,0	140	140		
14,0			140	140
16,0	160	160		
16,0			160	160
18,0	180	180		
18,0			180	180
20,0	200	200		
20,0			200	200

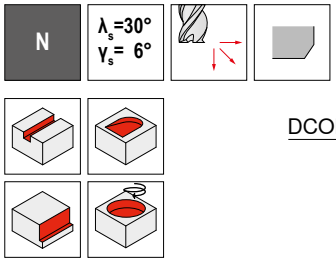
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP
3,0	6	18	54	6	4
3,0	10	22	58	6	4
3,5	7	18	54	6	4
3,5	13	22	58	6	4
4,0	7	18	54	6	4
4,0	13	22	58	6	4
4,5	8	18	54	6	4
4,5	15	22	58	6	4
5,0	8	18	54	6	4
5,0	15	22	58	6	4
6,0	10	18	54	6	4
6,0	16	22	58	6	4
8,0	12	23	59	8	4
8,0	22	34	70	8	4
10,0	14	27	67	10	4
10,0	25	33	73	10	4
12,0	16	28	73	12	4
12,0	28	39	84	12	4
14,0	16	30	75	14	4
14,0	30	39	84	14	4
16,0	20	35	83	16	4
16,0	35	45	93	16	4
18,0	20	32	80	18	4
18,0	35	45	93	18	4
20,0	25	43	93	20	4
20,0	40	54	104	20	4

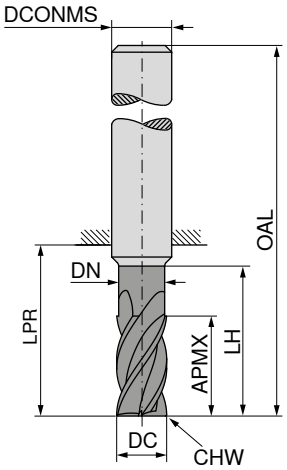
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

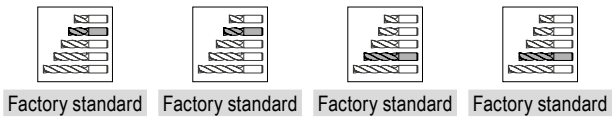
→ v_c/f_z Page 480–483

14

End milling cutter





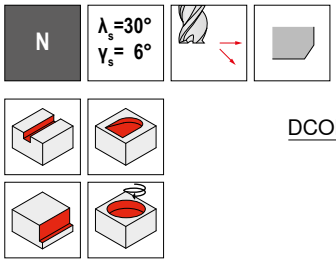


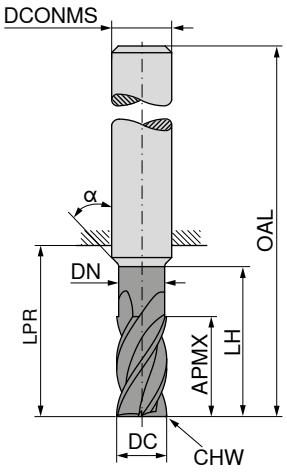
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 206 ...	52 207 ...	52 210 ...	52 211 ...
1,5	3	1,4	6	10	38	3	0,02	4	**31500**			
2,0	4	1,9	8	10	38	3	0,03	4	**32000**			
2,0	4	1,9	8	18	54	6	0,03	4	**02000**	**02000**		
2,0	7			10	38	2	0,03	4			**22000**	
2,5	4	2,4	8	10	38	3	0,04	4	**32500**			
3,0	6	2,9	9	10	38	3	0,04	4	**33000**			
3,0	6	2,9	9	18	54	6	0,04	4	**03000**	**03000**		
3,0	10	2,8	14	14	38	3	0,03	4			**33000**	
4,0	7	3,8	12	18	54	6	0,05	4	**04000**	**04000**		
4,0	13	3,8	17	22	50	4	0,04	4			**44000**	
5,0	8	4,8	16	18	54	6	0,06	4	**05000**	**05000**		
5,0	15	4,8	19	22	50	5	0,04	4			**55000**	
6,0	10	5,8	16	18	54	6	0,07	4	**06000**	**06000**		
6,0	16	5,7	20	22	58	6	0,04	4			**06000**	**06000**
7,0	19	6,7	23	27	63	8	0,05	4			**07000**	
8,0	12	7,7	20	22	58	8	0,08	4	**08000**	**08000**		
8,0	22	7,7	26	34	70	8	0,06	4			**08000**	**08000**
9,0	23	8,7	28	33	73	10	0,07	4			**09000**	
10,0	14	9,7	24	26	66	10	0,10	4	**10000**	**10000**		
10,0	25	9,6	31	33	73	10	0,08	4			**10000**	**10000**
11,0	26	10,6	34	39	84	12	0,10	4			**11000**	
12,0	16	11,6	26	28	73	12	0,13	4	**12000**	**12000**		
12,0	28	11,6	37	39	84	12	0,13	4			**12000**	**12000**
14,0	18	13,6	28	30	75	14	0,15	4	**14000**	**14000**		
14,0	30	13,6	37	39	84	14	0,15	4			**14000**	
16,0	22	15,5	32	34	82	16	0,18	4	**16000**	**16000**		
16,0	35	15,6	43	45	93	16	0,18	4			**16000**	**16000**
20,0	25	19,5	40	42	92	20	0,20	4	**20000**	**20000**		
20,0	40	19,6	52	54	104	20	0,20	4			**20000**	**20000**
P									●	●	●	●
M									○	○	○	○
K									●	●	●	●
N									○	○	○	○
S									○	○	○	○
H									○	○	○	○
O									○	○	○	○

→ v_c/f_z Page 480–483

End milling cutter

▲ Transition angle α = 30°





Factory standard | Factory standard | Factory standard

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 219 ...	52 214 ...	52 222 ...
3	16	2,8	32	47	75	3	0,04	4		33000	
4	16	3,8	32	47	75	4	0,05	4		44000	
4	20	3,8	48	72	100	4	0,05	4		44100	
5	20	4,8	35	47	75	5	0,06	4		55000	
5	25	4,8	55	72	100	5	0,06	4		55100	
6	24	5,8	42	44	80	6	0,07	4	06000		
6	30	5,8	62	64	100	6	0,07	4			06000
8	32	7,8	60	64	100	8	0,08	4	08000		
8	40	7,8	75	84	120	8	0,08	4			08000
10	40	9,8	58	60	100	10	0,10	4	10000		
10	50	9,8	78	80	120	10	0,10	4			10000
12	48	11,8	60	75	120	12	0,13	4	12000		
12	60	11,8	90	105	150	12	0,13	4			12000
14	45	13,8	50	55	100	14	0,15	4	14000		
14	56	13,8	95	105	150	14	0,15	4			14000
16	50	15,8	70	77	125	16	0,18	4	16000		
16	65	15,8	95	102	150	16	0,18	4			16000
18	72	17,8	95	102	150	18	0,18	4			18000
20	60	19,8	80	85	135	20	0,20	4	20000		
20	80	19,8	95	100	150	20	0,20	4			20000
25	75	24,5	90	94	150	25	0,25	4	25000		

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

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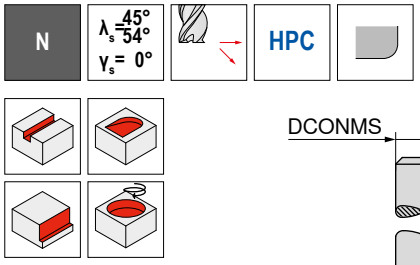
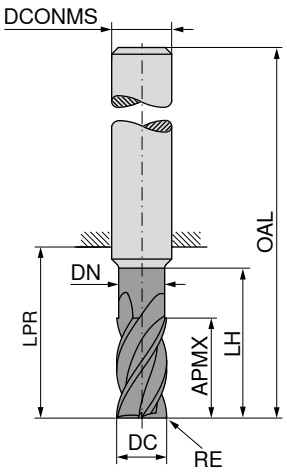
End milling cutter with corner radius

▲ optimal quiet running with irregular helix





Factory standard

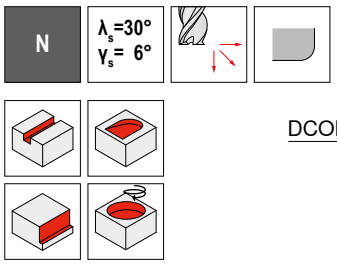
52 102 ...

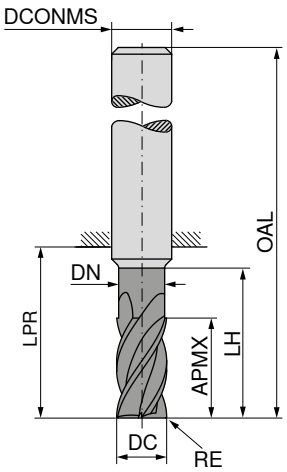
DC e8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	
2	0,2	7	1,8	11	58	6	4	**022**
3	0,3	8	2,8	13	58	6	4	**033**
4	0,4	11	3,8	16	58	6	4	**044**
5	0,5	13	4,8	18	58	6	4	**055**
6	0,5	16	5,8	26	58	6	4	**065**
6	1,0	16	5,8	26	58	6	4	**066**
8	0,5	22	7,8	32	64	8	4	**085**
8	1,0	22	7,8	32	64	8	4	**086**
8	1,5	22	7,8	32	64	8	4	**087**
10	0,5	25	9,8	35	73	10	4	**105**
10	1,0	25	9,8	35	73	10	4	**106**
10	1,5	25	9,8	35	73	10	4	**107**
12	0,5	28	11,8	38	84	12	4	**125**
12	1,0	28	11,8	38	84	12	4	**126**
12	1,5	28	11,8	38	84	12	4	**127**

P	○
M	●
K	○
N	●
S	●
H	
O	●

→ v_c/f_z Page 480–483

End milling cutter with corner radius





DPX72S

DRAGONSKIN

Factory standard

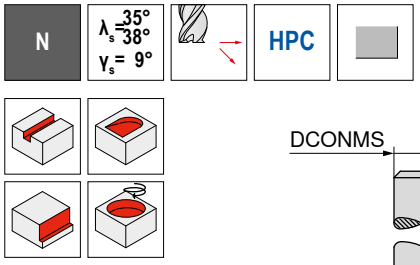
52 231 ...

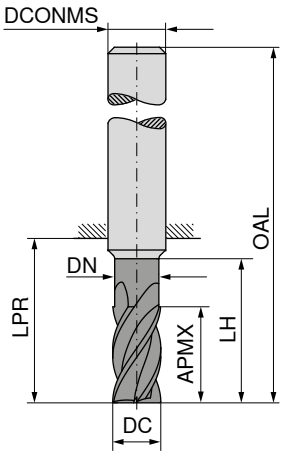
DC e8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
3	0,3	8	2,8	13	21	57	6	4	03003
3	0,5	8	2,8	13	21	57	6	4	03005
4	0,3	11	3,8	16	21	57	6	4	04003
4	0,5	11	3,8	16	21	57	6	4	04005
5	0,3	13	4,8	18	21	57	6	4	05003
5	0,5	13	4,8	18	21	57	6	4	05005
6	0,5	13	5,8	26	21	57	6	4	06005
6	1,0	13	5,8	26	21	57	6	4	06010
6	1,5	13	5,8	26	21	57	6	4	06015
8	0,5	19	7,8	32	27	63	8	4	08005
8	1,0	19	7,8	32	27	63	8	4	08010
8	1,5	19	7,8	32	27	63	8	4	08015
8	2,0	19	7,8	32	27	63	8	4	08020
10	1,0	22	9,8	35	32	72	10	4	10010
10	1,5	22	9,8	35	32	72	10	4	10015
10	2,0	22	9,8	35	32	72	10	4	10020
12	1,0	26	11,8	38	38	83	12	4	12010
12	1,5	26	11,8	38	38	83	12	4	12015
12	2,0	26	11,8	38	38	83	12	4	12020
12	3,0	26	11,8	38	38	83	12	4	12030
16	1,0	32	15,8	44	44	92	16	4	16010
16	1,5	32	15,8	44	44	92	16	4	16015
16	2,0	32	15,8	44	44	92	16	4	16020
16	3,0	32	15,8	44	44	92	16	4	16030
20	1,5	38	19,8	52	54	104	20	4	20015
20	2,0	38	19,8	52	54	104	20	4	20020
20	3,0	38	19,8	52	54	104	20	4	20030

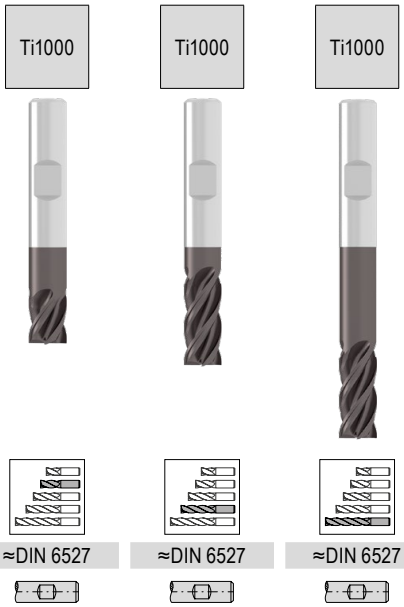
P	●
M	○
K	●
N	○
S	○
H	○
O	○

→ v_c/f_z Page 480–483

End milling cutter





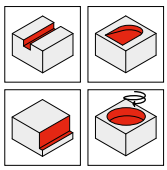


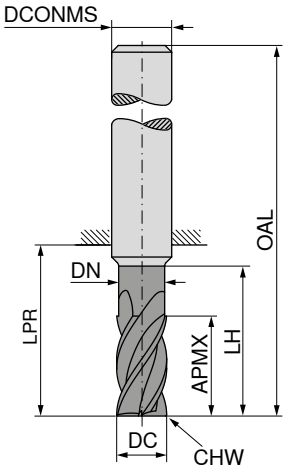
								≈DIN 6527	≈DIN 6527	≈DIN 6527
								54 070 ...	54 070 ...	54 070 ...
DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP			
3	5			14	50	6	4	03100		
3	8	2,8	13	21	57	6	4		03200	
3	8	2,8	15	22	69	6	4			03400
4	8			18	54	6	4	04100		
4	11	3,8	17	21	57	6	4		04200	
4	11	3,8	20	26	69	6	4			04400
5	9			18	54	6	4	05100		
5	13	4,8	19	21	57	6	4		05200	
5	13	4,8	25	34	69	6	4			05400
6	10			18	54	6	4	06100		
6	13	5,8	19	21	57	6	4		06200	
6	13	5,8	30	34	69	6	4			06400
8	12			22	58	8	4	08100		
8	17	7,7	40	44	79	8	4			08400
8	21	7,7	25	27	63	8	4		08200	
10	14			26	66	10	4	10100		
10	21	9,7	50	54	93	10	4			10400
10	22	9,7	30	32	72	10	4		10200	
12	16			28	73	12	4	12100		
12	25	11,6	60	64	108	12	4			12400
12	26	11,6	36	38	83	12	4		12200	
16	22			34	82	16	4	16100		
16	32	15,5	42	44	92	16	4		16200	
16	33	15,5	80	84	132	16	4			16400
20	26			42	92	20	4	20100		
20	38	19,5	52	54	104	20	4		20200	
20	42	19,5	100	104	154	20	4			20400
P								●	●	●
M								●	●	○
K								●	●	●
N								○	○	
S								○	○	
H										
O										

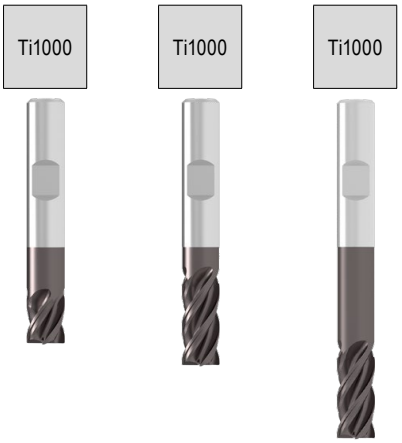
→ v_c/f_z Page 462–467

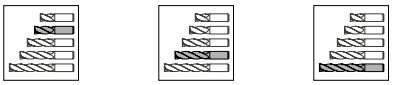
End milling cutter

N | λ_s = 35° 38° | γ_s = 9° | HPC

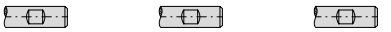








≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527



DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	54 071 ...	54 071 ...	54 071 ...
3	5			14	50	6	0,1	4	03100		
3	8	2,8	13	21	57	6	0,1	4		03200	
3	8	2,8	15	22	69	6	0,1	4			03400
4	8			18	54	6	0,1	4	04100		
4	11	3,8	17	21	57	6	0,1	4		04200	
4	11	3,8	20	26	69	6	0,1	4			04400
5	9			18	54	6	0,1	4	05100		
5	13	4,8	19	21	57	6	0,1	4		05200	
5	13	4,8	25	34	69	6	0,1	4			05400
6	10			18	54	6	0,1	4	06100		
6	13	5,8	19	21	57	6	0,1	4		06200	
6	13	5,8	30	34	69	6	0,1	4			06400
8	12			22	58	8	0,2	4	08100		
8	17	7,7	40	44	79	8	0,2	4			08400
8	21	7,7	25	27	63	8	0,2	4		08200	
10	14			26	66	10	0,2	4	10100		
10	21	9,7	50	54	93	10	0,2	4			10400
10	22	9,7	30	32	72	10	0,2	4		10200	
12	16			28	73	12	0,3	4	12100		
12	25	11,6	60	64	108	12	0,3	4			12400
12	26	11,6	36	38	83	12	0,3	4		12200	
16	22			34	82	16	0,3	4	16100		
16	33	15,5	80	84	132	16	0,3	4			16400
16	36	15,5	42	44	92	16	0,3	4		16200	
20	26			42	92	20	0,3	4	20100		
20	41	19,5	52	54	104	20	0,3	4		20200	
20	42	19,5	100	104	154	20	0,3	4			20400
P									●	●	●
M									●	●	○
K									●	●	●
N									○	○	
S									○	○	
H											
O											

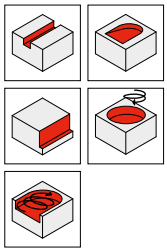
14

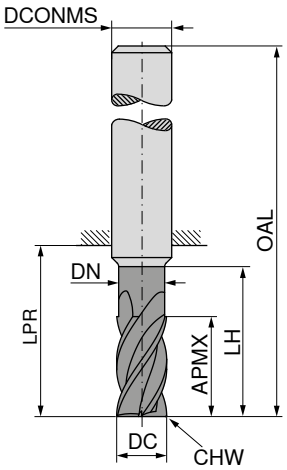
→ v_c/f_z Page 462–467

End milling cutter

▲ Cutting depth: 3 x DC

N | λ_s = 35° 36° | γ_s = 9° | HPC





NEW

Ti1000

≈DIN 6527

54 078 ...

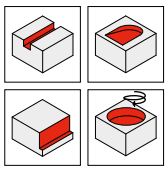
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
6	19	5,8	24	26	62	6	0,1	4	**06200**
8	25	7,7	30	32	68	8	0,2	4	**08200**
10	31	9,7	38	40	80	10	0,2	4	**10200**
12	37	11,6	46	48	93	12	0,2	4	**12200**
16	49	15,5	58	60	108	16	0,3	4	**16200**
20	61	19,5	74	76	126	20	0,3	4	**20200**

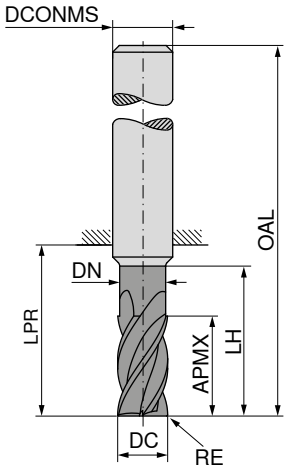
P	●
M	●
K	●
N	
S	
H	
O	

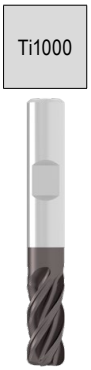
→ v_c/f_z Page 464+465

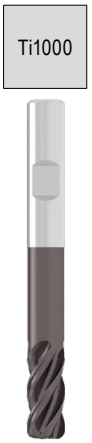
End milling cutter with corner radius

N | λ_s = 35° 38° | γ_s = 9° | HPC









≈DIN 6527 | ≈DIN 6527

DC h10 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 072 ...	54 072 ...
3	0,1	8	2,8	13	21	57	6	4	03201	
3	0,3	8	2,8	13	21	57	6	4	03203	
3	0,5	8	2,8	13	21	57	6	4	03205	
3	1,0	8	2,8	13	21	57	6	4	03210	
3	0,5	8	2,8	15	22	69	6	4		03405
3	0,3	8	2,8	15	22	69	6	4		03403
3	1,0	8	2,8	15	22	69	6	4		03410
4	0,1	11	3,8	17	21	57	6	4	04201	
4	0,3	11	3,8	17	21	57	6	4	04203	
4	0,5	11	3,8	17	21	57	6	4	04205	
4	1,0	11	3,8	17	21	57	6	4	04210	
4	0,5	11	3,8	20	26	69	6	4		04405
4	0,3	11	3,8	20	26	69	6	4		04403
4	1,0	11	3,8	20	26	69	6	4		04410
5	0,5	13	4,8	19	21	57	6	4	05205	
5	0,1	13	4,8	19	21	57	6	4	05201	
5	0,3	13	4,8	19	21	57	6	4	05203	
5	1,0	13	4,8	19	21	57	6	4	05210	
5	0,5	13	4,8	25	34	69	6	4		05405
5	0,3	13	4,8	25	34	69	6	4		05403
5	1,0	13	4,8	25	34	69	6	4		05410
6	0,3	13	5,8	19	21	57	6	4	06203	
6	0,1	13	5,8	19	21	57	6	4	06201	
6	0,5	13	5,8	19	21	57	6	4	06205	
6	1,0	13	5,8	19	21	57	6	4	06210	
6	1,5	13	5,8	19	21	57	6	4	06215	
6	2,0	13	5,8	19	21	57	6	4	06220	
6	1,0	13	5,8	30	34	69	6	4		06410
6	0,3	13	5,8	30	34	69	6	4		06403
6	0,5	13	5,8	30	34	69	6	4		06405
6	1,5	13	5,8	30	34	69	6	4		06415
6	2,0	13	5,8	30	34	69	6	4		06420
8	0,5	17	7,7	40	44	79	8	4		08405
8	0,3	17	7,7	40	44	79	8	4		08403
8	1,0	17	7,7	40	44	79	8	4		08410
8	1,5	17	7,7	40	44	79	8	4		08415
8	2,0	17	7,7	40	44	79	8	4		08420
8	0,1	21	7,7	25	27	63	8	4	08201	
8	0,3	21	7,7	25	27	63	8	4	08203	
8	0,5	21	7,7	25	27	63	8	4	08205	
8	1,0	21	7,7	25	27	63	8	4	08210	

P	●	●
M	●	○
K	●	●
N	○	
S	○	
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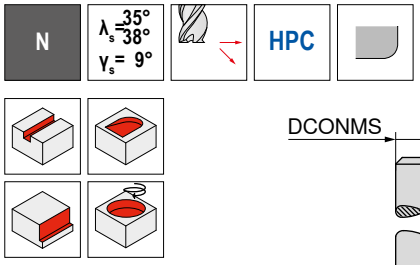
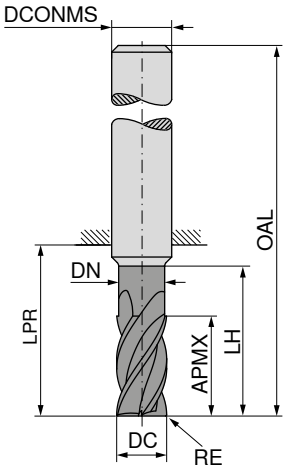
O		

→ v_c/f_z Page 462–467

End milling cutter with corner radius





≈DIN 6527 | ≈DIN 6527

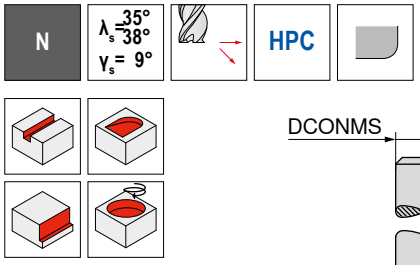
DC h10 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 072 ...	54 072 ...
8	1,5	21	7,7	25	27	63	8	4	08215	
8	2,0	21	7,7	25	27	63	8	4	08220	
10	1,0	21	9,7	50	54	93	10	4		10410
10	0,3	21	9,7	50	54	93	10	4		10403
10	0,5	21	9,7	50	54	93	10	4		10405
10	1,5	21	9,7	50	54	93	10	4		10415
10	2,0	21	9,7	50	54	93	10	4		10420
10	0,5	22	9,7	30	32	72	10	4	10205	
10	0,1	22	9,7	30	32	72	10	4	10201	
10	0,3	22	9,7	30	32	72	10	4	10203	
10	1,0	22	9,7	30	32	72	10	4	10210	
10	1,5	22	9,7	30	32	72	10	4	10215	
10	2,0	22	9,7	30	32	72	10	4	10220	
12	1,5	25	11,6	60	64	108	12	4		12415
12	0,3	25	11,6	60	64	108	12	4		12403
12	0,5	25	11,6	60	64	108	12	4		12405
12	1,0	25	11,6	60	64	108	12	4		12410
12	2,0	25	11,6	60	64	108	12	4		12420
12	3,0	25	11,6	60	64	108	12	4		12430
12	0,3	26	11,6	36	38	83	12	4	12203	
12	0,1	26	11,6	36	38	83	12	4	12201	
12	0,5	26	11,6	36	38	83	12	4	12205	
12	1,0	26	11,6	36	38	83	12	4	12210	
12	1,5	26	11,6	36	38	83	12	4	12215	
12	2,0	26	11,6	36	38	83	12	4	12220	
12	3,0	26	11,6	36	38	83	12	4	12230	
16	1,5	33	15,5	80	84	132	16	4		16415
16	0,3	33	15,5	80	84	132	16	4		16403
16	0,5	33	15,5	80	84	132	16	4		16405
16	1,0	33	15,5	80	84	132	16	4		16410
16	2,0	33	15,5	80	84	132	16	4		16420
16	3,0	33	15,5	80	84	132	16	4		16430
16	4,0	33	15,5	80	84	132	16	4		16440
16	0,3	36	15,5	42	44	92	16	4	16203	
16	0,1	36	15,5	42	44	92	16	4	16201	
16	0,5	36	15,5	42	44	92	16	4	16205	
16	1,0	36	15,5	42	44	92	16	4	16210	
16	1,5	36	15,5	42	44	92	16	4	16215	
16	2,0	36	15,5	42	44	92	16	4	16220	
16	3,0	36	15,5	42	44	92	16	4	16230	
16	4,0	36	15,5	42	44	92	16	4	16240	

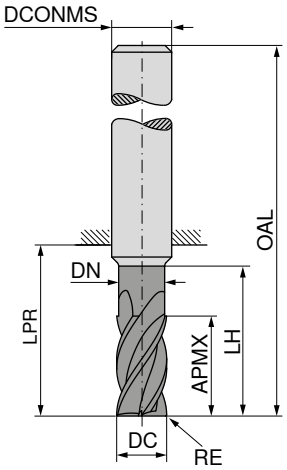
P	●	●
M	●	○
K	●	●
N	○	
S	○	
H		
O		

→ v_c/f_z Page 462–467

Continued on next page

End milling cutter with corner radius





≈DIN 6527 | ≈DIN 6527

DC h10 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 072 ...	54 072 ...
20	0,1	41	19,5	52	54	104	20	4	**20201**	
20	0,3	41	19,5	52	54	104	20	4	**20203**	
20	0,5	41	19,5	52	54	104	20	4	**20205**	
20	1,0	41	19,5	52	54	104	20	4	**20210**	
20	1,5	41	19,5	52	54	104	20	4	**20215**	
20	2,0	41	19,5	52	54	104	20	4	**20220**	
20	3,0	41	19,5	52	54	104	20	4	**20230**	
20	4,0	41	19,5	52	54	104	20	4	**20240**	
20	1,5	42	19,5	100	104	154	20	4		**20415**
20	0,3	42	19,5	100	104	154	20	4		**20403**
20	0,5	42	19,5	100	104	154	20	4		**20405**
20	1,0	42	19,5	100	104	154	20	4		**20410**
20	2,0	42	19,5	100	104	154	20	4		**20420**
20	3,0	42	19,5	100	104	154	20	4		**20430**
20	4,0	42	19,5	100	104	154	20	4		**20440**

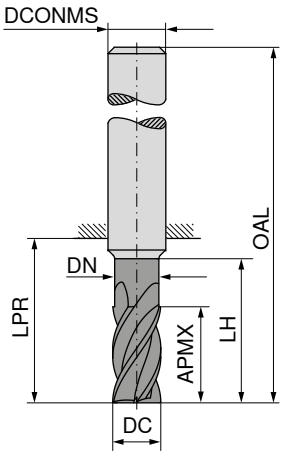
P	●	●
M	●	○
K	●	●
N	○	
S	○	
H		
O		

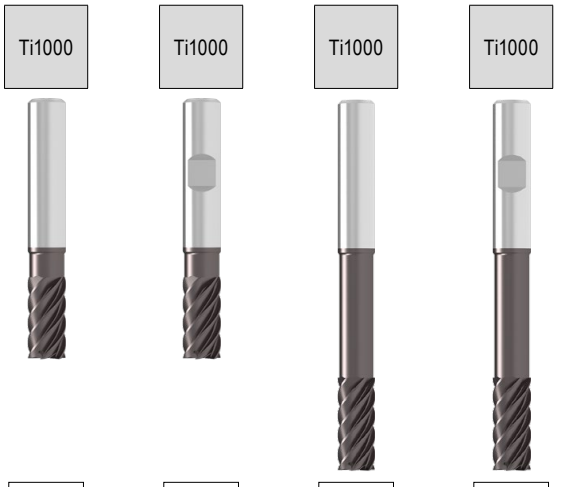
→ v_c/f_z Page 462–467

14

Finish milling cutter

N | λ_s=48° γ_s=13° | HPC





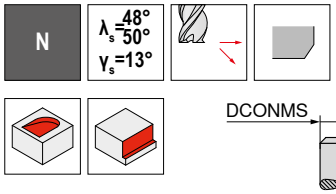
	≈DIN 6527	≈DIN 6527	≈DIN 6527	≈DIN 6527
	54 076 ...	54 075 ...	54 076 ...	54 075 ...

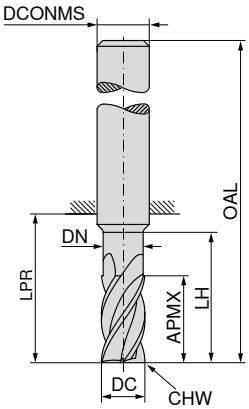
DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP							
6	13	5,6	19	21	57	6	6	**06200**		**06200**				
6	15	5,6	42	44	80	6	6					**06400**		**06400**
8	19	7,6	25	27	63	8	6	**08200**		**08200**				
8	20	7,6	62	64	100	8	6					**08400**		**08400**
10	22	9,6	30	32	72	10	6	**10200**		**10200**				
10	25	9,6	58	60	100	10	6					**10400**		**10400**
12	26	11,5	36	38	83	12	6	**12200**		**12200**				
12	30	11,5	73	75	120	12	6					**12400**		**12400**
16	32	15,0	42	44	92	16	6	**16200**		**16200**				
16	40	15,0	100	102	150	16	6					**16400**		**16400**
20	38	19,0	52	54	104	20	6	**20200**		**20200**				
20	50	19,0	98	100	150	20	6					**20400**		**20400**

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

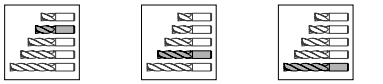
→ v_c/f_z Page 468

Finish milling cutter





LPR with Shank DIN 6535 HB



Factory standard | Factory standard | Factory standard

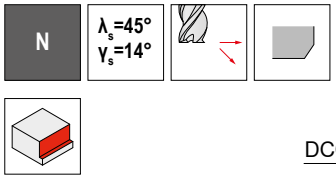
DC e8	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	52 010 ...	52 015 ...	52 018 ...
mm	mm	mm	mm	mm	mm	mm	mm				
5	8	4,8	13	18	54	6	0,02	6	05000		
5	13	4,8	18	22	58	6	0,02	6		05000	
6	10	5,8	15	18	54	6	0,03	6	06000		
6	16	5,8	20	22	58	6	0,03	6		06000	
6	21			29	65	6	0,03	6			06000
7	12	6,8	17	23	59	8	0,04	6	07000		
7	22	6,8	30	34	70	8	0,04	6		07000	
7	25			39	75	8	0,04	6			07000
8	12	7,8	17	23	59	8	0,04	6	08000		
8	22	7,8	32	34	70	8	0,04	6		08000	
8	28			39	75	8	0,04	6			08000
9	14	8,8	19	20	60	10	0,04	6	09000		
9	25	8,8	33	33	73	10	0,04	6		09000	
9	30			45	85	10	0,04	6			09000
10	14	9,8	19	20	60	10	0,05	6	10000		
10	25	9,8	33	33	73	10	0,05	6		10000	
10	35			45	85	10	0,05	6			10000
12	16	11,8	21	25	70	12	0,05	6	12000		
12	28	11,8	38	39	84	12	0,05	6		12000	
12	45			55	100	12	0,05	6			12000
14	18	13,8	23	25	70	14	0,06	6	14000		
14	30	13,8	38	39	84	14	0,06	6		14000	
16	20	15,8	28	32	80	16	0,06	8	16000		
16	35	15,8	43	45	93	16	0,06	8		16000	
16	50			62	110	16	0,06	8			16000
16	65			77	125	16	0,06	8			16100
20	25	19,8	33	35	85	20	0,07	8	20000		
20	40	19,8	45	50	100	20	0,07	8		20000	
20	55			65	115	20	0,07	8			20000
20	70			80	130	20	0,07	8			20100
25	55	24,8	63	69	125	25	0,08	8		25000	
25	75			94	150	25	0,08	8			25000

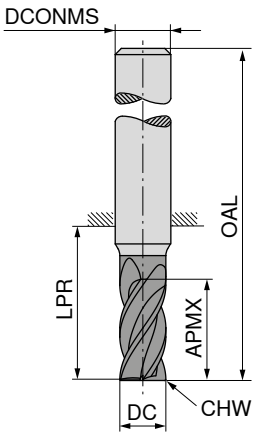
P	○	○	○
M	●	●	●
K	○	○	○
N	●	●	●
S	●	●	●
H			
O	●	●	●

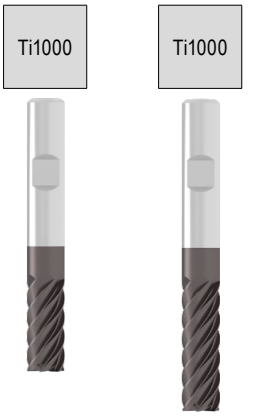
→ v_c/f_z Page 480–485

14

Finish milling cutter







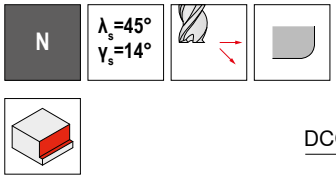
	≈DIN 6527	Factory standard
	50 633 ...	50 633 ...

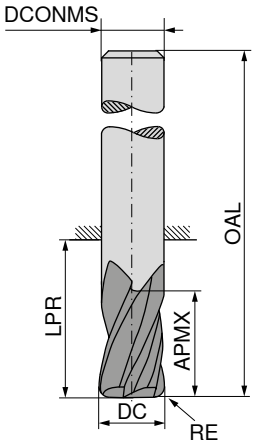
DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP		
4	11	21	57	6	0,15	6	**040**	
4	16	26	62	6	0,15	6		**041**
5	13	21	57	6	0,15	6	**050**	
5	18	26	62	6	0,15	6		**051**
6	13	21	57	6	0,15	6	**060**	
6	18	26	62	6	0,15	6		**061**
7	16	27	63	8	0,15	6	**070**	
7	21	32	68	8	0,15	6		**071**
8	19	27	63	8	0,15	6	**080**	
8	24	32	68	8	0,15	6		**081**
9	19	32	72	10	0,15	6	**090**	
9	27	40	80	10	0,15	6		**091**
10	22	32	72	10	0,15	6	**100**	
10	30	40	80	10	0,15	6		**101**
12	26	38	83	12	0,15	6	**120**	
12	36	48	93	12	0,15	6		**121**
14	26	38	83	14	0,15	6	**140**	
14	42	54	99	14	0,15	6		**141**
16	32	44	92	16	0,15	6	**160**	
16	48	60	108	16	0,15	6		**161**
16	65	77	125	16	0,15	6		**162**
16	75	102	150	16	0,15	6		**163**
16	95	102	150	16	0,15	6		**164**
18	32	44	92	18	0,15	8	**180**	
18	54	66	114	18	0,15	8		**181**
20	38	54	104	20	0,15	8	**200**	
20	60	76	126	20	0,15	8		**201**
20	75	85	135	20	0,15	8		**202**
20	95	100	150	20	0,15	8		**203**
25	75	94	150	25	0,15	8		**250**
25	95	104	160	25	0,15	8		**251**
32	75	90	150	32	0,15	8	**320**	
32	95	100	160	32	0,15	8		**321**

P	○	○
M	●	●
K	●	●
N		
S	○	○
H		
O		

→ v_c/f_z Page 480–485

Finish milling cutter with corner radius





Ti1000

Factory standard

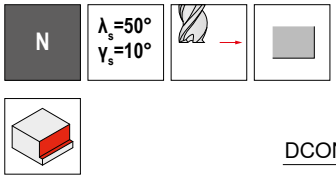
50 634 ...

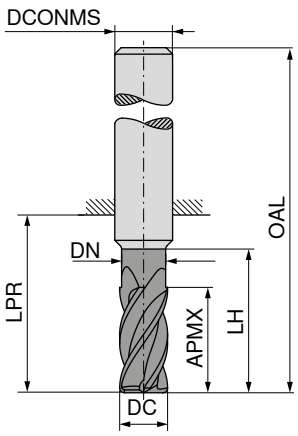
DC f8 mm	RE ±0,05 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
6	0,5	18	26	62	6	6	**060**
6	1,0	18	26	62	6	6	**061**
8	0,5	24	32	68	8	6	**080**
8	1,0	24	32	68	8	6	**081**
8	2,0	24	32	68	8	6	**082**
10	0,5	30	40	80	10	6	**100**
10	1,0	30	40	80	10	6	**101**
10	2,0	30	40	80	10	6	**102**
12	0,5	36	48	93	12	6	**120**
12	1,0	36	48	93	12	6	**121**
12	2,0	36	48	93	12	6	**122**
12	3,0	36	48	93	12	6	**123**
16	0,5	48	60	108	16	6	**160**
16	1,0	48	60	108	16	6	**161**
16	2,0	48	60	108	16	6	**162**
16	3,0	48	60	108	16	6	**163**
20	0,5	60	76	126	20	8	**200**
20	1,0	60	76	126	20	8	**201**
20	2,0	60	76	126	20	8	**202**
20	3,0	60	76	126	20	8	**203**

P	○
M	●
K	●
N	
S	○
H	
O	

→ v_c/f_z Page 480–485

Finish milling cutter





Factory standard

52 109 ...

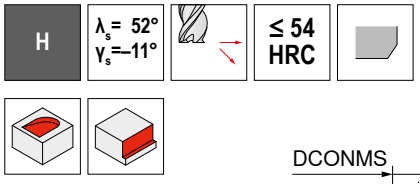
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
6	16	5,8	26	26	58	6	8	**060**
8	22	7,8	32	32	64	8	10	**080**
10	25	9,8	35	35	73	10	12	**100**
12	28	11,8	38	39	84	12	12	**120**
16	35	15,8	43	45	93	16	16	**160**
20	40	19,8	50	54	104	20	16	**200**

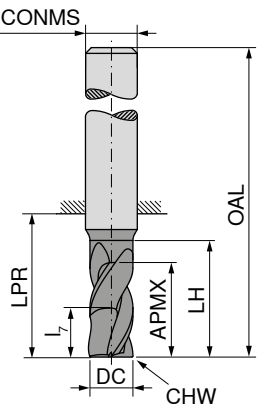
P	○
M	●
K	○
N	●
S	●
H	
O	●

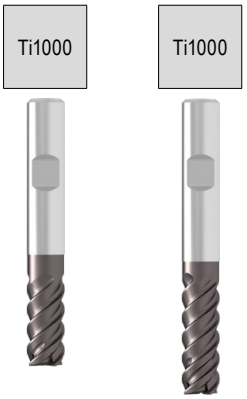
→ v_c/f_z Page 480–483

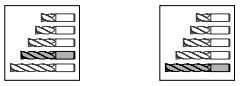
End milling cutter

▲ With graduated flute depth









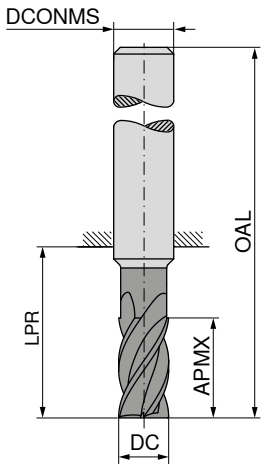
DIN 6527 | DIN 6527

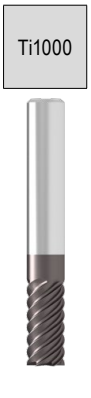
DC f8 mm	APMX mm	LH mm	l_7 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	50 907 ...	50 907 ...
4	11	18	4,4	21	57	6	0,15	4	**041**	
4	16	19	6,4	26	62	6	0,15	4		**042**
5	13	19	4,8	21	57	6	0,15	4	**051**	
5	17	20	6,8	26	62	6	0,15	4		**052**
6	13	19	5,2	21	57	6	0,15	4	**061**	
6	18	21	7,2	26	62	6	0,15	4		**062**
8	19	25	7,6	27	63	8	0,15	4	**081**	
8	24	27	9,6	32	68	8	0,15	4		**082**
10	22	30	8,8	32	72	10	0,15	4	**101**	
10	30	33	12,0	40	80	10	0,15	4		**102**
12	26	36	10,4	38	83	12	0,15	4	**121**	
12	36	39	14,4	48	93	12	0,15	4		**122**
16	32	42	12,8	44	92	16	0,15	4	**161**	
16	48	51	19,2	60	108	16	0,15	4		**162**
20	38	52	15,2	54	104	20	0,15	4	**201**	
20	60	63	24,0	76	126	20	0,15	4		**202**
P									●	●
M										
K										
N										
S										
H									●	●
O										

→ v_c/f_z Page 480–485

Finish milling cutter

H | λ_s=50° γ_s=–5° | ≤ 68 HRC





DIN 6527

50 635 ...

Factory standard

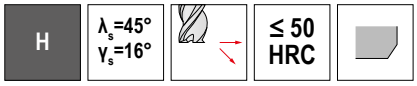
50 635 ...

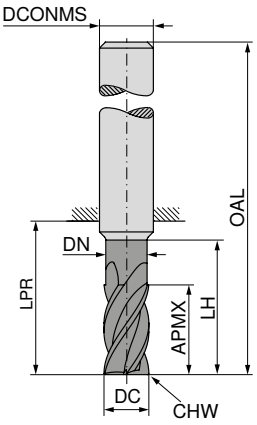
DC f8 mm	APMX mm	OAL mm	DCONMS h5 mm	ZEFP		
4	11	57	6	6	040	
4	16	62	6	6		041
5	13	57	6	6	050	
5	18	62	6	6		051
6	13	57	6	6	060	
6	18	62	6	6		061
8	19	63	8	6	080	
8	24	68	8	6		081
10	22	72	10	6	100	
10	30	80	10	6		101
12	26	83	12	6	120	
12	36	93	12	6		121
16	32	92	16	8	160	
16	48	108	16	8		161
16	90	150	16	8		162
20	38	104	20	8	200	
20	60	126	20	8		201
20	75	135	20	8		202
20	95	150	20	8		203
25	75	150	25	8	250	
25	95	160	25	8		251

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

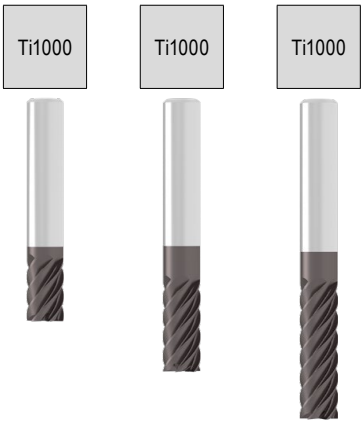
→ v_c/f_z Page 480–485

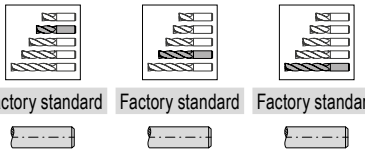
Finish milling cutter





LPR with Shank DIN 6535 HB



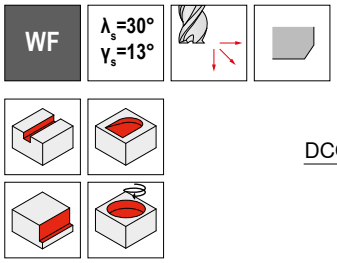


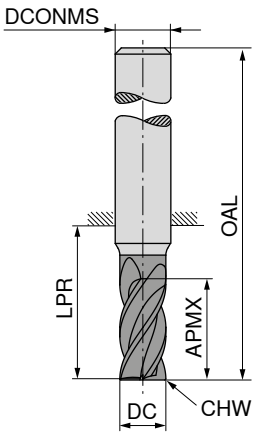
									Factory standard	Factory standard	Factory standard
									52 112 ...	52 122 ...	52 123 ...
DC e8	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP			
mm	mm	mm	mm	mm	mm	mm	mm				
5	8	4,8	13	18	54	6	0,02	6	051		
5	13	4,8	18	22	58	6	0,02	6		051	
6	10	5,8	15	18	54	6	0,03	6	061		
6	16	5,8	20	22	58	6	0,03	6		061	
6	21			29	65	6	0,03	6			061
8	12	7,8	17	23	59	8	0,04	6	081		
8	22	7,8	32	34	70	8	0,04	6		081	
8	28			39	75	8	0,04	6			081
10	14	9,8	19	20	60	10	0,05	6	101		
10	25	9,8	33	33	73	10	0,05	6		101	
10	35			45	85	10	0,05	6			101
12	16	11,8	21	25	70	12	0,05	6	121		
12	28	11,8	38	39	84	12	0,05	6		121	
12	45			55	100	12	0,05	6			121
16	20	15,8	28	32	80	16	0,06	6	161		
16	35	15,8	43	45	93	16	0,06	6		161	
16	50			62	110	16	0,06	6			162
16	65			77	125	16	0,06	6			163
20	25	19,8	33	35	85	20	0,07	8	201		
20	40	19,8	45	50	100	20	0,07	8		201	
20	55			65	115	20	0,07	8			202
20	70			80	130	20	0,07	8			203
25	55	24,8	63	69	125	25	0,08	8		251	
25	75			94	150	25	0,08	8			251
P									○	○	○
M									●	●	●
K									○	○	○
N									●	●	●
S									●	●	●
H											
O									●	●	●

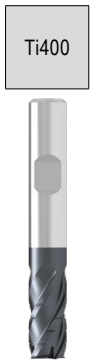
→ v_c/f_z Page 480–485

Roughing-Finishing Cutter

▲ With rough-finishing profile







DIN 6527

50 628 ...

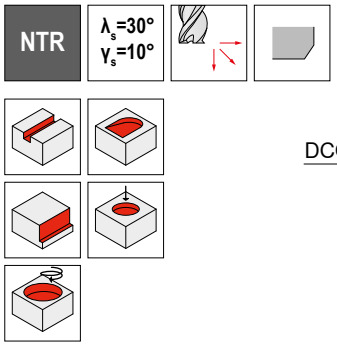
DC d11 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	
5	15	21	57	6	0,25	4	**050**
6	16	21	57	6	0,25	4	**060**
8	22	27	63	8	0,25	4	**080**
10	25	32	72	10	0,25	4	**100**
12	28	38	83	12	0,25	4	**120**
16	35	44	92	16	0,25	4	**160**
20	40	54	104	20	0,25	4	**200**

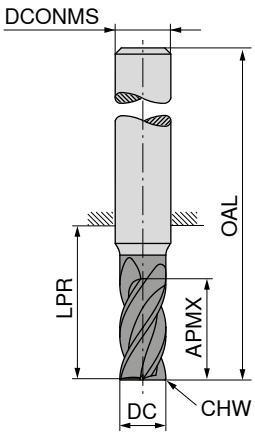
P	
M	
K	
N	●
S	○
H	
O	●

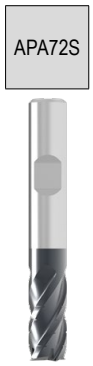
→ v_c/f_z Page 480–483

Roughing-Finishing Cutter

▲ With trapezoidal cord profile







DIN 6527

52 318 ...

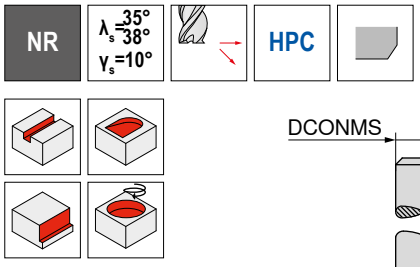
DC h10 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
6	13	21	57	6		3	**06000**
8	19	27	63	8	0,08	3	**08000**
10	22	32	72	10	0,12	4	**10000**
12	26	38	83	12	0,15	4	**12000**
14	26	38	83	14	0,17	4	**14000**
16	32	44	92	16	0,20	4	**16000**
18	32	48	92	18	0,22	4	**18000**
20	38	54	104	20	0,25	4	**20000**

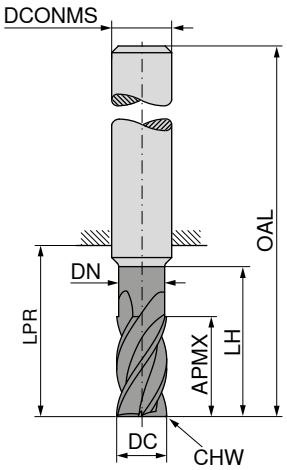
P	●
M	○
K	●
N	○
S	
H	
O	

→ v_c/f_z Page 470+471

Rough milling cutter

▲ With roughing profile





Ti1000

≈DIN 6527

54 077 ...

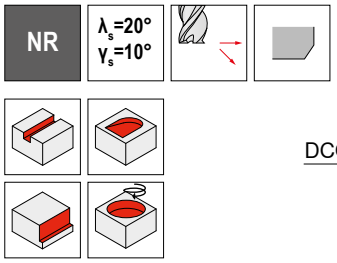
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
4	11	3,8	17	21	57	6	0,1	4	**00400**
5	13	4,8	19	21	57	6	0,1	4	**00500**
6	13	5,8	19	21	57	6	0,1	4	**00600**
8	21	7,7	25	27	63	8	0,2	4	**00800**
10	22	9,7	30	32	72	10	0,2	4	**01000**
12	26	11,6	36	38	83	12	0,3	4	**01200**
16	36	15,5	42	44	92	16	0,3	4	**01600**
20	41	19,5	52	54	104	20	0,3	4	**02000**

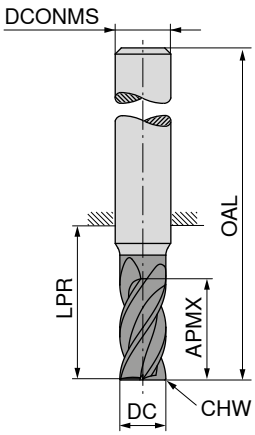
P	●
M	●
K	●
N	○
S	○
H	
O	

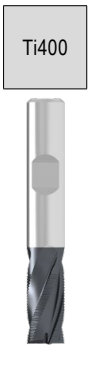
→ v_c/f_z Page 472+473

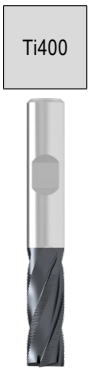
Rough milling cutter

▲ With roughing profile









DIN 6527

DIN 6527

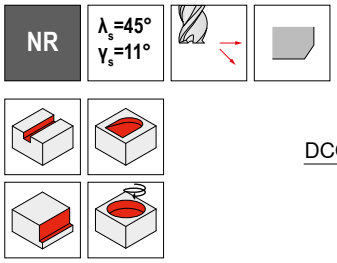
DC d11 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	50 618 ...	50 624 ...
4	8	21	57	6	0,6	4		040
5	8	18	54	6	0,6	4	050	
5	13	21	57	6	0,6	4		050
6	8	18	54	6	0,6	4	060	
6	13	21	57	6	0,6	4		060
7	11	22	58	8	0,6	4	070	
7	19	27	63	8	0,6	4		070
8	11	22	58	8	0,6	4	080	
8	19	27	63	8	0,6	4		080
9	13	26	66	10	0,6	4	090	
9	22	32	72	10	0,6	4		090
10	13	26	66	10	0,6	4	100	
10	22	32	72	10	0,6	4		100
11	26	38	83	12	0,6	4		110
12	16	28	73	12	0,6	4	120	
12	26	38	83	12	0,6	4		120
13	26	38	83	14	0,6	4		130
14	16	31	76	14	0,6	4	140	
14	26	38	83	14	0,6	4		140
16	19	34	82	16	0,6	4	160	
16	32	44	92	16	0,6	4		160
18	19	36	84	18	0,6	4	180	
18	32	44	92	18	0,6	4		180
20	19	42	92	20	0,6	4	200	
20	38	54	104	20	0,6	4		200
25	45	65	121	25	0,6	5		250

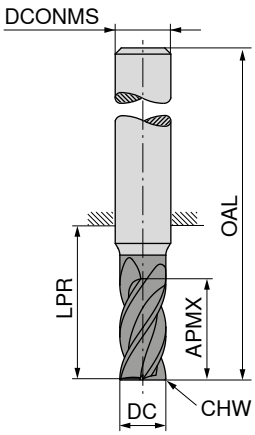
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H		
O	○	○

→ v_c/f_z Page 480–483

Rough milling cutter

▲ With roughing profile





Ti400

DIN 6527

50 637 ...

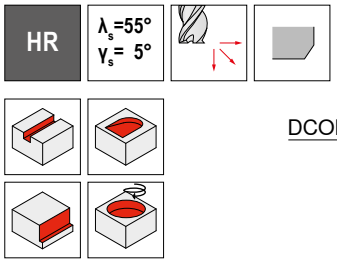
DC d11 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	
6	13	21	57	6	0,5	4	**060**
8	19	27	63	8	0,5	4	**080**
10	22	32	72	10	0,5	4	**100**
12	26	38	83	12	0,5	4	**120**
14	26	38	83	14	0,5	4	**140**
16	32	44	92	16	0,5	5	**160**
18	32	44	92	18	0,5	5	**180**
20	38	54	104	20	0,5	6	**200**
25	45	65	121	25	0,5	6	**250**

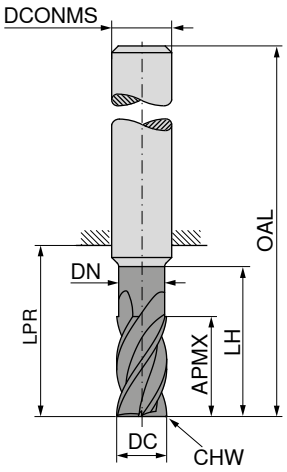
P	○
M	●
K	○
N	○
S	●
H	
O	○

→ v_c/f_z Page 480–483

Rough milling cutter

▲ With round cord profile
▲ With integrated chip breakers in the flutes





Factory standard

52 341 ...

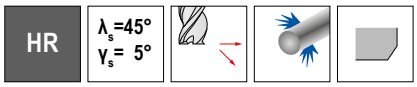
DC h11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
6	16	5,8	21	22	58	6	0,15	4	**060**
8	22	7,7	27	34	70	8	0,20	4	**080**
10	25	9,7	30	33	73	10	0,20	4	**100**
12	28	11,6	38	39	84	12	0,25	4	**120**
14	30	13,6	40	39	84	14	0,30	4	**140**
16	35	15,5	45	45	93	16	0,35	5	**160**
18	35	17,5	45	45	93	18	0,40	5	**180**
20	40	19,5	55	54	104	20	0,40	5	**200**

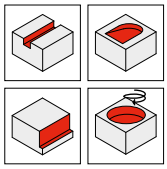
P	○
M	●
K	○
N	
S	
H	
O	

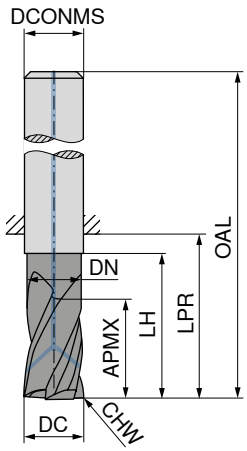
→ v_c/f_z Page 474+475

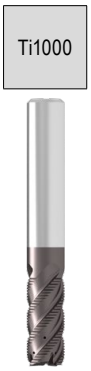
Rough milling cutter

▲ With round cord profile
▲ With integrated chip breakers in the flutes









Factory standard

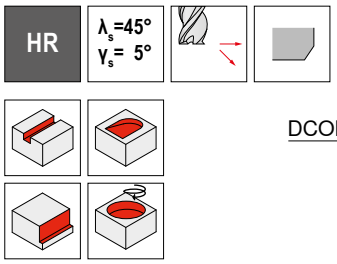
Factory standard

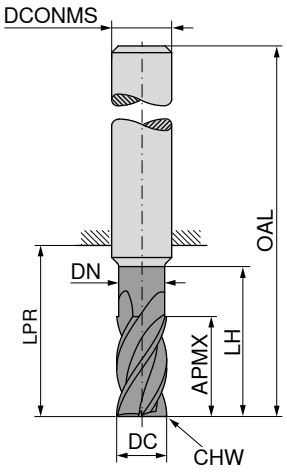
DC h11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 338 ...	52 339 ...
6	16	5,8	21	22	58	6	0,15	4	**060**	**060**
8	22	7,7	27	34	70	8	0,20	4	**080**	**080**
10	25	9,7	30	33	73	10	0,20	4	**100**	**100**
12	28	11,6	38	39	84	12	0,25	4	**120**	**120**
16	35	15,5	45	45	93	16	0,35	5	**160**	**160**
20	40	19,5	55	54	104	20	0,40	5	**200**	**200**
P									●	●
M									●	●
K									●	●
N										
S										
H										
O										

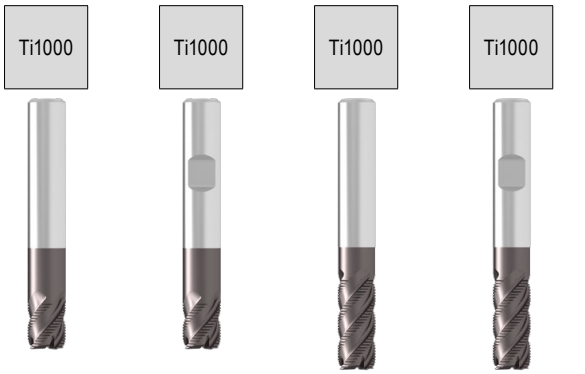
→ v_c/f_z Page 474+475

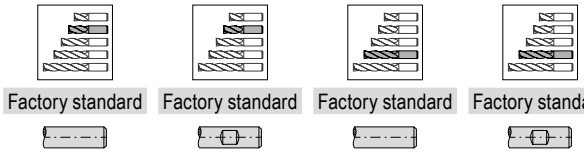
Rough milling cutter

▲ With round cord profile
▲ With integrated chip breakers in the flutes









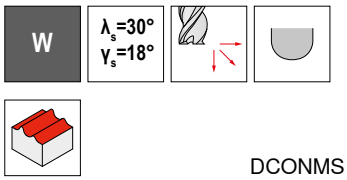
DC h11	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	52 342 ...	52 343 ...	52 342 ...	52 343 ...
mm	mm	mm	mm	mm	mm	mm	mm					
6	8	6,0		18	54	6	0,15	4	060	060		
6	16	5,8	21	22	58	6	0,15	4			061	061
8	11	8,0		23	59	8	0,20	4	080	080		
8	22	7,7	27	34	70	8	0,20	4			081	081
10	13	10,0		27	67	10	0,20	4	100	100		
10	25	9,7	30	33	73	10	0,20	4			101	101
12	16	12,0		29	74	12	0,25	4	120	120		
12	28	11,6	38	39	84	12	0,25	4			121	121
14	16	14,0		30	75	14	0,25	4	140	140		
14	30	13,5	40	39	84	14	0,25	4			141	141
16	19	16,0		36	84	16	0,35	5	160	160		
16	35	15,5	45	45	93	16	0,35	5			161	161
20	19	20,0		43	93	20	0,40	5	200	200		
20	40	19,5	55	54	104	20	0,40	5			201	201
25	50	24,0	65	69	125	25	0,50	5			251	251
P									●	●	●	●
M									○	○	○	○
K									●	●	●	●
N												
S												
H												
O												

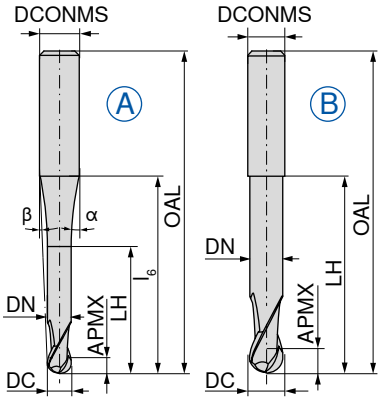
→ v_c/f_z Page 474+475

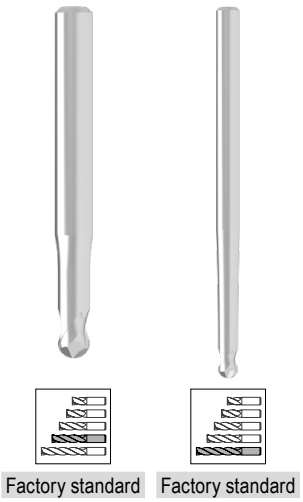
14

Ball Nosed Cutter

▲ Radius accuracy: ± 0.005 mm
▲ For Ø DC ≤ 5.0 mm, angle tolerance α and β: ± 0.5°







Factory standard | Factory standard

DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	52 718 ...	52 720 ...
0,5	1,0	0,45	2,0	9	38	10	8	3	2	A	**005**	
1,0	2,0	0,95	4,0	9	38	12,5	6,5	3	2	A	**010**	
1,5	2,5	1,40	7,5	9	38	32	5	3	2	A	**015**	
2,0	3,0	1,80	8,0	9	38	31	3,5	3	2	A	**020**	
3,0	3,5	2,80	10,0	20	57	11,5	5	6	2	A	**030**	
3,0	3,5	2,80	12,0	40	80	3,5	2,5	6	2	A		**030**
4,0	4,0	3,80	12,0	20	57	11	3,5	6	2	A	**040**	
4,0	4,0	3,80	20,0	40	80	4	1,5	6	2	A		**040**
5,0	5,0	4,70	10,0	40	100	1,5	1	6	2	A		**050**
5,0	5,0	4,70	14,0	20	57	10	2	6	2	A	**050**	
6,0	6,0	5,60	20,0		57			6	2	B	**060**	
6,0	6,0	5,60	40,0		100			6	2	B		**060**
8,0	7,0	7,60	25,0		63			8	2	B	**080**	
8,0	7,0	7,60	60,0		120			8	2	B		**080**
10,0	8,0	9,60	30,0		72			10	2	B	**100**	
10,0	8,0	9,60	60,0		120			10	2	B		**100**
12,0	8,0	11,50	40,0		83			12	2	B	**120**	
12,0	10,0	11,50	70,0		160			12	2	B		**120**

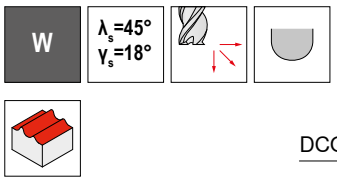
P		
M		
K		
N	●	●
S	○	○
H		
O	●	●

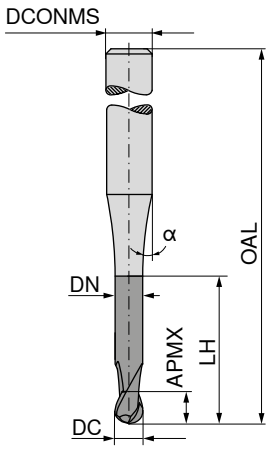
→ v_c/f_z Page 480–486

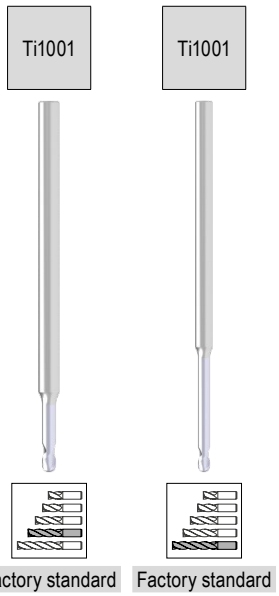
Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm

W | λ_s=45° γ_s=18°







DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 903 ...	50 903 ...
0,2	0,2	0,18	0,6	55	15	3	2	**021**	
0,2	0,2	0,18	1,0	55	15	3	2	**022**	
0,2	0,2	0,18	1,6	55	15	3	2	**023**	
0,2	0,2	0,18	2,0	55	15	3	2	**024**	
0,3	0,3	0,28	0,9	55	15	3	2	**031**	
0,3	0,3	0,28	1,5	55	15	3	2	**032**	
0,3	0,3	0,28	2,4	55	15	3	2	**033**	
0,3	0,3	0,28	3,0	55	15	3	2	**034**	
0,4	0,4	0,37	1,2	55	15	3	2	**041**	
0,4	0,4	0,37	2,0	55	15	3	2	**042**	
0,4	0,4	0,37	3,2	55	15	3	2	**043**	
0,4	0,4	0,37	4,0	55	15	3	2	**044**	
0,5	0,5	0,45	1,5	55	15	3	2	**051**	
0,5	0,5	0,45	2,5	55	15	3	2	**052**	
0,5	0,5	0,45	4,0	55	15	3	2	**053**	
0,5	0,5	0,45	5,0	55	15	3	2	**054**	
0,6	0,6	0,58	2,0	55	15	3	2	**061**	
0,6	0,6	0,58	3,0	55	15	3	2	**062**	
0,6	0,6	0,58	5,0	65	15	3	2		**063**
0,6	0,6	0,58	6,0	65	15	3	2		**064**
0,8	0,8	0,77	2,5	55	15	3	2	**081**	
0,8	0,8	0,77	4,0	55	15	3	2	**082**	
0,8	0,8	0,77	6,5	65	15	3	2		**083**
0,8	0,8	0,77	8,0	65	15	3	2		**084**
1,0	1,0	0,95	3,0	55	15	3	2	**101**	
1,0	1,0	0,95	5,0	55	15	3	2	**102**	
1,0	1,0	0,95	8,0	65	15	3	2		**103**
1,0	1,0	0,95	10,0	65	15	3	2		**104**
1,0	1,0	0,95	12,0	65	15	3	2		**105**
1,2	1,2	1,15	3,0	55	15	3	2	**121**	
1,2	1,2	1,15	6,0	55	15	3	2	**122**	
1,2	1,2	1,15	10,0	65	15	3	2		**123**
1,2	1,2	1,15	12,0	65	15	3	2		**124**
1,3	1,3	1,25	4,0	55	15	3	2	**131**	
1,3	1,3	1,25	7,0	55	15	3	2	**132**	
1,3	1,3	1,25	11,0	65	15	3	2		**133**
1,3	1,3	1,25	13,0	65	15	3	2		**134**
1,5	1,5	1,44	5,0	55	15	3	2	**151**	
1,5	1,5	1,44	7,5	55	15	3	2	**152**	

P		
M		
K		
N	●	●
S		
H		
O		

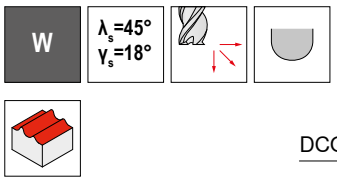
→ v_c/f_z Page 480–486

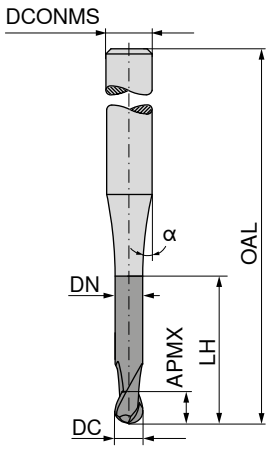
14

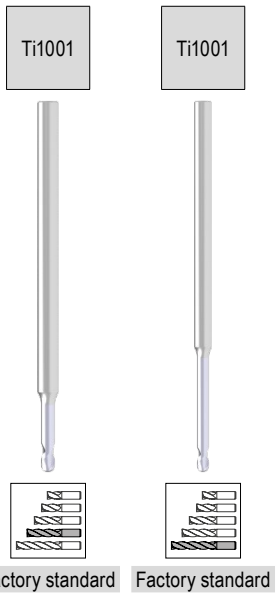
Continued on next page

Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm







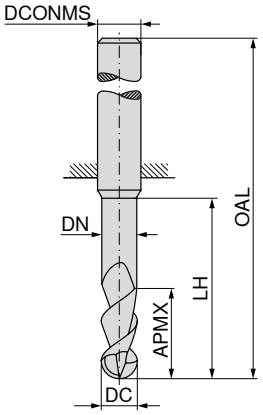
DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 903 ...	50 903 ...
1,5	1,5	1,44	12,0	65	15	3	2		**154**
1,5	1,5	1,44	15,0	65	15	3	2		**153**
1,6	1,6	1,52	5,0	55	15	3	2	**161**	
1,6	1,6	1,52	8,0	55	15	3	2	**162**	
1,6	1,6	1,52	13,0	65	15	3	2		**163**
1,6	1,6	1,52	16,0	65	15	3	2		**164**
1,8	1,8	1,72	5,5	55	15	3	2	**181**	
1,8	1,8	1,72	9,0	55	15	3	2	**182**	
1,8	1,8	1,72	14,5	65	15	3	2		**183**
1,8	1,8	1,72	18,0	65	15	3	2		**184**
2,0	2,0	1,92	6,0	55	15	3	2	**201**	
2,0	2,0	1,92	10,0	55	15	3	2	**202**	
2,0	2,0	1,92	14,0	55	15	3	2	**203**	
2,0	2,0	1,92	16,0	65	15	3	2		**204**
2,0	2,0	1,92	20,0	65	15	3	2		**205**
2,3	2,3	2,22	7,0	55	15	3	2	**231**	
2,3	2,3	2,22	11,5	55	15	3	2	**232**	
2,3	2,3	2,22	18,5	65	15	3	2		**233**
2,3	2,3	2,22	20,0	65	15	3	2		**234**
2,3	2,3	2,22	23,0	65	15	3	2		**235**
3,0	3,0	2,90	9,0	65	15	6	2	**301**	
3,0	3,0	2,90	15,0	65	15	6	2	**302**	
3,0	3,0	2,90	24,0	100	15	6	2		**303**
3,0	3,0	2,90	30,0	100	15	6	2		**304**
4,0	4,0	3,90	12,0	65	15	6	2	**401**	
4,0	4,0	3,90	20,0	65	15	6	2	**402**	
4,0	4,0	3,90	32,0	100	15	6	2		**403**
4,0	4,0	3,90	40,0	100	15	6	2		**404**
5,0	5,0	4,90	15,0	65	15	6	2	**501**	
5,0	5,0	4,90	25,0	65	15	6	2	**502**	
5,0	5,0	4,90	40,0	100	15	6	2		**503**
5,0	5,0	4,90	50,0	100	15	6	2		**504**
6,0	6,0	5,90	18,0	65	15	6	2	**601**	
6,0	6,0	5,90	30,0	100	15	6	2		**602**
6,0	6,0	5,90	48,0	100	15	6	2		**603**
6,0	6,0	5,90	60,0	100	15	6	2		**604**
P									
M									
K									
N								●	●
S									
H									
O									

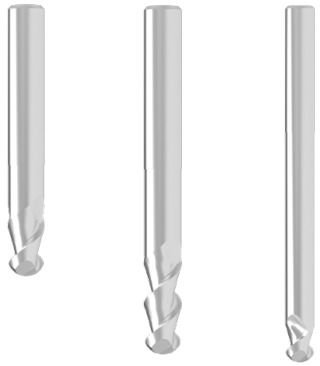
→ v_c/f_z Page 480–486

Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm

W | λ_s=55° γ_s= 7° | HPC





Factory standard | Factory standard | Factory standard

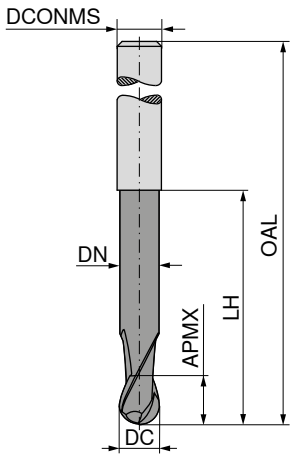
							54 640 ...		54 640 ...		54 640 ...	
DC h6	APMX	DN	LH	OAL	DCONMS h5	ZEFP						
mm	mm	mm	mm	mm	mm							
3	5,0	2,8	12	55	6	2	031					
3	3,5	2,8	15	58	6	2			034			
3	8,0	2,8	15	58	6	2			032			
3	3,5	2,8	24	67	6	2						035
4	6,5	3,8	12	55	6	2	041					
4	4,5	3,8	20	62	6	2			044			
4	10,5	3,8	20	62	6	2			042			
4	4,5	3,8	32	74	6	2						045
5	8,0	4,8	15	58	6	2	051					
5	5,5	4,8	25	70	6	2			054			
5	13,0	4,8	25	70	6	2			052			
5	5,5	4,8	40	88	6	2						055
6	10,0	5,8	18	58	6	2	061					
6	7,0	5,8	30	70	6	2			064			
6	16,0	5,8	30	70	6	2			062			
6	7,0	5,8	48	88	6	2						065
8	13,0	7,7	24	64	8	2	081					
8	9,0	7,7	40	80	8	2			084			
8	21,0	7,7	40	80	8	2			082			
8	9,0	7,7	64	104	8	2						085
10	16,0	9,7	30	74	10	2	101					
10	11,0	9,7	50	94	10	2			104			
10	26,0	9,7	50	94	10	2			102			
10	11,0	9,7	80	124	10	2						105
12	19,0	11,6	36	85	12	2	121					
12	13,0	11,6	60	109	12	2			124			
12	31,0	11,6	60	109	12	2			122			
12	13,0	11,6	96	145	12	2						125
14	22,0	13,6	42	91	14	2	141					
14	15,0	13,6	70	119	14	2			144			
14	36,0	13,6	70	119	14	2			142			
14	15,0	13,6	112	161	14	2						145
16	25,0	15,5	48	100	16	2	161					
16	17,0	15,5	80	132	16	2			164			
16	41,0	15,5	80	132	16	2			162			
16	17,0	15,5	128	180	16	2						165
18	29,0	17,5	54	106	18	2	181					
18	20,0	17,5	90	142	18	2			184			
18	47,0	17,5	90	142	18	2			182			
18	20,0	17,5	144	196	18	2						185
20	32,0	19,5	60	114	20	2	201					
20	52,0	19,5	100	154	20	2			202			
20	22,0	19,5	100	154	20	2			204			
20	22,0	19,5	160	214	20	2						205
P												
M												
K												
N							●		●		●	
S												
H												
O												

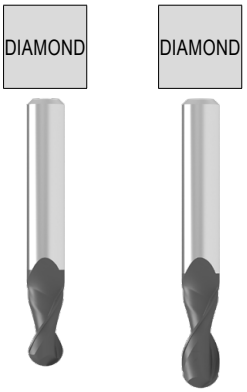
→ v_c/f_z Page 460+461

14

Ball Nosed Cutter

W | λ_s=30° γ_s=12°





Factory standard | Factory standard

DC h10 mm	APMX mm	LH mm	DN mm	OAL mm	DCONMS h6 mm	ZEFP	52 766 ...	52 768 ...
0,5	1,5			38	3	2	**005**	
1,0	2,0			38	3	2	**010**	
2,0	3,0			38	3	2	**020**	
2,0	3,0			50	6	2	**021**	
2,0	8,0	31	1,8	60	2	2		**020**
3,0	5,0			38	3	2	**030**	
3,0	5,0			50	6	2	**031**	
3,0	12,0	41	2,8	70	3	2		**030**
4,0	8,0			54	6	2	**040**	
4,0	15,0	51	3,8	80	4	2		**040**
5,0	9,0			54	6	2	**050**	
5,0	20,0	71	4,8	100	5	2		**050**
6,0	10,0			54	6	2	**060**	
6,0	20,0	63	5,8	100	6	2		**060**
8,0	12,0			58	8	2	**080**	
8,0	20,0	83	7,8	120	8	2		**080**
10,0	14,0			66	10	2	**100**	
10,0	25,0	99	9,8	140	10	2		**100**
12,0	25,0	104	11,8	150	12	2		**120**

P		
M		
K		
N	●	●
S		
H		
O	●	●

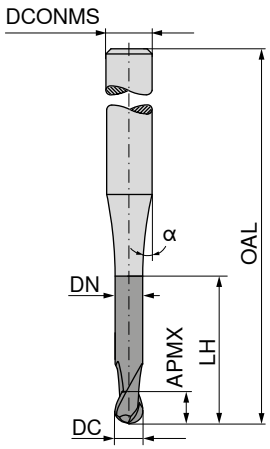
→ v_c/f_z Page 418

Micro-ball nosed cutter

▲ Radius accuracy: ± 0,01 mm

W

λ_s=30°
γ_s= 5°



DIAMOND

Factory standard

50 912 ...

DIAMOND

Factory standard

50 912 ...

DC f8 mm	APMX mm	LH mm	DN mm	OAL mm	α°	DCONMS h5 mm	ZEFP		
0,6	1,2	3,0	0,58	55	15	6	2	**906**	
0,6	1,2	6,0	0,58	65	15	6	2		**006**
0,8	1,2	4,0	0,77	55	15	6	2	**908**	
0,8	1,2	8,0	0,77	65	15	6	2		**008**
1,0	1,5	5,0	0,95	55	15	6	2	**910**	
1,0	1,5	12,0	0,95	65	15	6	2		**010**
1,2	1,6	6,0	1,15	55	15	6	2	**912**	
1,2	1,6	12,0	1,15	65	15	6	2		**012**
1,5	1,8	7,5	1,44	55	15	6	2	**915**	
1,5	1,8	15,0	1,44	65	15	6	2		**015**
2,0	2,0	10,0	1,92	55	15	6	2	**920**	
2,0	2,0	20,0	1,92	65	15	6	2		**020**

P		
M		
K		
N	●	●
S		
H		
O	●	●

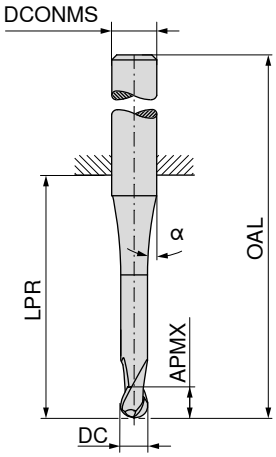
→ v_c/f_z Page 418

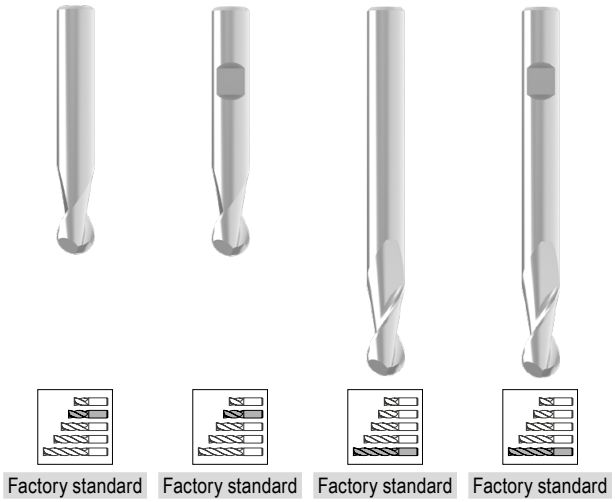
14

Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm

N | λ_s=30° γ_s=14°





Factory standard | Factory standard | Factory standard | Factory standard

DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	52 050 ...	52 052 ...	52 051 ...	52 053 ...
0,10	0,2	12,5	38	8	3	2	91000			
0,15	0,3	11,5	38	8	3	2	91500			
0,20	0,4	12,0	38	8	3	2	92000			
0,25	0,5	12,5	38	8	3	2	92500			
0,30	1,0	11,3	38	8	3	2	93000			
0,35	1,0	11,1	38	8	3	2	93500			
0,40	1,0	10,9	38	8	3	2	94000			
0,50	1,5	11,7	38	7	3	2	95000			
0,50	1,5	18,0	54	11	6	2	95100			
0,50	1,5	47,0	75	7	3	2			95000	
0,50	1,5	44,0	80	11	6	2			95100	
0,60	1,5	11,3	38	7	3	2	96000			
0,70	2,0	11,4	38	7	3	2	97000			
0,80	2,0	11,7	38	7	3	2	98000			
0,90	2,5	11,7	38	7	3	2	99000			
1,00	2,0	22,0	50	7	3	2	31000			
1,00	2,0	18,0	54	10	6	2	01000	01000		
1,00	3,0	47,0	75	7	3	2			31000	
1,00	3,0	44,0	80	10	6	2			01000	01000
1,10	3,0	22,0	50	6	3	2	31100			
1,20	3,0	22,0	50	5	3	2	31200			
1,40	3,0	22,0	50	5	3	2	31400			
1,50	3,0	22,0	50	6	3	2	31500			
1,50	3,0	18,0	54	10	6	2	01500	01500		
1,50	4,0	47,0	75	5	3	2			31500	
1,50	4,0	44,0	80	10	6	2			01500	01500
1,60	4,0	22,0	50	6	3	2	31600			
1,80	4,0	22,0	50	6	3	2	31800			
2,00	4,0	22,0	50	5	3	2	32000			
2,00	4,0	18,0	54	9	6	2	02000	02000		
2,00	6,0	47,0	75	5	3	2			32000	
2,00	6,0	44,0	80	10	6	2			02000	02000
2,50	5,0	22,0	50	3	3	2	32500			
2,50	5,0	18,0	54	9	6	2	02500	02500		
2,50	8,0	47,0	75	3	3	2			32500	
2,50	8,0	44,0	80	10	6	2			02500	02500
3,00	6,0	22,0	50		3	2	33000			
3,00	6,0	18,0	54	9	6	2	03000	03000		
3,00	10,0	47,0	75		3	2			33000	
3,00	10,0	44,0	80	9	6	2			03000	03000

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

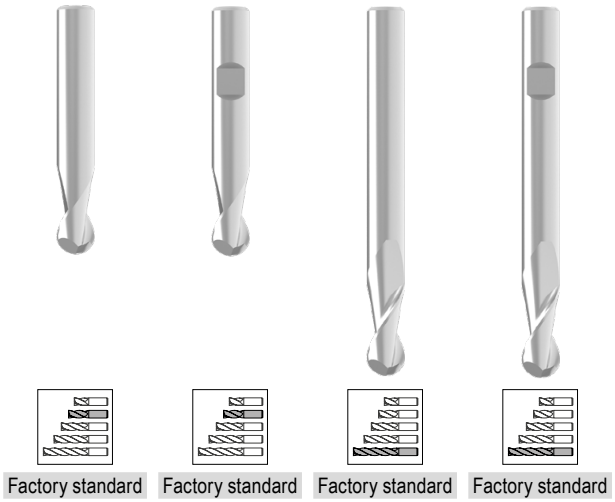
→ v_c/f_z Page 480–486

Continued on next page

Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm

N | λ_s=30° γ_s=14°



Factory standard | Factory standard | Factory standard | Factory standard

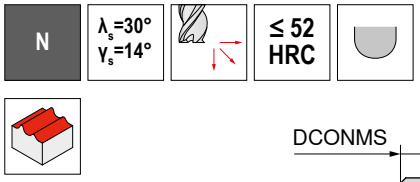
DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	52 050 ...		52 052 ...		52 051 ...		52 053 ...	
4,00	7,0	18,0	54	7	6	2	**04000**		**04000**					
4,00	7,0	26,0	54		4	2	**44000**							
4,00	13,0	47,0	75		4	2					**44000**			
4,00	13,0	44,0	80	8	6	2					**04000**		**04000**	
5,00	8,0	18,0	54	6	6	2	**05000**		**05000**					
5,00	8,0	26,0	54		5	2	**55000**							
5,00	14,0	47,0	75		5	2					**55000**			
5,00	14,0	64,0	100	5	6	2					**05000**		**05000**	
6,00	10,0	18,0	54		6	2	**06000**		**06000**					
6,00	16,0	64,0	100		6	2					**06000**		**06000**	
8,00	12,0	23,0	59		8	2	**08000**		**08000**					
8,00	22,0	64,0	100		8	2					**08000**		**08000**	
10,00	13,0	27,0	67		10	2	**10000**		**10000**					
10,00	25,0	60,0	100		10	2					**10000**		**10000**	
12,00	16,0	28,0	73		12	2	**12000**		**12000**					
12,00	26,0	55,0	100		12	2					**12000**		**12000**	
14,00	16,0	30,0	75		14	2	**14000**		**14000**					
14,00	26,0	55,0	100		14	2					**14000**		**14000**	
16,00	20,0	35,0	83		16	2	**16000**		**16000**					
16,00	30,0	102,0	150		16	2					**16000**		**16000**	
20,00	25,0	43,0	93		20	2	**20000**		**20000**					
20,00	40,0	100,0	150		20	2					**20000**		**20000**	

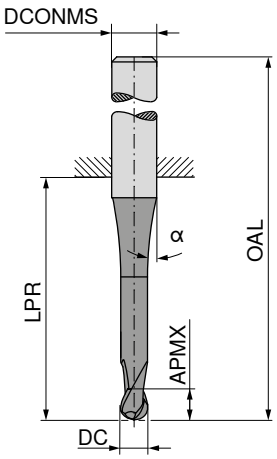
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

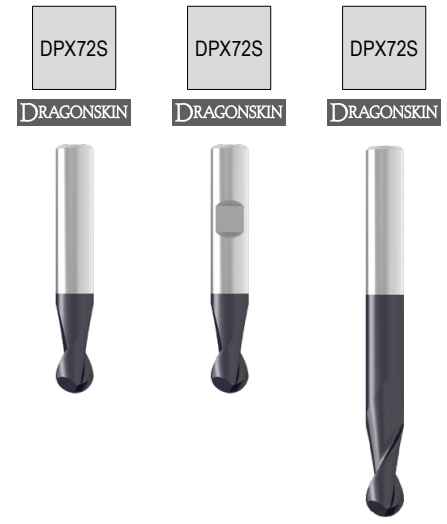
→ v_c/f_z Page 480–486

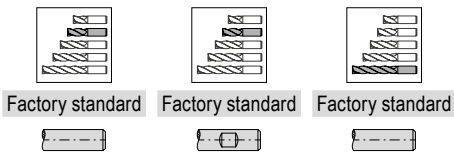
Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm









DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	52 054 ...		52 056 ...		52 055 ...	
0,10	0,2	12,5	38	8	3	2	**91000**					
0,15	0,3	11,5	38	8	3	2	**91500**					
0,20	0,4	12,0	38	8	3	2	**92000**					
0,25	0,5	12,5	38	8	3	2	**92500**					
0,30	1,0	11,3	38	8	3	2	**93000**					
0,35	1,0	11,1	38	8	3	2	**93500**					
0,40	1,0	10,9	38	8	3	2	**94000**					
0,50	1,5	11,7	38	7	3	2	**95000**					
0,50	1,5	47,0	75	7	3	2						**95000**
0,50	1,5	44,0	80	11	6	2						**95100**
0,50	1,5	18,0	54	11	6	2	**95100**					
0,60	1,5	11,3	38	7	3	2	**96000**					
0,70	2,0	11,4	38	7	3	2	**97000**					
0,80	2,0	11,7	38	7	3	2	**98000**					
0,90	2,5	11,7	38	7	3	2	**99000**					
1,00	2,0	22,0	50	7	3	2	**31000**					
1,00	2,0	18,0	54	10	6	2	**01000**			**01000**		
1,00	3,0	44,0	80	10	6	2						**01000**
1,00	3,0	47,0	75	7	3	2						**31000**
1,10	3,0	22,0	50	6	3	2	**31100**					
1,20	3,0	22,0	50	5	3	2	**31200**					
1,40	3,0	22,0	50	5	3	2	**31400**					
1,50	3,0	22,0	50	6	3	2	**31500**					
1,50	3,0	18,0	54	10	6	2	**01500**			**01500**		
1,50	4,0	44,0	80	10	6	2						**01500**
1,50	4,0	47,0	75	5	3	2						**31500**
1,60	4,0	22,0	50	6	3	2	**31600**					
1,80	4,0	22,0	50	6	3	2	**31800**					
2,00	4,0	18,0	54	9	6	2	**02000**			**02000**		
2,00	4,0	22,0	50	5	3	2	**32000**					
2,00	6,0	44,0	80	10	6	2						**02000**
2,00	6,0	47,0	75	5	3	2						**32000**
2,50	5,0	18,0	54	9	6	2	**02500**			**02500**		
2,50	5,0	22,0	50	3	3	2	**32500**					
2,50	8,0	44,0	80	10	6	2						**02500**
2,50	8,0	47,0	75	3	3	2						**32500**
3,00	6,0	18,0	54	9	6	2	**03000**			**03000**		
P							●		●		●	
M							○		○		○	
K							●		●		●	
N							○		○		○	
S							○		○		○	
H							○		○		○	
O							○		○		○	

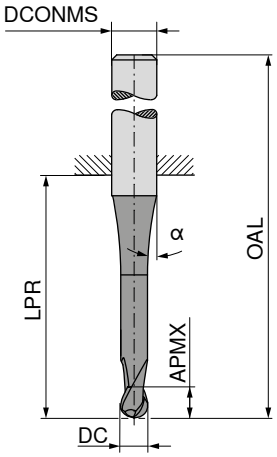
→ v_c/f_z Page 480–486

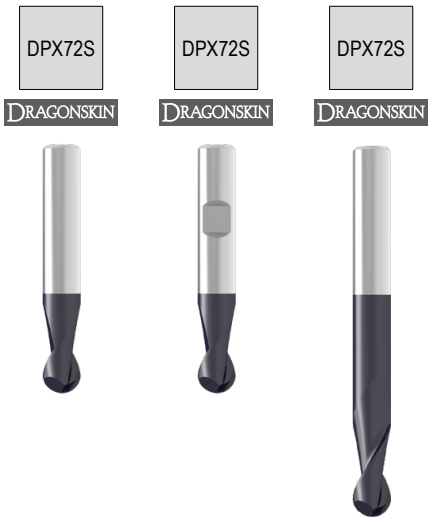
Continued on next page

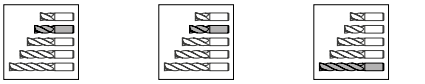
Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm

N | λ_s=30° γ_s=14° | ≤ 52 HRC







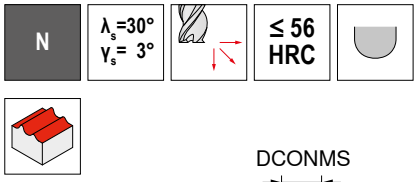
Factory standard | Factory standard | Factory standard

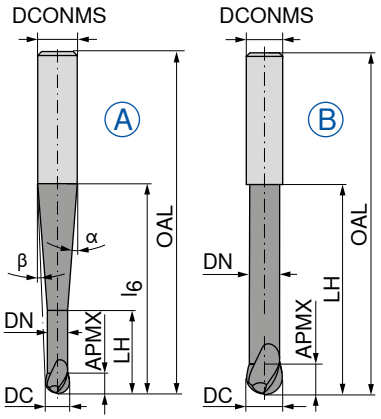
DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	52 054 ...		52 056 ...		52 055 ...	
3,00	6,0	22,0	50		3	2	**33000**					
3,00	10,0	47,0	75		3	2						**33000**
3,00	10,0	44,0	80	9	6	2						**03000**
4,00	7,0	18,0	54	10	6	2	**04000**		**04000**			
4,00	7,0	26,0	54		4	2	**44000**					
4,00	13,0	47,0	75		4	2						**44000**
4,00	13,0	44,0	80	8	6	2						**04000**
5,00	8,0	18,0	54	6	6	2	**05000**		**05000**			
5,00	8,0	26,0	54		5	2	**55000**					
5,00	14,0	47,0	75		5	2						**55000**
5,00	14,0	64,0	100	5	6	2						**05000**
6,00	10,0	18,0	54		6	2	**06000**		**06000**			
6,00	16,0	64,0	100		6	2						**06000**
8,00	12,0	23,0	59		8	2	**08000**		**08000**			
8,00	22,0	64,0	100		8	2						**08000**
10,00	13,0	27,0	67		10	2	**10000**		**10000**			
10,00	25,0	60,0	100		10	2						**10000**
12,00	16,0	28,0	73		12	2	**12000**		**12000**			
12,00	26,0	55,0	100		12	2						**12000**
14,00	16,0	30,0	75		14	2	**14000**		**14000**			
14,00	26,0	55,0	100		14	2						**14000**
16,00	20,0	35,0	83		16	2	**16000**		**16000**			
16,00	30,0	102,0	150		16	2						**16000**
18,00	22,0	45,0	93		18	2	**18000**		**18000**			
20,00	25,0	43,0	93		20	2	**20000**		**20000**			
20,00	40,0	100,0	150		20	2						**20000**
P							●		●		●	
M							○		○		○	
K							●		●		●	
N							○		○		○	
S							○		○		○	
H							○		○		○	
O							○		○		○	

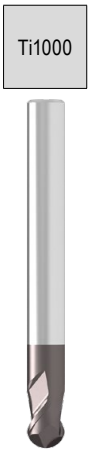
→ v_c/f_z Page 480–486

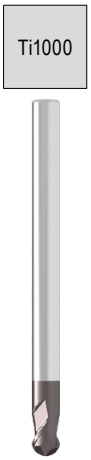
Ball Nosed Cutter

▲ Radius accuracy: ± 0.005 mm
▲ For Ø DC ≤ 5.0 mm, angle tolerance α and β: ± 0.5°









Factory standard | Factory standard

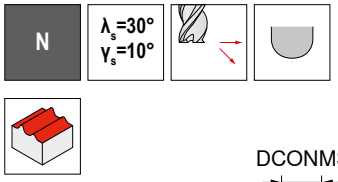
DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	52 714 ...	52 717 ...
0,5	1,0	0,45	2,0	20	57	10	8,5	6	2	A	**005**	
1,0	2,0	0,95	4,0	20	57	10	8	6	2	A	**010**	
1,0	2,0	0,95	4,0	40	80	4,5	4	6	2	A		**010**
1,5	2,5	1,40	7,5	20	57	12,5	7	6	2	A	**015**	
1,5	2,5	1,40	7,5	40	80	4,5	3,5	6	2	A		**015**
2,0	3,0	1,80	8,0	20	57	12	6,5	6	2	A	**020**	
2,0	3,0	1,80	8,0	40	80	4	3	6	2	A		**020**
3,0	3,5	2,80	10,0	20	57	11,5	5	6	2	A	**030**	
3,0	3,5	2,80	12,0	40	80	3,5	2,5	6	2	A		**030**
4,0	4,0	3,80	12,0	20	57	11	3,5	6	2	A	**040**	
4,0	4,0	3,80	20,0	40	80	4	1,5	6	2	A		**040**
5,0	5,0	4,70	14,0	20	57	10	2	6	2	A	**050**	
5,0	5,0	4,70	25,0	40	80	3	1	6	2	A		**050**
6,0	6,0	5,60	20,0		57			6	2	B	**060**	
6,0	6,0	5,60	40,0		80			6	2	B		**060**
6,0	6,0	5,60	25,0	60	100	2	1	8	2	A		**061**
8,0	7,0	7,60	25,0		63			8	2	B	**080**	
8,0	7,0	7,60	60,0		100			8	2	B		**080**
8,0	7,0	7,60	30,0	75	120	2	1	10	2	A		**081**
10,0	8,0	9,60	30,0		72			10	2	B	**100**	
10,0	8,0	9,60	50,0		100			10	2	B		**102**
10,0	8,0	9,60	75,0		120			10	2	B		**100**
10,0	8,0	9,60	40,0	110	160	1	1	12	2	A		**101**
12,0	10,0	11,50	35,0		83			12	2	B	**120**	
12,0	10,0	11,50	35,0	40	92	35	3,5	16	2	A	**121**	
12,0	10,0	11,50	70,0		120			12	2	B		**122**
12,0	10,0	11,50	70,0		160			12	2	B		**120**
12,0	10,0	11,50	50,0	150	200	1,5	1	16	2	A		**121**
16,0	12,0	15,50	40,0		92			16	2	B	**160**	
16,0	12,0	15,50	80,0		200			16	2	B		**160**

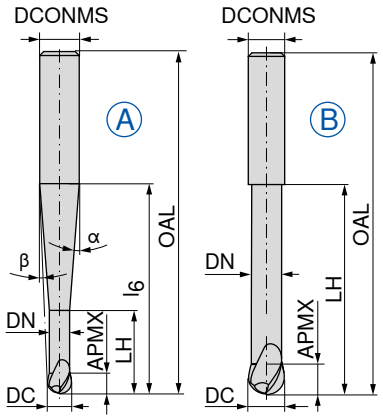
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	○
O	○	○

→ v_c/f_z Page 480–486

Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm
▲ for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °





Factory standard

52 320 ...

DC e8 mm	APMX mm	DN mm	LH mm	l6 mm	OAL mm	α°	β°	DCONMS h6 mm	ZEFP	Fig.	
2	3	1,8	8	40	100	3,6	3	6	2	A	**020**
3	4	2,8	12	40	100	3,1	2,1	6	2	A	**030**
4	5	3,8	16	40	100	2,4	1,2	6	2	A	**040**
5	6	4,7	20	40	100	1,4	0,7	6	2	A	**050**
6	6	5,7	25	50	100	2,3	1,2	8	2	A	**061**
6	6	5,7	25		100			6	2	B	**060**
8	7	7,7	32		100			8	2	B	**080**
8	7	7,7	32	60	120	2	1	10	2	A	**081**
10	9	9,6	40	81	160	1,4	0,7	12	2	A	**101**
10	9	9,6	40		120			10	2	B	**100**
12	11	11,6	50		160			12	2	B	**120**
12	11	11,6	50	101	200	2,3	1,2	16	2	A	**121**
16	14	15,6	60		200			16	2	B	**160**

P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c/f_z Page 480–486

14

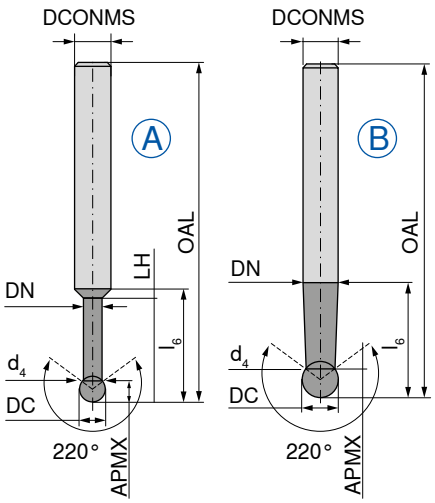
Ball Nosed Cutter 220°

▲ Radius accuracy: ± 0,005 mm

N

λ_s=30°
γ_s= 3°

Ti1000



Factory standard

52 323 ...

DC $_{f8}$ mm	APMX mm	DN mm	d_4 mm	LH mm	l_6 mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	Fig.	
1,0	0,7	0,80	0,8	5	17	58	6	2	A	**010**
1,5	1,2	1,20	1,2	8	20	58	6	2	A	**015**
2,0	1,5	1,40	1,4	10	21	58	6	2	A	**020**
3,0	2,3	2,40	2,4	15	22	65	6	2	A	**030**
4,0	3,0	3,40	3,4	20	25	70	6	2	A	**040**
5,0	3,5	4,30	4,3	25	28	80	6	2	A	**050**
6,0	4,0	5,90	5,3	30	30	100	6	2	A	**060**
8,0	6,5	7,90	6,2		40	100	8	2	B	**080**
10,0	8,2	9,90	7,6		50	100	10	2	B	**100**
12,0	9,9	11,90	9,2		110	160	12	2	B	**121**
12,0	9,9	11,90	9,2		70	120	12	2	B	**120**

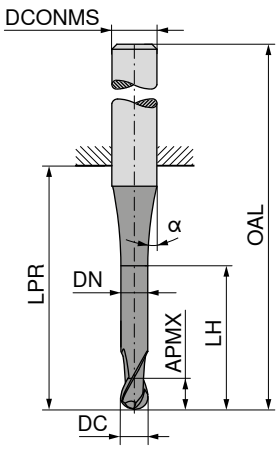
P	●
M	○
K	●
N	○
S	○
H	○
O	○

→ v_c/f_z Page 480–486

Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm

N | λ_s=30° γ_s=13° | HPC | Ti1000



≈DIN 6527

54 073 ...

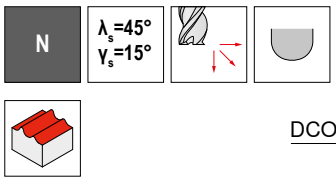
DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	α°	ZEFP	
3	5	2,9	9	14	50	6	15	2	**03115**
4	8	3,9	12	18	54	6	45	2	**04120**
5	9	4,9	15	18	54	6	45	2	**05125**
6	10	5,9	17	18	54	6	45	2	**06130**
8	12	7,8	20	22	58	8	45	2	**08140**
10	14	9,8	26	26	66	10	45	2	**10150**
12	16	11,8	28	28	73	12	45	2	**12160**
16	22	15,7	32	34	82	16	45	2	**16180**
20	26	19,7	40	42	92	20	45	2	**20110**

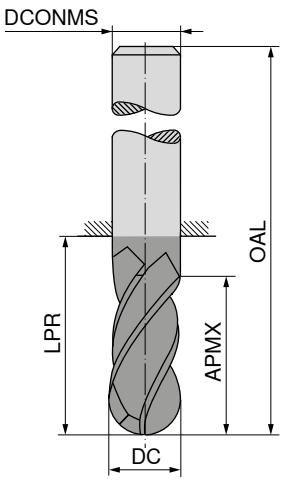
P	●
M	○
K	●
N	●
S	○
H	
O	

→ v_c/f_z Page 476+477

Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm





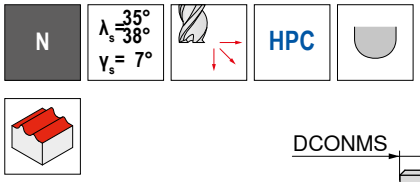
Factory standard | Factory standard

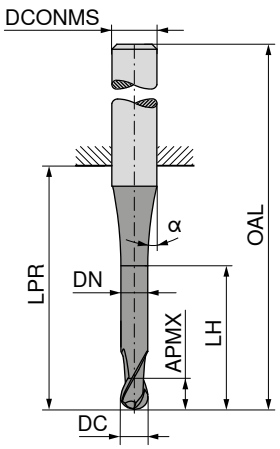
DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 400 ...	52 402 ...
3	5	22	50	3	4	030	
3	5	47	75	3	4		030
4	8	26	54	4	4	040	
4	8	47	75	4	4		040
5	9	26	54	5	4	050	
5	9	47	75	5	4		050
6	10	18	54	6	4	060	
6	10	64	100	6	4		060
8	12	23	59	8	4	080	
8	12	64	100	8	4		080
10	14	27	67	10	4	100	
10	14	60	100	10	4		100
12	16	29	74	12	4	120	
12	16	55	100	12	4		120
14	18	30	75	14	4	140	
14	18	55	100	14	4		140
16	22	35	83	16	4	160	
16	22	102	150	16	4		160
20	26	43	93	20	4	200	
20	26	100	150	20	4		200
P						○	○
M						●	●
K						○	○
N						●	●
S						●	●
H							
O						●	●

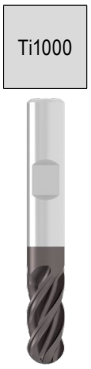
→ v_c/f_z Page 480–486

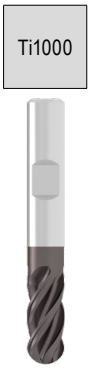
Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm









≈DIN 6527 | ≈DIN 6527

DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	α°	ZEFP	54 074 ...	54 074 ...
3	8			21	57	6	30	4	03115	
3	8	2,9	15	21	57	6	45	4		03215
4	11			21	57	6	30	4	04120	
4	11	3,9	16	21	57	6	45	4		04220
5	13			21	57	6	30	4	05125	
5	13	4,9	19	21	57	6	45	4		05225
6	13			21	57	6	30	4	06130	
6	13	5,9	19	21	57	6	45	4		06430
8	19			36	72	8	30	4	08140	
8	19	7,8	25	27	72	8	45	4		08440
10	22			32	72	10	30	4	10150	
10	22	9,7	30	32	72	10	45	4		10450
12	26			38	83	12	30	4	12160	
12	26	11,7	36	38	83	12	45	4		12460
16	32			44	92	16	30	4	16180	
16	32	15,5	42	44	92	16	45	4		16480
20	38			54	104	20	30	4	20110	
20	38	19,5	52	54	104	20	45	4		20410

P	●	●
M	●	●
K	●	●
N	○	○
S		
H		
O		

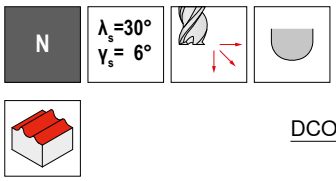
→ v_c/f_z Page 478+479

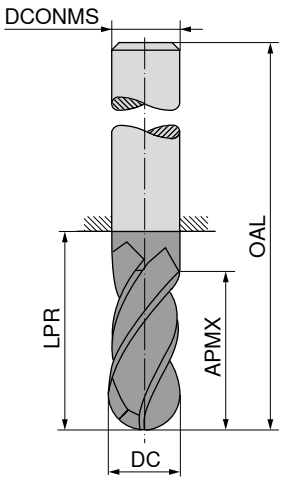
14

Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm

N | λ_s=30° γ_s= 6°





DIN 6527 | DIN 6527

DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 643 ...	50 643 ...
3	8	21	57	6	4	030	
4	11	21	57	6	4	040	
6	13	21	57	6	4	060	
6	40	64	100	6	4		061
8	19	27	63	8	4	080	
8	40	64	100	8	4		081
10	22	32	72	10	4	100	
10	40	60	100	10	4		101
12	26	38	83	12	4	120	
12	45	55	100	12	4		121
12	75	105	150	12	4		122
14	26	38	83	14	4	140	
14	45	55	100	14	4		141
16	32	44	92	16	4	160	
16	75	102	150	16	4		161
20	38	54	104	20	4	200	
20	75	100	150	20	4		201

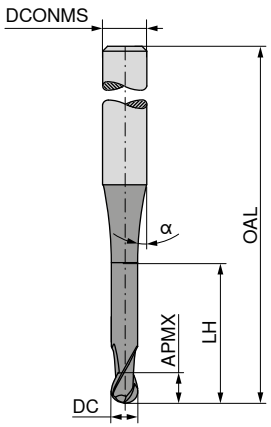
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	○
O	○	○

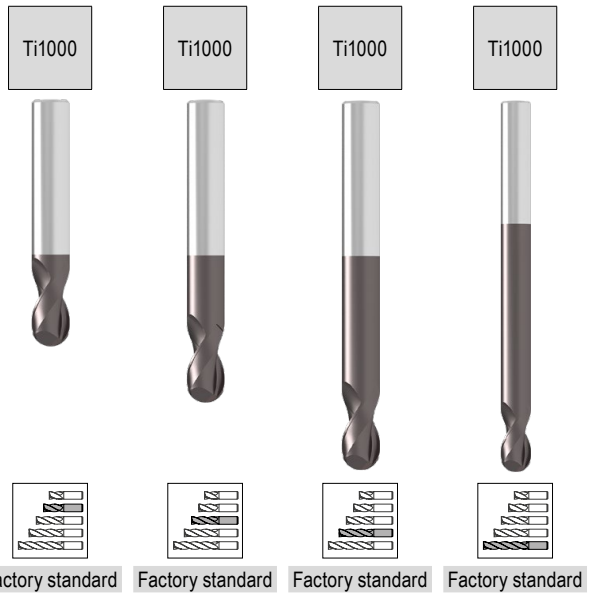
→ v_c/f_z Page 480–486

Ball Nosed Cutter

▲ Radius accuracy: ± 0.005 mm

H | λ_s=30° γ_s= 4° | ≤ 68 HRC





Factory standard | Factory standard | Factory standard | Factory standard

DC mm	DC Tol.	APMX mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	ZEFP	50 906 ...	50 906 ...	50 906 ...	50 906 ...
0,20	0/-0,015	0,3	0,6	40	15	4	2	**002**			
0,25	0/-0,015	0,3	0,6	40	15	4	2	**925**			
0,30	0/-0,015	0,3	0,6	40	15	4	2	**003**			
0,35	0/-0,015	0,4	0,7	40	15	4	2	**935**			
0,40	0/-0,015	0,4	0,7	40	15	4	2	**004**			
0,50	0/-0,015	0,5	0,8	40	15	4	2	**005**			
0,50	0/-0,015	0,5	0,8	54	15	6	2	**951**			
0,60	0/-0,015	0,6	0,9	40	15	4	2	**006**			
0,70	0/-0,015	0,8	1,1	40	15	4	2	**007**			
0,80	0/-0,015	0,8	1,1	40	15	4	2	**008**			
0,90	0/-0,015	0,9	1,2	40	15	4	2	**009**			
1,00	0/-0,015	1,0	1,3	54		4	2			**010**	
1,00	0/-0,015	1,0	1,3	54	15	6	2	**011**			
1,00	0/-0,015	1,0	1,3	64		6	2			**012**	
1,00	0/-0,015	1,0	1,3	80		6	2				**013**
1,00	0/-0,015	1,0	1,3	100		6	2				**014**
1,20	0/-0,015	1,2	1,5	54		4	2			**112**	
1,40	0/-0,015	1,4	1,8	54		4	2			**114**	
1,50	0/-0,015	1,5	1,9	54		4	2			**115**	
1,50	0/-0,015	1,5	1,9	54	15	6	2	**215**			
1,50	0/-0,015	1,5	1,9	80		6	2				**315**
1,60	0/-0,015	1,8	2,3	54		4	2			**116**	
1,80	0/-0,015	1,8	2,3	54		4	2			**118**	
2,00	0/-0,015	2,0	2,5	54		4	2			**206**	
2,00	0/-0,015	4,0	5,0	54		6	2			**202**	
2,00	0/-0,015	4,0	5,0	64		6	2			**207**	
2,00	0/-0,015	4,0	5,0	82		6	2				**204**
2,00	0/-0,015	4,0	5,0	100		6	2				**205**
2,50	0/-0,02	5,0	6,6	54		4	2			**251**	
2,50	0/-0,02	5,0	6,3	54	15	6	2	**252**			
2,50	0/-0,02	5,0	6,3	64		6	2			**253**	
2,50	0/-0,02	5,0	6,3	82		6	2				**254**
2,50	0/-0,02	5,0	6,3	100		6	2				**255**
3,00	0/-0,02	5,0	6,3	54		4	2			**030**	
3,00	0/-0,02	5,0	6,3	82		4	2				**032**
3,00	0/-0,02	5,0	6,3	100		4	2				**033**
3,00	0/-0,02	5,0	6,3	54	15	6	2	**035**			
3,00	0/-0,02	5,0	6,3	64		6	2			**036**	
3,00	0/-0,02	5,0	6,3	82		6	2				**037**
3,00	0/-0,02	8,0	10,0	100		6	2				**038**
4,00	0/-0,02	8,0		54	15	4	2			**040**	
4,00	0/-0,02	8,0	10,0	82	15	4	2				**042**
4,00	0/-0,02	8,0	10,0	100	15	4	2				**043**

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

→ v_c/f_z Page 480–486

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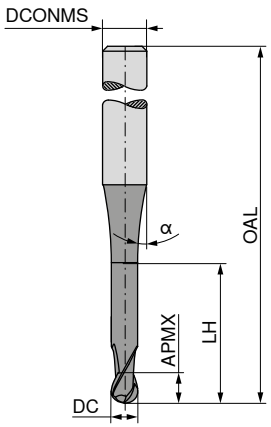
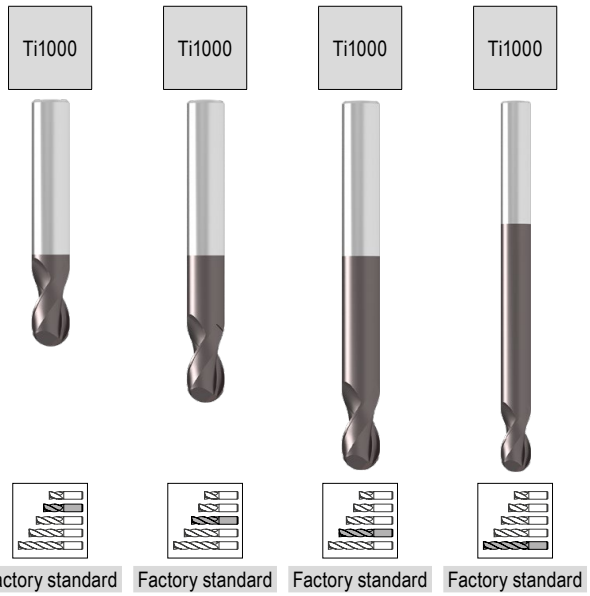
Continued on next page

Ball Nosed Cutter

▲ Radius accuracy: ± 0.005 mm

H | λ_s=30° γ_s= 4° | ≤ 68 HRC





Factory standard | Factory standard | Factory standard | Factory standard

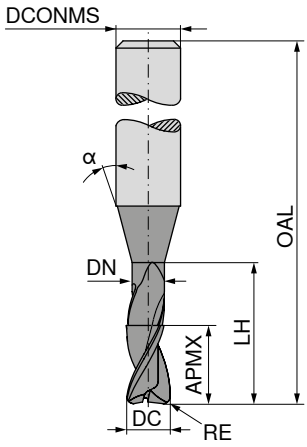
								50 906 ...		50 906 ...		50 906 ...		50 906 ...	
DC mm	DC Tol.	APMX mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	ZEFP								
4,00	0/-0,02	8,0	10,0	54	15	6	2	**045**							
4,00	0/-0,02	8,0	10,0	64		6	2						**046**		
4,00	0/-0,02	8,0	10,0	82		6	2								**047**
4,00	0/-0,02	8,0	10,0	100		6	2								**048**
5,00	0/-0,02	9,0		54	15	5	2						**050**		
5,00	0/-0,02	9,0		64	15	5	2						**051**		
5,00	0/-0,02	9,0	11,3	82	15	5	2								**052**
5,00	0/-0,02	9,0	11,3	100	15	5	2								**053**
5,00	0/-0,02	9,0	11,3	54	15	6	2	**055**							
5,00	0/-0,02	9,0	11,3	64		6	2						**056**		
5,00	0/-0,02	9,0	11,3	82		6	2								**057**
5,00	0/-0,02	9,0	11,3	100		6	2								**058**
6,00	0/-0,02	10,0		54	15	6	2	**060**							
6,00	0/-0,02	10,0		64	15	6	2						**061**		
6,00	0/-0,02	10,0		82	15	6	2								**062**
6,00	0/-0,02	10,0		100	15	6	2								**063**
6,00	0/-0,02	10,0		120	15	6	2								**064**
8,00	0/-0,025	12,0		64	15	8	2						**081**		
8,00	0/-0,025	12,0		82	15	8	2			**082**					
8,00	0/-0,025	12,0		100	15	8	2								**083**
8,00	0/-0,025	12,0		120	15	8	2								**084**
10,00	0/-0,025	14,0		67	15	10	2	**101**							
10,00	0/-0,025	14,0		82	15	10	2			**102**					
10,00	0/-0,025	14,0		100	15	10	2								**103**
10,00	0/-0,025	14,0		127	15	10	2								**104**
12,00	0/-0,025	16,0		75	15	12	2	**121**							
12,00	0/-0,025	16,0		100	15	12	2			**122**					
12,00	0/-0,025	16,0		150	15	12	2								**123**
14,00	0/-0,025	18,0		80	15	14	2	**141**							
14,00	0/-0,025	18,0		100	15	14	2			**142**					
14,00	0/-0,025	18,0		150	15	14	2								**143**
16,00	0/-0,025	22,0		85	15	16	2	**161**							
16,00	0/-0,025	22,0		150	15	16	2								**163**
20,00	0/-0,025	26,0		90	15	20	2	**201**							
20,00	0/-0,025	26,0		150	15	20	2								**203**
P								●		●		●		●	
M								○		○		○		○	
K								●		●		●		●	
N								○		○		○		○	
S								○		○		○		○	
H								○		○		○		○	
O								○		○		○		○	

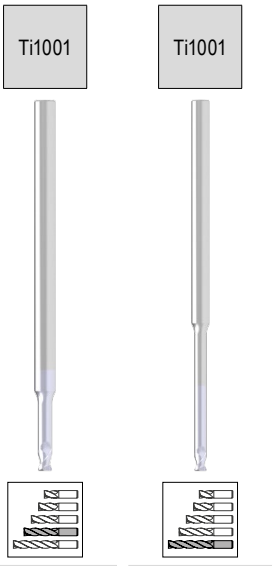
→ v_c/f_z Page 480–486

Torus Cutter

W

λ_s=45°
γ_s=18°





Factory standard | Factory standard

DC f8 mm	RE -0.015 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 901 ...	50 901 ...
0,2	0,02	0,2	0,18	0,6	55	15	3	2	**021**	
0,2	0,02	0,2	0,18	1,0	55	15	3	2	**022**	
0,2	0,02	0,2	0,18	1,6	55	15	3	2	**023**	
0,2	0,02	0,2	0,18	2,0	55	15	3	2	**024**	
0,3	0,03	0,3	0,28	0,9	55	15	3	2	**031**	
0,3	0,03	0,3	0,28	1,5	55	15	3	2	**032**	
0,3	0,03	0,3	0,28	2,4	55	15	3	2	**033**	
0,3	0,03	0,3	0,28	3,0	55	15	3	2	**034**	
0,4	0,04	0,4	0,37	1,2	55	15	3	2	**041**	
0,4	0,04	0,4	0,37	2,0	55	15	3	2	**042**	
0,4	0,04	0,4	0,37	3,2	55	15	3	2	**043**	
0,4	0,04	0,4	0,37	4,0	55	15	3	2	**044**	
0,5	0,05	0,5	0,45	1,5	55	15	3	2	**051**	
0,5	0,05	0,5	0,45	2,5	55	15	3	2	**052**	
0,5	0,05	0,5	0,45	4,0	55	15	3	2	**053**	
0,5	0,05	0,5	0,45	5,0	55	15	3	2	**054**	
0,6	0,06	0,6	0,58	2,0	55	15	3	2	**061**	
0,6	0,06	0,6	0,58	3,0	55	15	3	2	**062**	
0,6	0,06	0,6	0,58	4,2	55	15	3	2	**063**	
0,6	0,06	0,6	0,58	5,0	65	15	3	2		**064**
0,6	0,06	0,6	0,58	6,0	65	15	3	2		**065**
0,8	0,08	0,8	0,77	2,5	55	15	3	2	**081**	
0,8	0,08	0,8	0,77	4,0	55	15	3	2	**082**	
0,8	0,08	0,8	0,77	6,5	65	15	3	2		**083**
0,8	0,08	0,8	0,77	8,0	65	15	3	2		**084**
1,0	0,10	1,0	0,95	3,0	55	15	3	2	**101**	
1,0	0,10	1,0	0,95	5,0	55	15	3	2	**102**	
1,0	0,10	1,0	0,95	8,0	65	15	3	2		**103**
1,0	0,10	1,0	0,95	10,0	65	15	3	2		**104**
1,0	0,10	1,0	0,95	12,0	65	15	3	2		**105**
1,2	0,12	1,2	1,15	3,0	55	15	3	2	**121**	
1,2	0,12	1,2	1,15	6,0	55	15	3	2	**122**	
1,2	0,12	1,2	1,15	10,0	65	15	3	2		**123**
1,2	0,12	1,2	1,15	12,0	65	15	3	2		**124**
1,3	0,13	1,3	1,25	4,0	55	15	3	2	**131**	
1,3	0,13	1,3	1,25	7,0	55	15	3	2	**132**	
1,3	0,13	1,3	1,25	11,0	65	15	3	2		**133**
1,3	0,13	1,3	1,25	13,0	65	15	3	2		**134**
1,5	0,15	1,5	1,44	5,0	55	15	3	2	**151**	
1,5	0,15	1,5	1,44	7,5	55	15	3	2	**152**	
1,5	0,15	1,5	1,44	12,0	65	15	3	2		**153**
1,5	0,15	1,5	1,44	15,0	65	15	3	2		**154**
1,6	0,16	1,6	1,52	5,0	55	15	3	2	**161**	
1,6	0,16	1,6	1,52	8,0	55	15	3	2	**162**	
1,6	0,16	1,6	1,52	13,0	65	15	3	2		**163**

P		
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→ v_c/f_z Page 480–486

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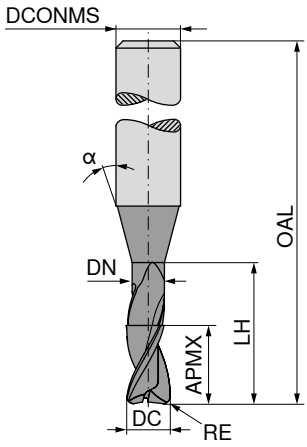
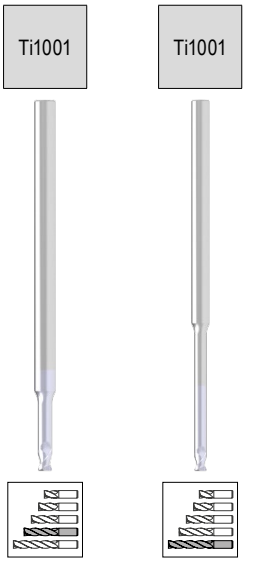
Torus Cutter

W

λ_s=45°
γ_s=18°





Factory standard | Factory standard

DC f8 mm	RE -0.015 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 901 ...	50 901 ...
1,6	0,16	1,6	1,52	16,0	65	15	3	2		164
1,8	0,18	1,8	1,72	5,5	55	15	3	2	181	
1,8	0,18	1,8	1,72	9,0	55	15	3	2	182	
1,8	0,18	1,8	1,72	14,5	65	15	3	2		183
1,8	0,18	1,8	1,72	18,0	65	15	3	2		184
2,0	0,20	2,0	1,92	6,0	55	15	3	2	201	
2,0	0,20	2,0	1,92	10,0	55	15	3	2	202	
2,0	0,20	2,0	1,92	14,0	55	15	3	2	203	
2,0	0,20	2,0	1,92	16,0	65	15	3	2		204
2,0	0,20	2,0	1,92	20,0	65	15	3	2		205
2,3	0,23	2,3	2,22	7,0	55	15	3	2	231	
2,3	0,23	2,3	2,22	11,5	55	15	3	2	232	
2,3	0,23	2,3	2,22	14,0	55	15	3	2	233	
2,3	0,23	2,3	2,22	18,5	65	15	3	2		234
2,3	0,23	2,3	2,22	20,0	65	15	3	2		235
2,3	0,23	2,3	2,22	23,0	65	15	3	2		236
3,0	0,30	3,0	2,90	9,0	65	15	6	2	301	
3,0	0,30	3,0	2,90	15,0	65	15	6	2	302	
3,0	0,30	3,0	2,90	24,0	100	15	6	2		303
3,0	0,30	3,0	2,90	30,0	100	15	6	2		304
4,0	0,40	4,0	3,90	12,0	65	15	6	2	401	
4,0	0,40	4,0	3,90	20,0	65	15	6	2	402	
4,0	0,40	4,0	3,90	32,0	100	15	6	2		403
4,0	0,40	4,0	3,90	40,0	100	15	6	2		404
5,0	0,50	5,0	4,90	15,0	65	15	6	2	501	
5,0	0,50	5,0	4,90	25,0	65	15	6	2	502	
5,0	0,50	5,0	4,90	40,0	100	15	6	2		503
5,0	0,50	5,0	4,90	50,0	100	15	6	2		504
6,0	0,60	6,0	5,90	18,0	65	15	6	2	601	
6,0	0,60	6,0	5,90	30,0	100	15	6	2		602
6,0	0,60	6,0	5,90	48,0	100	15	6	2		603
6,0	0,60	6,0	5,90	60,0	100	15	6	2		604

P		
M		
K		
N	●	●
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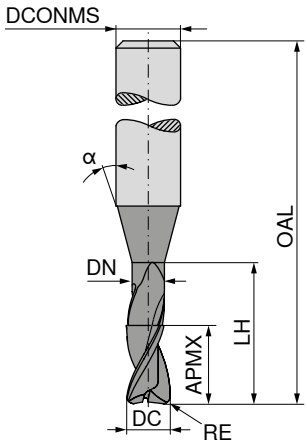
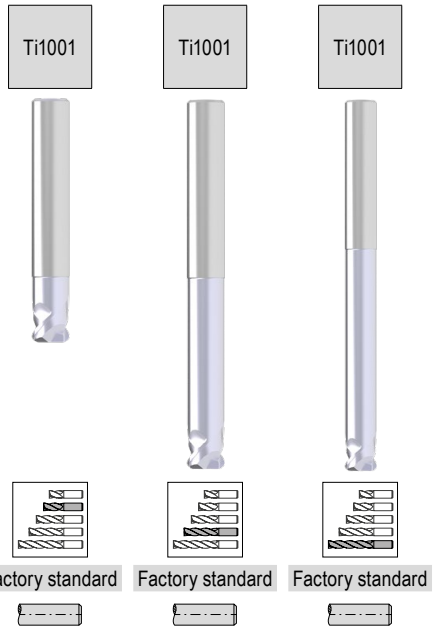
→ v_c/f_z Page 480–486

Torus Cutter

W

λ_s=45°
γ_s=15°





DC f8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 902 ...	50 902 ...	50 902 ...
2	0,3	2	1,8	12	50	45	6	2	020		
2	0,5	2	1,8	12	50	45	6	2	023		
2	0,3	2	1,8	22	60	45	6	2		021	
2	0,5	2	1,8	22	60	45	6	2		024	
2	0,3	2	1,8	47	85	45	6	2			022
2	0,5	2	1,8	47	85	45	6	2			025
3	0,3	2	2,8	12	50	45	6	2	030		
3	0,5	2	2,8	12	50	45	6	2	033		
3	0,3	2	2,8	22	60	45	6	2		031	
3	0,5	2	2,8	22	60	45	6	2		034	
3	0,3	2	2,8	47	85	45	6	2			032
3	0,5	2	2,8	47	85	45	6	2			035
4	0,3	3	3,8	16	54	45	6	2	040		
4	0,5	3	3,8	16	54	45	6	2	043		
4	1,0	3	3,8	16	54	45	6	2	046		
4	0,3	3	3,8	37	75	45	6	2		041	
4	0,5	3	3,8	37	75	45	6	2		044	
4	1,0	3	3,8	37	75	45	6	2		047	
4	0,3	3	3,8	47	85	45	6	2			042
4	0,5	3	3,8	47	85	45	6	2			045
4	1,0	3	3,8	47	85	45	6	2			048
5	0,5	3	4,6	16	54	45	6	2	050		
5	1,0	3	4,6	16	54	45	6	2	052		
5	1,5	3	4,6	16	54	45	6	2	054		
5	0,5	3	4,6	37	75	45	6	2		051	
5	1,0	2	4,6	37	75	45	6	2		053	
5	1,5	3	4,6	37	75	45	6	2		055	
6	0,5	4	5,6	16	54	45	6	2	060		
6	1,0	4	5,6	16	54	45	6	2	063		
6	2,0	4	5,6	16	54	45	6	2	066		
6	0,5	4	5,6	47	85	45	6	2		061	
6	1,0	4	5,6	47	85	45	6	2		064	
6	2,0	4	5,6	47	85	45	6	2		067	
6	0,5	4	5,6	47	85	45	8	2		069	
6	1,0	4	5,6	47	85	45	8	2		070	
6	2,0	4	5,6	47	85	45	8	2		071	
6	0,5	4	5,6	62	100	45	6	2			062
6	1,0	4	5,6	62	100	45	6	2			065
6	2,0	4	5,6	62	100	45	6	2			068
8	0,5	4	7,6	20	58	45	8	2	080		

P			
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O			

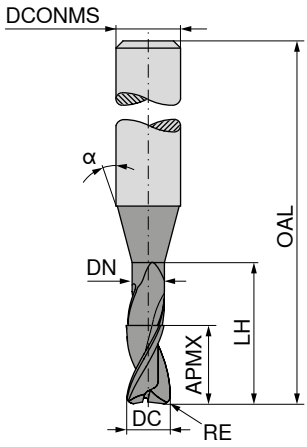
→ v_c/f_z Page 480–486

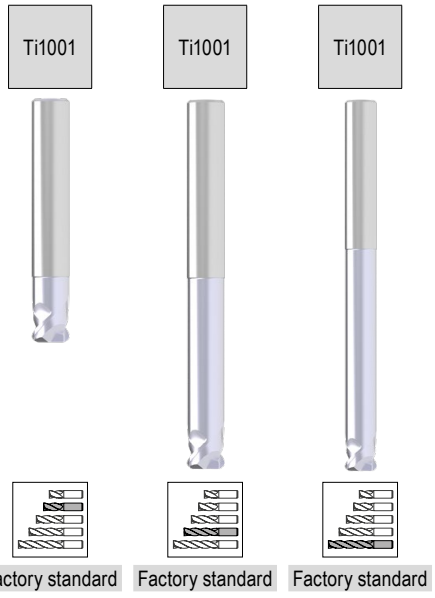
Continued on next page

Torus Cutter

W

λ_s=45°
γ_s=15°





Factory standard | Factory standard | Factory standard

DC f8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 902 ...	50 902 ...	50 902 ...
8	1,0	4	7,6	20	58	45	8	2	082		
8	2,0	4	7,6	20	58	45	8	2	084		
8	0,5	4	7,6	62	100	45	8	2			081
8	1,0	4	7,6	62	100	45	8	2			083
8	2,0	4	7,6	62	100	45	8	2			085
8	2,0	4	7,6	62	100	45	10	2			086
10	1,0	6	9,6	18	66	45	10	2	100		
10	2,0	6	9,6	18	66	45	10	2	103		
10	3,0	6	9,6	18	66	45	10	2	106		
10	1,0	6	9,6	58	100	45	10	2		101	
10	2,0	6	9,6	58	100	45	10	2		104	
10	3,0	6	9,6	58	100	45	10	2		107	
10	1,0	6	9,6	78	120	45	10	2			102
10	2,0	6	9,6	78	120	45	10	2			105
10	3,0	6	9,6	78	120	45	10	2			108
10	1,0	6	9,6	78	120	45	12	2			109
10	2,0	6	9,6	78	120	45	12	2			110
10	3,0	6	9,6	78	120	45	12	2			111
12	1,0	8	11,5	26	73	45	12	2	120		
12	2,0	8	11,5	26	73	45	12	2	123		
12	3,0	8	11,5	26	73	45	12	2	126		
12	1,0	8	11,5	53	100	45	12	2		121	
12	2,0	8	11,5	53	100	45	12	2		124	
12	3,0	8	11,5	53	100	45	12	2		127	
12	1,0	8	11,5	73	120	45	12	2			122
12	2,0	8	11,5	73	120	45	12	2			125
12	3,0	8	11,5	73	120	45	12	2			128
12	4,0	8	11,5	73	120	45	12	2			131
12	1,0	8	11,5	103	150	45	16	2			132
12	2,0	8	11,5	103	150	45	16	2			133
12	3,0	8	11,5	103	150	45	16	2			134
P											
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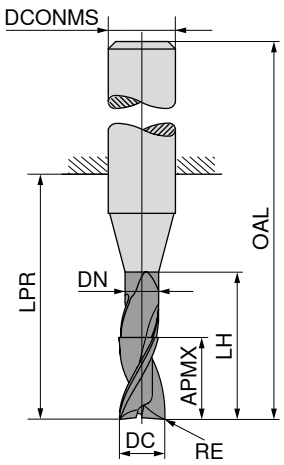
→ v_c/f_z Page 480–486

Torus Cutter

W

λ_s=30°
γ_s=12°



DIAMOND

Factory standard

52 765 ...

DC $_{h10}$ mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
2	0,3	8	1,8	31	32	60	2	2	**021**
3	0,5	12	2,8	41	42	70	3	2	**032**
4	0,5	15	3,8	51	52	80	4	2	**042**
5	0,5	20	4,8	71	72	100	5	2	**052**
6	0,8	20	5,8	63	64	100	6	2	**063**
8	1,0	20	7,8	83	84	120	8	2	**084**
10	1,0	25	9,8	99	100	140	10	2	**104**
12	1,5	25	11,8	104	105	150	12	2	**125**

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H	
O	●

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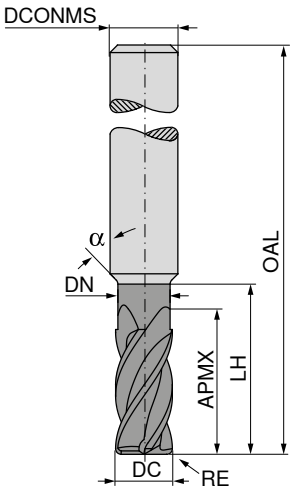
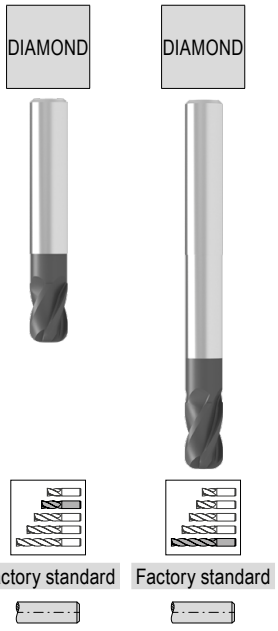
14

Torus Cutter

W

λ_s=30°
γ_s= 5°





Factory standard | Factory standard

DC f8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 911 ...	50 911 ...
4	0,5	8	3,8	12	54	45	6	4	040	
4	1,0	8	3,8	12	54	45	6	4	041	
4	0,5	10	3,8	37	75	45	6	4		042
4	1,0	10	3,8	37	75	45	6	4		043
5	0,5	9	4,8	16	54	45	6	4	050	
5	1,0	9	4,8	16	54	45	6	4	051	
5	1,5	9	4,8	16	54	45	6	4	052	
5	0,5	12	4,8	37	75	45	6	4		053
5	1,0	12	4,8	37	75	45	6	4		054
5	1,5	12	4,8	37	75	45	6	4		055
6	0,5	10	5,6	16	54	45	6	4	060	
6	1,0	10	5,6	16	54	45	6	4	061	
6	1,5	10	5,6	16	54	45	6	4	062	
6	2,0	10	5,6	16	54	45	6	4	063	
6	0,5	12	5,6	62	100	45	6	4		064
6	1,0	12	5,6	62	100	45	6	4		065
6	1,5	12	5,6	62	100	45	6	4		066
6	2,0	12	5,6	62	100	45	6	4		067
7	0,5	11	6,6	20	58	45	8	4	070	
7	1,0	11	6,6	20	58	45	8	4	071	
7	1,5	11	6,6	20	58	45	8	4	072	
7	2,0	11	6,6	20	58	45	8	4	073	
7	0,5	14	6,6	62	100	45	8	4		074
7	1,0	14	6,6	62	100	45	8	4		075
7	1,5	14	6,6	62	100	45	8	4		076
7	2,0	14	6,6	62	100	45	8	4		077
8	0,5	12	7,6	20	58	45	8	4	080	
8	1,0	12	7,6	20	58	45	8	4	081	
8	1,5	12	7,6	20	58	45	8	4	086	
8	2,0	12	7,6	20	58	45	8	4	083	
8	0,5	14	7,6	62	100	45	8	4		084
8	1,0	14	7,6	62	100	45	8	4		085
8	1,5	14	7,6	62	100	45	8	4		082
8	2,0	14	7,6	62	100	45	8	4		087
10	0,5	14	9,6	24	66	45	10	4	100	
10	1,0	14	9,6	24	66	45	10	4	101	
10	1,5	14	9,6	24	66	45	10	4	107	
10	2,0	14	9,6	24	66	45	10	4	103	
10	3,0	14	9,6	24	66	45	10	4	104	
10	0,5	18	9,6	58	100	45	10	4		105
10	1,0	18	9,6	58	100	45	10	4		106

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O	●	●

→ v_c/f_z Page 418

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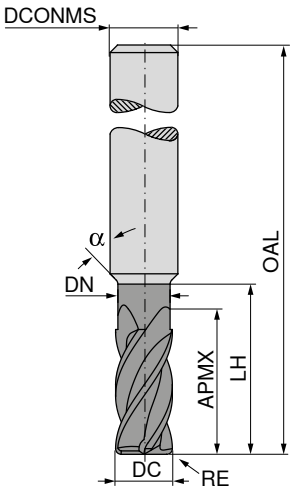
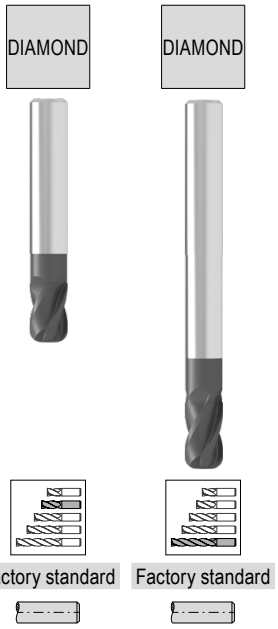
Torus Cutter

W

λ_s=30°
γ_s= 5°





Factory standard | Factory standard

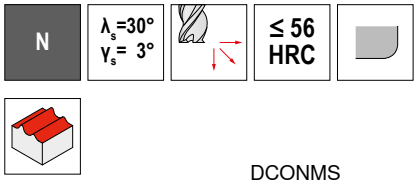
DC f8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 911 ...	50 911 ...
10	1,5	18	9,6	58	100	45	10	4		**102**
10	2,0	18	9,6	58	100	45	10	4		**108**
10	3,0	18	9,6	58	100	45	10	4		**109**
12	0,5	16	11,5	26	73	45	12	4	**120**	
12	1,0	16	11,5	26	73	45	12	4	**121**	
12	1,5	16	11,5	26	73	45	12	4	**127**	
12	2,0	16	11,5	26	73	45	12	4	**123**	
12	4,0	16	11,5	26	73	45	12	4	**124**	
12	0,5	22	11,5	53	100	45	12	4		**125**
12	1,0	22	11,5	53	100	45	12	4		**126**
12	1,5	22	11,5	53	100	45	12	4		**122**
12	2,0	22	11,5	53	100	45	12	4		**128**
12	4,0	22	11,5	53	100	45	12	4		**129**

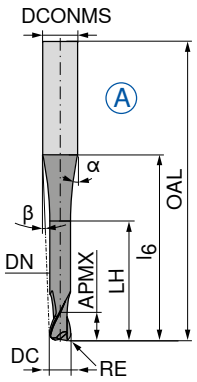
P		
M		
K		
N	●	●
S		
H		
O	●	●

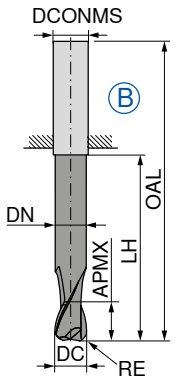
→ v_c/f_z Page 418

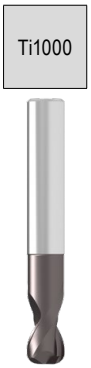
Torus Cutter

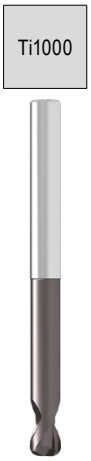
▲ Radius accuracy: ± 0,005 mm
▲ for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °











Factory standard | Factory standard

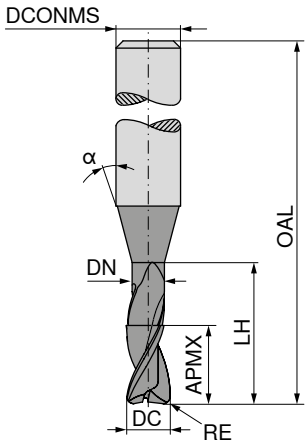
DC ±0,01 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	52 730 ...	52 734 ...
0,5	0,10	1,0	0,45	2,0	20	57	10	8,5	6	2	A	**005**	
1,0	0,25	2,0	0,95	4,0	20	57	10	8	6	2	A	**010**	
1,0	0,25	2,0	0,95	4,0	40	80	4,5	4	6	2	A		**010**
1,5	0,30	2,5	1,40	7,5	20	57	12,5	7	6	2	A	**015**	
1,5	0,30	2,5	1,40	7,5	40	80	4,5	3,5	6	2	A		**015**
2,0	0,50	3,0	1,80	8,0	20	57	12	6,5	6	2	A	**020**	
2,0	0,50	3,0	1,80	8,0	40	80	4	3	6	2	A		**020**
3,0	0,50	3,5	2,80	10,0	20	57	11,5	5	6	2	A	**030**	
3,0	0,50	3,5	2,80	12,0	40	80	3,5	2,5	6	2	A		**030**
4,0	0,50	4,0	3,80	12,0	20	57	11	3,5	6	2	A	**041**	
4,0	0,50	4,0	3,80	20,0	40	80	4	1,5	6	2	A		**041**
4,0	1,00	4,0	3,80	12,0	20	57	11	3,5	6	2	A	**040**	
4,0	1,00	4,0	3,80	20,0	40	80	4	1,5	6	2	A		**040**
5,0	1,00	5,0	4,70	14,0	20	57	10	2	6	2	A	**051**	
5,0	1,00	5,0	4,70	25,0	40	80	3	1	6	2	A		**051**
5,0	1,50	5,0	4,70	14,0	20	57	10	2	6	2	A	**050**	
5,0	1,50	5,0	4,70	25,0	40	80	3	1	6	2	A		**050**
6,0	1,00	6,0	5,60	20,0		57			6	2	B	**961**	
6,0	1,00	6,0	5,60	40,0		80			6	2	B		**961**
6,0	2,00	6,0	5,60	20,0		57			6	2	B	**060**	
6,0	2,00	6,0	5,60	40,0		80			6	2	B		**060**
6,0	2,00	6,0	5,60	25,0	60	100	2	1	8	2	A		**061**
8,0	1,00	7,0	7,60	25,0		63			8	2	B	**082**	
8,0	1,00	7,0	7,60	60,0		100			8	2	B		**082**
8,0	2,00	7,0	7,60	25,0		63			8	2	B	**080**	
8,0	2,00	7,0	7,60	60,0		100			8	2	B		**080**
8,0	2,00	7,0	7,60	30,0	75	120	2	1	10	2	A		**081**
8,0	2,50	7,0	7,60	60,0		100			8	2	B		**083**
10,0	1,50	8,0	9,60	30,0		72			10	2	B	**102**	
10,0	1,50	8,0	9,60	75,0		120			10	2	B		**102**
10,0	2,50	8,0	9,60	75,0		120			10	2	B		**104**
10,0	3,00	8,0	9,60	30,0		72			10	2	B	**100**	
10,0	3,00	8,0	9,60	50,0		100			10	2	B		**103**
10,0	3,00	8,0	9,60	75,0		120			10	2	B		**100**
10,0	3,00	8,0	9,60	40,0	110	160	1	0,5	12	2	A		**101**
12,0	1,50	10,0	11,50	35,0		83			12	2	B	**122**	
12,0	1,50	10,0	11,50	70,0		160			12	2	B		**122**
12,0	4,00	10,0	11,50	35,0		83			12	2	B	**120**	
12,0	4,00	10,0	11,50	35,0	40	92	37	3,5	16	2	A	**121**	
12,0	4,00	10,0	11,50	70,0		160			12	2	B		**120**
12,0	4,00	10,0	11,50	50,0	150	200	1,5	1	16	2	A		**121**
16,0	5,00	12,0	15,50	40,0		92			16	2	B	**160**	
16,0	5,00	12,0	15,50	80,0		200			16	2	B		**160**

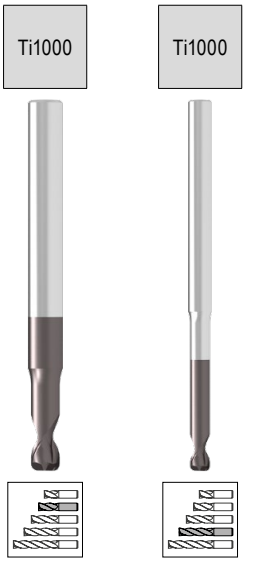
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	○
O	○	○

→ v_c/f_z Page 480–486

Torus Cutter

H | λ_s=30° γ_s= 3° | ≤ 54 HRC





Factory standard | Factory standard

DC f8 mm	RE -0.015 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 649 ...	50 649 ...
0,4	0,04	0,4	0,37	1,2	55	15	6	2	**041**	
0,4	0,04	0,4	0,37	2,0	55	15	6	2	**042**	
0,4	0,04	0,4	0,37	3,2	55	15	6	2	**043**	
0,4	0,04	0,4	0,45	4,0	55	15	6	2	**044**	
0,5	0,05	0,5	0,45	1,5	55	15	6	2	**051**	
0,5	0,05	0,5	0,45	2,5	55	15	6	2	**052**	
0,5	0,05	0,5	0,45	4,0	55	15	6	2	**053**	
0,5	0,05	0,5	0,45	5,0	55	15	6	2	**054**	
0,6	0,06	0,6	0,58	2,0	55	15	6	2	**061**	
0,6	0,06	0,6	0,58	3,0	55	15	6	2	**960**	
0,6	0,06	0,6	0,58	5,0	65	15	6	2		**063**
0,6	0,06	0,6	0,58	6,0	65	15	6	2	**961**	
0,8	0,08	0,8	0,77	2,5	55	15	6	2	**081**	
0,8	0,08	0,8	0,77	4,0	55	15	6	2	**980**	
0,8	0,08	0,8	0,77	6,5	65	15	6	2		**083**
0,8	0,08	0,8	0,77	8,0	65	15	6	2	**981**	
1,0	0,10	1,0	0,95	3,0	55	15	6	2	**101**	
1,0	0,10	1,0	0,95	5,0	55	15	6	2	**010**	
1,0	0,10	1,0	0,95	8,0	65	15	6	2		**103**
1,0	0,10	1,0	0,95	10,0	65	15	6	2		**011**
1,0	0,10	1,0	0,95	12,0	65	15	6	2		**105**
1,2	0,12	1,2	1,15	3,0	55	15	6	2	**121**	
1,2	0,12	1,2	1,15	6,0	55	15	6	2	**012**	
1,2	0,12	1,2	1,15	10,0	65	15	6	2	**123**	
1,2	0,12	1,2	1,15	12,0	65	15	6	2		**013**
1,3	0,13	1,3	1,25	4,0	55	15	6	2	**131**	
1,3	0,13	1,3	1,25	7,0	55	15	6	2	**132**	
1,3	0,13	1,3	1,25	11,0	65	15	6	2		**133**
1,3	0,13	1,3	1,25	13,0	65	15	6	2		**134**
1,5	0,15	1,5	1,44	5,0	55	15	6	2	**151**	
1,5	0,15	1,5	1,44	7,5	55	15	6	2	**015**	
1,5	0,15	1,5	1,44	12,0	65	15	6	2		**153**
1,5	0,15	1,5	1,44	15,0	65	15	6	2		**016**
1,6	0,16	1,6	1,52	5,0	55	15	6	2	**161**	
1,6	0,16	1,6	1,52	8,0	55	15	6	2	**162**	
1,6	0,16	1,6	1,52	13,0	65	15	6	2		**163**
1,6	0,16	1,6	1,52	16,0	65	15	6	2		**164**
1,8	0,18	1,8	1,72	5,5	55	15	6	2	**181**	
1,8	0,18	1,8	1,72	9,0	55	15	6	2	**182**	
1,8	0,18	1,8	1,72	14,5	65	15	6	2		**183**

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→ v_c/f_z Page 480–486

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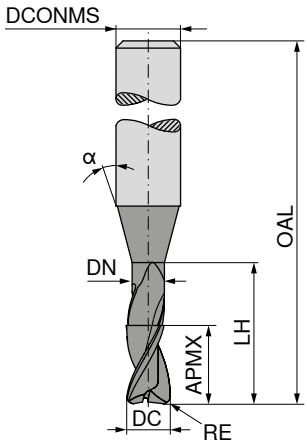
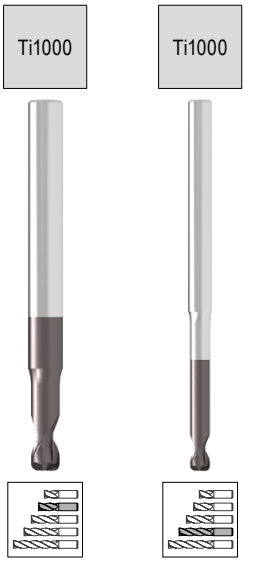
Continued on next page

Torus Cutter

H | λ_s=30° γ_s= 3° | ≤ 54 HRC





Factory standard | Factory standard

DC f8 mm	RE -0.015 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 649 ...	50 649 ...
1,8	0,18	1,8	1,72	18,0	65	15	6	2		184
2,0	0,20	2,0	1,92	6,0	55	15	6	2	201	
2,0	0,20	2,0	1,92	10,0	55	15	6	2	202	
2,0	0,20	2,0	1,92	14,0	55	15	6	2	020	
2,0	0,20	2,0	1,92	16,0	65	15	6	2		204
2,0	0,20	2,0	1,92	20,0	65	15	6	2		021
2,3	0,23	2,3	2,22	7,0	55	15	6	2	231	
2,3	0,23	2,3	2,22	11,5	55	15	6	2	232	
2,3	0,23	2,3	2,22	18,5	65	15	6	2		233
2,3	0,23	2,3	2,22	23,0	65	15	6	2		234
3,0	0,30	3,0	2,90	9,0	65	15	6	2	301	
3,0	0,30	3,0	2,90	15,0	65	15	6	2	302	
3,0	0,30	3,0	2,90	24,0	100	15	6	2		303
3,0	0,30	3,0	2,90	30,0	100	15	6	2		304
4,0	0,40	4,0	3,90	12,0	65	15	6	2	401	
4,0	0,40	4,0	3,90	20,0	65	15	6	2	402	
4,0	0,40	4,0	3,90	32,0	100	15	6	2		403
4,0	0,40	4,0	3,90	40,0	100	15	6	2		404
5,0	0,50	5,0	4,90	15,0	65	15	6	2	501	
5,0	0,50	5,0	4,90	25,0	65	15	6	2	502	
5,0	0,50	5,0	4,90	40,0	100	15	6	2		503
5,0	0,50	5,0	4,90	50,0	100	15	6	2		504
6,0	0,60	6,0	5,90	18,0	65	15	6	2	601	
6,0	0,60	6,0	5,90	30,0	100	15	6	2		602
6,0	0,60	6,0	5,90	48,0	100	15	6	2		603
6,0	0,60	6,0	5,90	60,0	100	15	6	2		604

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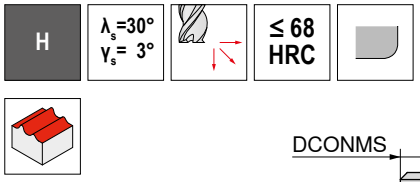
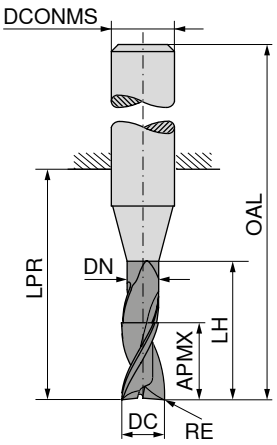
→ v_c/f_z Page 480–486

Torus Cutter





Factory standard | Factory standard | Factory standard

DC f8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 651 ...		50 651 ...		50 651 ...	
2	0,3	2	1,8	7	14	50	6	2	020					
2	0,5	2	1,8	7	14	50	6	2	021					
2	0,3	2	1,8	7	24	60	6	2			022			
2	0,5	2	1,8	7	24	60	6	2			023			
2	0,3	2	1,8	7	49	85	6	2						024
2	0,5	2	1,8	7	49	85	6	2						025
3	0,3	2	2,8	7	14	50	6	2	030					
3	0,5	2	2,8	7	14	50	6	2	031					
3	0,3	2	2,8	12	24	60	6	2			032			
3	0,5	2	2,8	12	24	60	6	2			033			
3	0,3	2	2,8	12	49	85	6	2						034
3	0,5	2	2,8	12	49	85	6	2						035
4	0,3	3	3,8	13	18	54	6	2	040					
4	0,5	3	3,8	13	18	54	6	2	041					
4	1,0	3	3,8	13	18	54	6	2	042					
4	0,3	3	3,8	20	39	75	6	2			043			
4	0,5	3	3,8	20	39	75	6	2			044			
4	1,0	3	3,8	20	39	75	6	2			045			
4	0,3	3	3,8	20	49	85	6	2						046
4	0,5	3	3,8	20	49	85	6	2						047
4	1,0	3	3,8	20	49	85	6	2						048
5	0,5	3	4,6	13	18	54	6	2	050					
5	1,0	3	4,6	13	18	54	6	2	051					
5	1,5	3	4,6	13	18	54	6	2	052					
5	1,0	3	4,6	20	39	75	6	2			053			
5	1,5	3	4,6	20	39	75	6	2			054			
6	0,5	4	5,6	14	18	54	6	2	060					
6	1,0	4	5,6	14	18	54	6	2	061					
6	2,0	4	5,6	14	18	54	6	2	062					
6	0,5	4	5,6	45	49	85	6	2			066			
6	1,0	4	5,6	45	49	85	6	2			067			
6	2,0	4	5,6	45	49	85	6	2			068			
6	0,5	4	5,6	25	64	100	6	2						069
6	1,0	4	5,6	25	64	100	6	2						070
6	2,0	4	5,6	25	64	100	6	2						071
6	0,5	4	5,6	25	49	85	8	2			063			
6	1,0	4	5,6	25	49	85	8	2			064			
6	2,0	4	5,6	25	49	85	8	2			065			
8	0,5	4	7,6	16	22	58	8	2	080					
8	1,0	4	7,6	16	22	58	8	2	081					

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S	○	○	○
H	○	○	○
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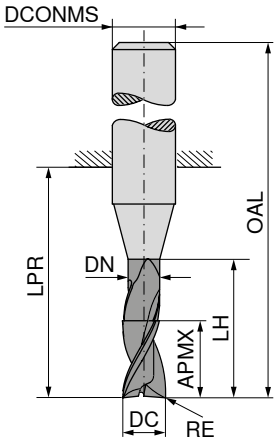
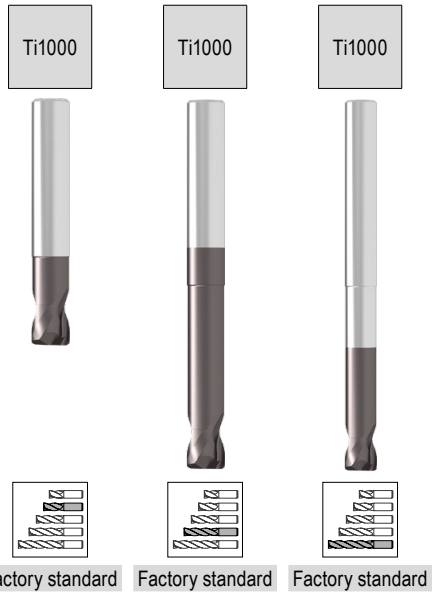
Torus Cutter

H | λ_s=30° γ_s= 3° | ≤ 68 HRC





DC f8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 651 ...				
8	2,0	4	7,6	16	22	58	8	2	082				
8	0,5	4	7,6	50	64	100	8	2					083
8	2,0	4	7,6	50	64	100	8	2					084
8	1,0	4	7,6	30	60	100	10	2					085
8	2,0	4	7,6	30	60	100	10	2					086
10	1,0	6	9,6	18	26	66	10	2	100				
10	3,0	6	9,6	18	26	66	10	2	101				
10	1,0	6	9,6	50	60	100	10	2			102		
10	2,0	6	9,6	50	60	100	10	2			103		
10	3,0	6	9,6	50	60	100	10	2			104		
10	1,0	6	9,6	60	80	120	10	2					105
10	2,0	6	9,6	60	80	120	10	2					106
10	3,0	6	9,6	60	80	120	10	2					107
10	1,0	6	9,6	30	75	120	12	2					108
10	2,0	6	9,6	30	75	120	12	2					109
10	3,0	6	9,6	30	75	120	12	2					110
12	1,0	8	11,5	18	28	73	12	2	120				
12	2,0	8	11,5	18	28	73	12	2	121				
12	3,0	8	11,5	18	28	73	12	2	122				
12	4,0	8	11,5	18	28	73	12	2	123				
12	1,0	8	11,5	45	55	100	12	2			124		
12	2,0	8	11,5	45	55	100	12	2			125		
12	3,0	8	11,5	45	55	100	12	2			126		
12	4,0	8	11,5	45	55	100	12	2			127		
12	1,0	8	11,5	70	75	120	12	2					128
12	2,0	8	11,5	70	75	120	12	2					129
12	3,0	8	11,5	70	75	120	12	2					130
12	4,0	8	11,5	70	75	120	12	2					131
12	1,0	8	11,5	35	102	150	16	2					132
12	2,0	8	11,5	35	102	150	16	2					133
12	3,0	8	11,5	35	102	150	16	2					134
12	4,0	8	11,5	35	102	150	16	2					135

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

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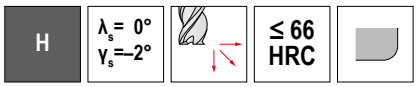
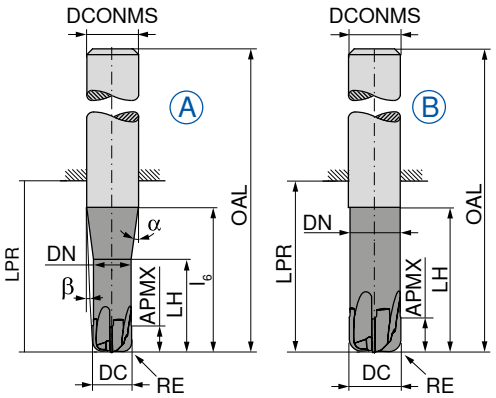
Torus Cutter

▲ Radius accuracy: ± 0,005 mm
▲ High-performance tool for clearing
▲ for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °





Factory standard

52 732 ...

DC ±0,01 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	
3	0,75	2,0	2,8	10	20	21	57	11,5	5	6	4	A	**033**
4	1,00	2,5	3,8	12	20	21	57	11	3,5	6	4	A	**044**
5	1,25	3,0	4,7	14	20	21	57	10	2	6	4	A	**055**
6	1,50	4,0	5,6	20		21	57			6	4	B	**065**
8	1,00	5,0	7,6	25		27	63			8	4	B	**084**
8	2,00	5,0	7,6	25		27	63			8	4	B	**086**
10	1,00	6,0	9,6	30		32	72			10	4	B	**104**
10	1,00	6,0	9,6	30		32	72			10	6	B	**105**
10	2,50	6,0	9,6	30		32	72			10	4	B	**107**
10	2,50	6,0	9,6	30		32	72			10	6	B	**108**
12	1,00	7,0	11,5	35		38	83			12	4	B	**124**
12	1,00	7,0	11,5	35		38	83			12	8	B	**125**
12	3,00	7,0	11,5	35		38	83			12	4	B	**128**
12	3,00	7,0	11,5	35		38	83			12	8	B	**129**
16	4,00	8,0	15,5	40		44	92			16	4	B	**169**

P	●
M	
K	○
N	
S	
H	●
O	

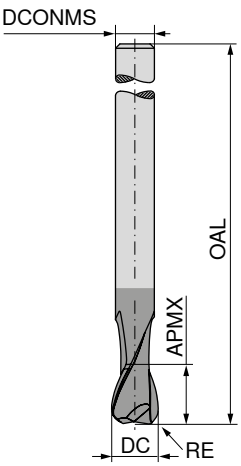
→ v_c/f_z Page 480–486

14

Intermediate Size Torus Cutter

▲ Reduced shank Ø for flexible application in various overhang lengths!

H | λ_s=45° γ_s=12° | ≤ 56 HRC | Ti1000



Factory standard

52 107 ...

DC e8 mm	RE ±0.01 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	
7	0,5	9	120	6	4	**075**
7	1,0	9	120	6	4	**076**
7	1,5	9	120	6	4	**077**
9	0,5	12	135	8	4	**095**
9	1,0	12	135	8	4	**096**
9	1,5	12	135	8	4	**097**
11	1,0	15	150	10	4	**115**
11	1,5	15	150	10	4	**116**
11	2,0	15	150	10	4	**117**
13	1,0	18	160	12	4	**135**
13	1,5	18	160	12	4	**136**
13	2,0	18	160	12	4	**137**
15	1,0	21	160	14	4	**156**
15	1,5	21	160	14	4	**157**
15	2,0	21	160	14	4	**158**
17	1,0	24	180	16	4	**176**
17	1,5	24	180	16	4	**177**
17	2,0	24	180	16	4	**178**
17	3,0	24	180	16	4	**179**

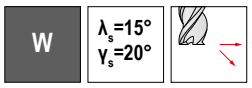
P	○
M	●
K	○
N	●
S	●
H	
O	●

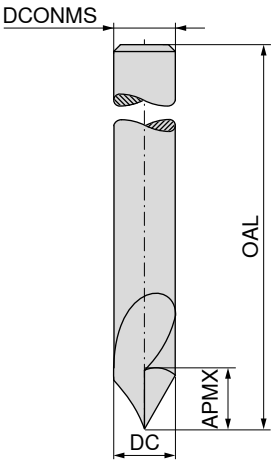
→ v_c/f_z Page 480–486

Engraving cutter 60°

W

λ_s=15°
γ_s=20°





Factory standard

52 195 ...

DC $_{h6}$ mm	APMX mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
3	15	50	3	1	**030**
4	18	50	4	1	**040**
6	20	54	6	1	**060**

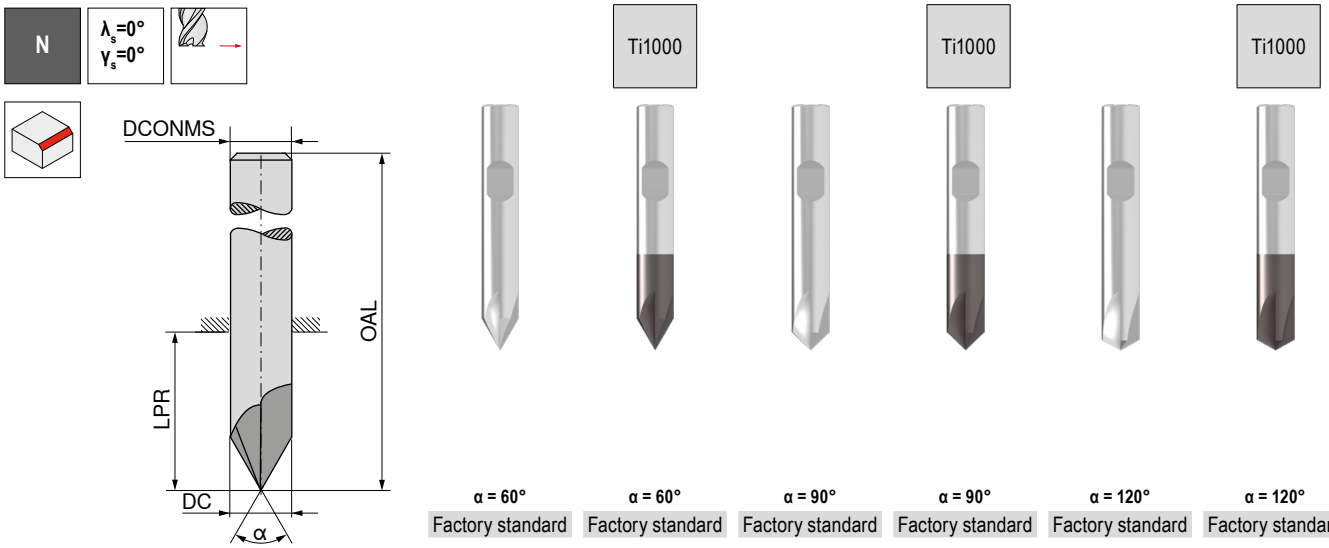
P	○
M	○
K	○
N	●
S	○
H	
O	●

→ v_c/f_z Page 480–483

14

NC deburring cutter

▲ 50 940 ... / 50 943 ... Point angle α = 60°
▲ 50 941 ... / 50 944 ... Point angle α = 90°
▲ 50 942 ... / 50 945 ... Point angle α = 120°



	α = 60°	α = 60°	α = 90°	α = 90°	α = 120°	α = 120°
	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
	50 940 ...	50 943 ...	50 941 ...	50 944 ...	50 942 ...	50 945 ...

DC h6 mm	OAL mm	LPR mm	DCONMS h6 mm	ZEFP												
4	54	26	4	4	040	1)	040	1)	040	1)	040	1)	040	1)	040	1)
6	54	18	6	4	060		060		060		060		060		060	
8	58	22	8	4	080		080		080		080		080		080	
10	66	26	10	4	100		100		100		100		100		100	
12	73	28	12	4	120		120		120		120		120		120	

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

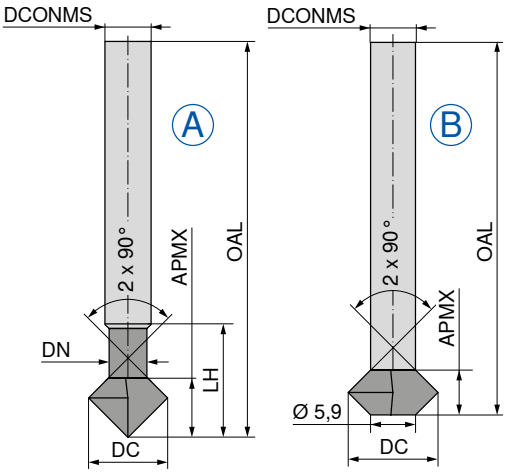
1) DIN 6535 HA Shank

→ v_c/f_z Page 480–483

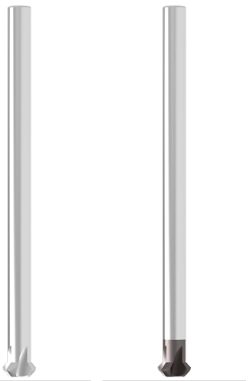
NC front and rear chamfer milling cutter

N

λ_s=0°
γ_s=0°



Ti1000



Factory standard | Factory standard

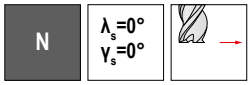
DC mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP	Fig.	52 158 ...	52 159 ...
3	2,0	2,2	12,0	75	4	4	A	**030**	**030**
4	2,7	2,9	17,7	75	4	4	A	**040**	**040**
5	3,0	3,9	18,0	75	5	4	A	**050**	**050**
6	4,0	3,9	19,0	100	6	4	A	**060**	**060**
8	2,0			100	6	4	B	**080**	**080**
10	4,0			100	6	4	B	**100**	**100**
12	6,0			100	6	4	B	**120**	**120**

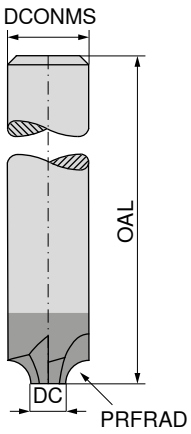
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H		○
O	●	●

→ v_c/f_z Page 480–483

14

Quarter-round profile milling cutter, concave





Factory standard

52 249 ...

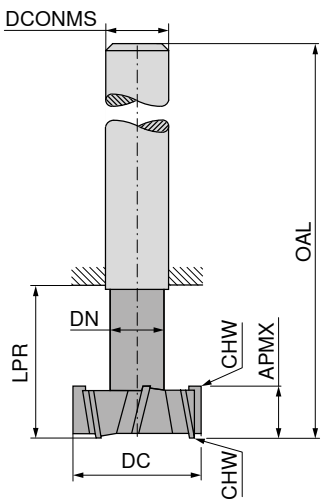
PRFRAD +/-0,02 mm	DC mm	OAL mm	DCONMS h6 mm	ZEFP	
0,50	7,0	70	8	4	**005**
1,00	6,0	70	8	4	**010**
1,25	7,5	75	10	4	**012**
1,50	7,0	75	10	4	**015**
2,00	6,0	75	10	4	**020**
2,50	7,0	73	12	4	**025**
3,00	6,0	73	12	4	**030**
3,50	9,0	80	16	4	**035**
4,00	8,0	80	16	4	**040**
4,50	7,0	80	16	4	**045**
5,00	10,0	80	20	4	**050**
6,00	8,0	80	20	4	**060**

P	●
M	○
K	●
N	○
S	○
H	○
O	●

→ v_c/f_z Page 480–483

T-slot milling cutters

▲ Solid carbide cutting head with soldered steel shank
▲ For slots according to DIN 650
▲ **until the tool is fully in use, the feed rate fz must be reduced by 50%**



Ti1000

DIN 851 A

54 065 ...

DC e9 mm	APMX d11 mm	DN mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
11,0	4	4	13,5	53,5	10	0,10	6	**11000**
12,5	6	5	17,0	57,0	10	0,10	6	**12500**
16,0	8	7	22,0	62,0	10	0,20	6	**16000**
18,0	8	8	25,0	70,0	12	0,20	6	**18000**
19,0	9	8	26,0	71,0	12	0,20	6	**19000**
21,0	9	10	29,0	74,0	12	0,25	6	**21000**
22,0	10	10	30,0	75,0	12	0,25	6	**22000**
25,0	11	12	34,0	82,0	16	0,30	8	**25000**
28,0	12	13	37,0	85,0	16	0,30	8	**28000**
32,0	14	15	42,0	90,0	16	0,35	8	**32000**
36,0	16	17	47,0	103,0	25	0,40	8	**36000**
40,0	18	19	52,0	108,0	25	0,40	10	**40000**

P	●
M	○
K	●
N	
S	
H	
O	

→ v_c/f_z Page 455

Information on applications can be found in the Technical Information on → **page 488.**

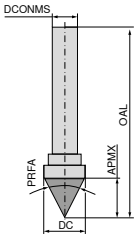
Carbide burrs, similar to DIN 8033

Teeth **Z3**: Application "medium"

Teeth **Z6**: Application "medium"

v_c in min = 300–600

KSJ



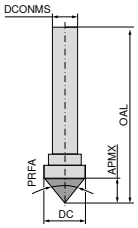
Z3

Z6

DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 928 ... Z3		50 928 ... Z6	
6	5	52	6	60°	606		706	
12	10	60	6	60°	612	1)	712	1)

1) Steel shank / carbide head – shank tolerance h9

KSK



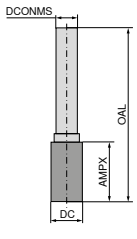
Z3

Z6

DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 927 ... Z3		50 927 ... Z6	
6	3	52	6	90°	606		706	
12	6	56	6	90°	612	1)	712	1)

1) Steel shank / carbide head – shank tolerance h9

ZYA



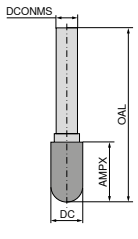
Z3

Z6

DC mm	APMX mm	OAL mm	DCONMS mm	50 921 ... Z3		50 921 ... Z6	
3	13	40	3	303		403	
6	13	48	3	306	1)	406	1)
6	16	55	6	606		706	
8	20	65	6	608	1)	708	1)
10	20	65	6	610	1)	710	1)
12	25	70	6	612	1)	712	2)

1) Steel shank / carbide head – shank tolerance h9
2) Steel shank / carbide head – shank tolerance h7

WRC



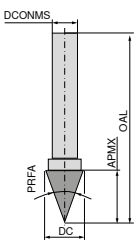
Z3

Z6

DC mm	APMX mm	OAL mm	DCONMS mm	50 922 ... Z3		50 922 ... Z6	
3	13	40	3	303		403	
6	13	48	3	306	1)	406	1)
6	16	50	6	606		706	
8	18	63	6	608	1)	708	1)
10	20	65	6	610	1)	710	1)
12	25	70	6	612	1)	712	1)
16	25	70	6	616	1)	716	1)

1) Steel shank / carbide head – shank tolerance h9

SKM



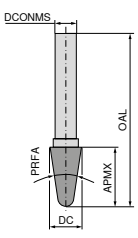
Z3

Z6

DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 926 ... Z3		50 926 ... Z6	
3	14	40	3	9,5°	303		403	
6	13	48	3	23,0°	306	1)	406	1)
6	18	50	6	16,0°	606		706	
8	20	65	6	20,0°	608	1)	708	1)
10	20	65	6	25,0°	610	1)	710	1)
12	25	70	6	25,0°	612	1)	712	1)

1) Steel shank / carbide head – shank tolerance h9

KEL



Z3

Z6

DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 923 ... Z3		50 923 ... Z6	
3	14	40	3	6°	303		403	
6	20	55	3	12°	306	1)	406	1)
6	20	50	6	10°	606		706	
8	20	65	6	14°	608	1)	708	1)
10	20	65	6	14°	610	1)	710	1)
12	30	75	6	14°	612	1)	712	1)

1) Steel shank / carbide head – shank tolerance h9

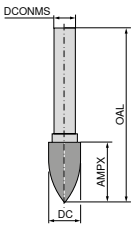
Carbide burrs, similar to DIN 8033

Teeth **Z3**: Application "medium"

Teeth **Z6**: Application "medium"

v_c in min = 300–600

SPG



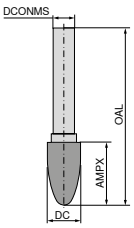
Z3

Z6

DC	APMX	OAL	DCONMS	50 925 ...		50 925 ...	
mm	mm	mm	mm				
3	13	40	3	303		403	
6	13	48	3	306	1)	406	1)
6	18	50	6	606		706	
8	20	65	6	608	1)	708	1)
10	20	65	6	610	1)	710	1)
12	25	70	6	612	2)	712	1)

1) Steel shank / carbide head – shank tolerance h9
2) Steel shank / carbide head – shank tolerance h7

RBF



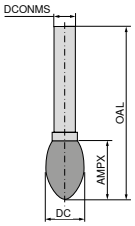
Z3

Z6

DC	APMX	OAL	DCONMS	50 924 ...		50 924 ...	
mm	mm	mm	mm				
3	13	40	3	303		403	
6	13	48	3	306	1)	406	1)
6	18	50	6	606		706	
8	20	65	6	608	1)	708	1)
10	20	65	6	610	1)	710	1)
12	25	70	6	612	1)	712	1)
16	30	75	6	616	1)	716	1)

1) Steel shank / carbide head – shank tolerance h9

TRE



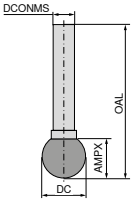
Z3

Z6

DC	APMX	OAL	DCONMS	50 929 ...		50 929 ...	
mm	mm	mm	mm				
3	7	40	3	303		403	
6	10	45	3	306	1)	406	1)
6	10	50	6	606		706	
8	13	58	6	608	1)	708	1)
10	16	61	6	610	1)	710	1)
12	20	65	6	612	1)	712	1)

1) Steel shank / carbide head – shank tolerance h9

KUD



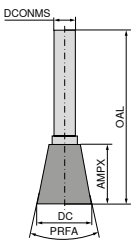
Z3

Z6

DC	APMX	OAL	DCONMS	50 930 ...		50 930 ...	
mm	mm	mm	mm				
3	2,7	40,0	3	303		403	
6	5,4	40,4	3	306	1)	406	1)
6	5,0	50,0	6	606		706	
8	7,2	52,2	6	608	1)	708	1)
10	9,0	54,0	6	610	1)	710	1)
12	10,8	55,8	6	612	1)	712	1)
16	14,4	59,4	6	616	1)	716	1)

1) Steel shank / carbide head – shank tolerance h9

WKN



Z3

Z6

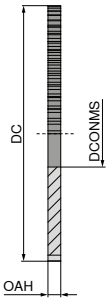
DC	APMX	OAL	DCONMS	PRFA	50 931 ...		50 931 ...	
mm	mm	mm	mm					
3	7	40	3	10°	303		403	
6	7	50	6	10°	606		706	
12	13	58	6	20°	612	1)	712	1)

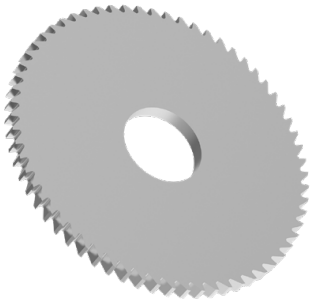
1) Steel shank / carbide head – shank tolerance h9

14

Solid carbide circular saw blades, fine-toothed, DIN 1837A

▲ fine-straight-cut





DIN 1837 A

54 700 ...

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	
15	0,20	5	64	102
15	0,25	5	64	103
15	0,30	5	64	104
15	0,35	5	64	105
15	0,40	5	64	106
15	0,50	5	48	107
15	0,60	5	48	108
15	0,70	5	48	109
15	0,80	5	40	110
15	0,90	5	40	111
15	1,00	5	40	112
15	1,10	5	40	113
15	1,20	5	40	114
15	1,30	5	40	115
15	1,40	5	40	116
15	1,50	5	40	117
15	1,60	5	40	118
15	1,70	5	40	119
15	1,80	5	40	120
15	1,90	5	40	121
15	2,00	5	40	122
15	2,50	5	40	123
15	3,00	5	40	124
15	3,50	5	40	125
15	4,00	5	40	126
15	4,50	5	40	127
15	5,00	5	40	128
15	5,50	5	40	129
15	6,00	5	40	130
20	0,20	5	80	152
20	0,25	5	64	153
20	0,30	5	64	154
20	0,35	5	64	155
20	0,40	5	64	156
20	0,50	5	48	157
20	0,60	5	48	158
20	0,70	5	48	159
20	0,80	5	48	160
20	0,90	5	40	161
20	1,00	5	40	162
20	1,10	5	40	163
20	1,20	5	40	164
20	1,30	5	40	165
20	1,40	5	40	166
20	1,50	5	40	167
20	1,60	5	40	168
20	1,70	5	40	169
20	1,80	5	32	170
20	1,90	5	32	171
20	2,00	5	32	172
20	2,50	5	32	173
20	3,00	5	32	174
20	3,50	5	24	175
20	4,00	5	24	176
20	4,50	5	24	177

54 700 ...

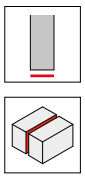
DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	
20	5,00	5	24	178
20	5,50	5	24	179
20	6,00	5	24	180
25	0,20	8	80	202
25	0,25	8	80	203
25	0,30	8	80	204
25	0,35	8	64	205
25	0,40	8	64	206
25	0,50	8	64	207
25	0,60	8	64	208
25	0,70	8	48	209
25	0,80	8	48	210
25	0,90	8	48	211
25	1,00	8	48	212
25	1,10	8	48	213
25	1,20	8	48	214
25	1,30	8	40	215
25	1,40	8	40	216
25	1,50	8	40	217
25	1,60	8	40	218
25	1,70	8	40	219
25	1,80	8	40	220
25	1,90	8	40	221
25	2,00	8	40	222
25	2,50	8	40	223
25	3,00	8	32	224
25	3,50	8	32	225
25	4,00	8	32	226
25	4,50	8	32	227
25	5,00	8	32	228
25	5,50	8	24	229
25	6,00	8	24	230
30	0,20	8	100	252
30	0,25	8	100	253
30	0,30	8	80	254
30	0,35	8	80	255
30	0,40	8	80	256
30	0,50	8	80	257
30	0,60	8	64	258
30	0,70	8	64	259
30	0,80	8	64	260
30	0,90	8	64	261
30	1,00	8	64	262
30	1,10	8	64	263
30	1,20	8	48	264
30	1,30	8	48	265
30	1,40	8	48	266
30	1,50	8	48	267
30	1,60	8	48	268
30	1,70	8	48	269
30	1,80	8	48	270
30	1,90	8	48	271
30	2,00	8	48	272
30	2,50	8	40	273
30	3,00	8	40	274
30	3,50	8	40	275
30	4,00	8	40	276
30	4,50	8	32	277
30	5,00	8	32	278
30	5,50	8	32	279
30	6,00	8	32	280

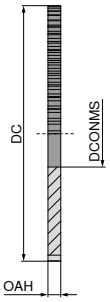
P	●
M	●
K	●
N	●
S	●
H	
O	●

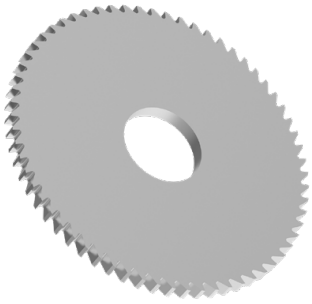
→ v_c/f_z Page 469

Solid carbide circular saw blades, fine-toothed, DIN 1837A

▲ fine-straight-cut







DIN 1837 A

54 700 ...

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	
40	0,20	10	128	302
40	0,25	10	100	303
40	0,30	10	100	304
40	0,35	10	100	305
40	0,40	10	100	306
40	0,50	10	80	307
40	0,60	10	80	308
40	0,70	10	80	309
40	0,80	10	80	310
40	0,90	10	64	311
40	1,00	10	64	312
40	1,10	10	64	313
40	1,20	10	64	314
40	1,30	10	64	315
40	1,40	10	64	316
40	1,50	10	64	317
40	1,60	10	64	318
40	1,70	10	48	319
40	1,80	10	48	320
40	1,90	10	48	321
40	2,00	10	48	322
40	2,50	10	48	323
40	3,00	10	48	324
40	3,50	10	48	325
40	4,00	10	40	326
40	4,50	10	40	327
40	5,00	10	40	328
40	5,50	10	40	329
40	6,00	10	40	330
50	0,20	13	128	352
50	0,25	13	128	353
50	0,30	13	128	354
50	0,35	13	100	355
50	0,40	13	100	356
50	0,50	13	100	357
50	0,60	13	100	358
50	0,70	13	80	359
50	0,80	13	80	360
50	0,90	13	80	361
50	1,00	13	80	362
50	1,10	13	80	363
50	1,20	13	80	364
50	1,30	13	64	365
50	1,40	13	64	366
50	1,50	13	64	367
50	1,60	13	64	368
50	1,70	13	64	369
50	1,80	13	64	370
50	1,90	13	64	371
50	2,00	13	64	372
50	2,50	13	64	373
50	3,00	13	48	374
50	3,50	13	48	375
50	4,00	13	48	376
50	4,50	13	48	377

54 700 ...

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	
50	5,00	13	48	378
50	5,50	13	40	379
50	6,00	13	40	380
63	0,20	16	160	402
63	0,25	16	160	403
63	0,30	16	128	404
63	0,35	16	128	405
63	0,40	16	128	406
63	0,50	16	128	407
63	0,60	16	100	408
63	0,70	16	100	409
63	0,80	16	100	410
63	0,90	16	100	411
63	1,00	16	100	412
63	1,10	16	80	413
63	1,20	16	80	414
63	1,30	16	80	415
63	1,40	16	80	416
63	1,50	16	80	417
63	1,60	16	80	418
63	1,70	16	80	419
63	1,80	16	80	420
63	1,90	16	80	421
63	2,00	16	80	422
63	2,50	16	64	423
63	3,00	16	64	424
63	3,50	16	64	425
63	4,00	16	64	426
63	4,50	16	64	427
63	5,00	16	48	428
63	5,50	16	48	429
63	6,00	16	48	430
80	0,30	22	160	45400
80	0,35	22	160	45500
80	0,40	22	160	45600
80	0,50	22	128	45700
80	0,60	22	128	45800
80	0,70	22	128	45900
80	0,80	22	128	46000
80	0,90	22	100	46100
80	1,00	22	100	46200
80	1,10	22	100	46300
80	1,20	22	100	46400
80	1,30	22	100	46500
80	1,40	22	100	46600
80	1,50	22	100	46700
80	1,60	22	100	46800
80	1,70	22	80	46900
80	1,80	22	80	47000
80	1,90	22	80	47100
80	2,00	22	80	47200
80	2,50	22	80	47300
80	3,00	22	80	47400
80	3,50	22	64	47500
80	4,00	22	64	47600
80	4,50	22	64	47700
80	5,00	22	64	47800
80	5,50	22	64	47900
80	6,00	22	64	48000

P	●
M	●
K	●
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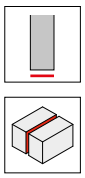
H	
O	●

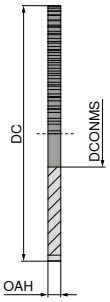
→ v_c/f_z Page 469

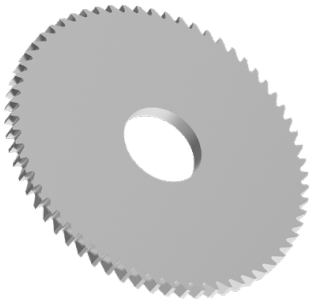
14

Solid carbide circular saw blades, fine-toothed, DIN 1837A

▲ fine-straight-cut







54 700 ...

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	
200	1,5	32	160	71700
200	1,6	32	160	71800
200	2,0	32	160	72200
200	2,5	32	160	72300
200	3,0	32	128	72400
200	4,0	32	128	72600

P	●
M	●
K	●
N	●
S	●
H	
O	●

→ v_c/f_z Page 469

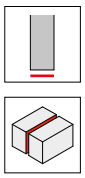
DIN 1837 A

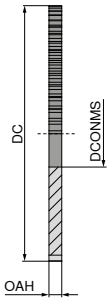
54 700 ...

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	
100	0,5	22	160	50700
100	0,6	22	160	50800
100	0,7	22	128	50900
100	0,8	22	128	51000
100	0,9	22	128	51100
100	1,0	22	128	51200
100	1,1	22	128	51300
100	1,2	22	128	51400
100	1,3	22	100	51500
100	1,4	22	100	51600
100	1,5	22	100	51700
100	1,6	22	100	51800
100	1,7	22	100	51900
100	1,8	22	100	52000
100	1,9	22	100	52100
100	2,0	22	100	52200
100	2,5	22	100	52300
100	3,0	22	80	52400
100	3,5	22	80	52500
100	4,0	22	80	52600
100	4,5	22	80	52700
100	5,0	22	80	52800
100	5,5	22	64	52900
100	6,0	22	64	53000
125	0,6	22	160	55800
125	0,7	22	160	55900
125	0,8	22	160	56000
125	0,9	22	160	56100
125	1,0	22	160	56200
125	1,1	22	128	56300
125	1,2	22	128	56400
125	1,3	22	128	56500
125	1,4	22	128	56600
125	1,5	22	128	56700
125	1,6	22	128	56800
125	1,7	22	128	56900
125	1,8	22	128	57000
125	1,9	22	128	57100
125	2,0	22	128	57200
125	2,5	22	100	57300
125	3,0	22	100	57400
125	3,5	22	100	57500
125	4,0	22	100	57600
125	4,5	22	100	57700
125	5,0	22	80	57800
125	5,5	22	80	57900
125	6,0	22	80	58000
160	1,0	32	160	66200
160	1,2	32	160	66400
160	1,5	32	160	66700
160	1,6	32	160	66800
160	2,0	32	128	67200
160	2,5	32	128	67300
160	3,0	32	128	67400
160	4,0	32	128	67600

Solid carbide circular saw blades, coarse-toothed, DIN 1838B

▲ coarse straight-cut





DIN 1838 B

54 701 ...

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	
15	0,20	5	20	10200
15	0,25	5	20	10300
15	0,30	5	20	10400
15	0,35	5	20	10500
15	0,40	5	20	10600
15	0,50	5	20	10700
15	0,60	5	20	10800
15	0,70	5	20	10900
15	0,80	5	20	11000
15	0,90	5	20	11100
15	1,00	5	20	11200
15	1,10	5	20	11300
15	1,20	5	20	11400
15	1,30	5	20	11500
15	1,40	5	20	11600
15	1,50	5	20	11700
15	1,60	5	20	11800
15	1,70	5	20	11900
15	1,80	5	20	12000
15	1,90	5	20	12100
15	2,00	5	20	12200
15	2,50	5	20	12300
15	3,00	5	20	12400
15	3,50	5	20	12500
15	4,00	5	20	12600
15	4,50	5	20	12700
15	5,00	5	20	12800
15	5,50	5	20	12900
15	6,00	5	20	13000
20	0,20	5	20	15200
20	0,25	5	20	15300
20	0,30	5	20	15400
20	0,35	5	20	15500
20	0,40	5	20	15600
20	0,50	5	20	15700
20	0,60	5	20	15800
20	0,70	5	20	15900
20	0,80	5	20	16000
20	0,90	5	20	16100
20	1,00	5	20	16200
20	1,10	5	20	16300
20	1,20	5	20	16400
20	1,30	5	20	16500
20	1,40	5	20	16600
20	1,50	5	20	16700
20	1,60	5	20	16800
20	1,70	5	20	16900
20	1,80	5	20	17000
20	1,90	5	20	17100
20	2,00	5	20	17200
20	2,50	5	20	17300
20	3,00	5	20	17400
20	3,50	5	20	17500
20	4,00	5	20	17600
20	4,50	5	20	17700

54 701 ...

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	
20	5,00	5	20	17800
20	5,50	5	20	17900
20	6,00	5	20	18000
25	0,20	8	20	20200
25	0,25	8	20	20300
25	0,30	8	20	20400
25	0,35	8	20	20500
25	0,40	8	20	20600
25	0,50	8	20	20700
25	0,60	8	20	20800
25	0,70	8	20	20900
25	0,80	8	20	21000
25	0,90	8	20	21100
25	1,00	8	20	21200
25	1,10	8	20	21300
25	1,20	8	20	21400
25	1,30	8	20	21500
25	1,40	8	20	21600
25	1,50	8	20	21700
25	1,60	8	20	21800
25	1,70	8	20	21900
25	1,80	8	20	22000
25	1,90	8	20	22100
25	2,00	8	20	22200
25	2,50	8	20	22300
25	3,00	8	20	22400
25	3,50	8	20	22500
25	4,00	8	20	22600
25	4,50	8	20	22700
25	5,00	8	20	22800
25	5,50	8	20	22900
25	6,00	8	20	23000
30	0,20	8	30	25200
30	0,25	8	30	25300
30	0,30	8	30	25400
30	0,35	8	30	25500
30	0,40	8	30	25600
30	0,50	8	30	25700
30	0,60	8	30	25800
30	0,70	8	30	25900
30	0,80	8	24	26000
30	0,90	8	24	26100
30	1,00	8	24	26200
30	1,10	8	24	26300
30	1,20	8	24	26400
30	1,30	8	24	26500
30	1,40	8	24	26600
30	1,50	8	24	26700
30	1,60	8	24	26800
30	1,70	8	24	26900
30	1,80	8	24	27000
30	1,90	8	24	27100
30	2,00	8	24	27200
30	2,50	8	24	27300
30	3,00	8	24	27400
30	3,50	8	24	27500
30	4,00	8	24	27600
30	4,50	8	24	27700
30	5,00	8	24	27800
30	5,50	8	24	27900
30	6,00	8	24	28000

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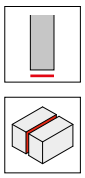
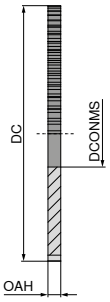
→ v_c/f_z Page 469

14

Solid carbide circular saw blades, coarse-toothed, DIN 1838B

▲ coarse straight-cut





DIN 1838 B

54 701 ...

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	
40	0,20	10	40	**30200**
40	0,25	10	40	**30300**
40	0,30	10	40	**30400**
40	0,35	10	40	**30500**
40	0,40	10	40	**30600**
40	0,50	10	40	**30700**
40	0,60	10	40	**30800**
40	0,70	10	40	**30900**
40	0,80	10	32	**31000**
40	0,90	10	32	**31100**
40	1,00	10	32	**31200**
40	1,10	10	32	**31300**
40	1,20	10	32	**31400**
40	1,30	10	32	**31500**
40	1,40	10	32	**31600**
40	1,50	10	32	**31700**
40	1,60	10	32	**31800**
40	1,70	10	32	**31900**
40	1,80	10	32	**32000**
40	1,90	10	32	**32100**
40	2,00	10	32	**32200**
40	2,50	10	32	**32300**
40	3,00	10	32	**32400**
40	3,50	10	32	**32500**
40	4,00	10	32	**32600**
40	4,50	10	32	**32700**
40	5,00	10	32	**32800**
40	5,50	10	32	**32900**
40	6,00	10	32	**33000**
50	0,20	13	48	**35200**
50	0,25	13	48	**35300**
50	0,30	13	48	**35400**
50	0,35	13	48	**35500**
50	0,40	13	48	**35600**
50	0,50	13	48	**35700**
50	0,60	13	48	**35800**
50	0,70	13	40	**35900**
50	0,80	13	40	**36000**
50	0,90	13	40	**36100**
50	1,00	13	40	**36200**
50	1,10	13	40	**36300**
50	1,20	13	40	**36400**
50	1,30	13	32	**36500**
50	1,40	13	32	**36600**
50	1,50	13	32	**36700**
50	1,60	13	32	**36800**
50	1,70	13	32	**36900**
50	1,80	13	32	**37000**
50	1,90	13	32	**37100**
50	2,00	13	32	**37200**
50	2,50	13	32	**37300**
50	3,00	13	24	**37400**
50	3,50	13	24	**37500**
50	4,00	13	24	**37600**
50	4,50	13	24	**37700**

54 701 ...

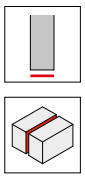
DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	
50	5,00	13	24	**37800**
50	5,50	13	20	**37900**
50	6,00	13	20	**38000**
63	0,30	16	64	**40400**
63	0,35	16	64	**40500**
63	0,40	16	64	**40600**
63	0,50	16	64	**40700**
63	0,60	16	48	**40800**
63	0,70	16	48	**40900**
63	0,80	16	48	**41000**
63	0,90	16	48	**41100**
63	1,00	16	48	**41200**
63	1,10	16	40	**41300**
63	1,20	16	40	**41400**
63	1,30	16	40	**41500**
63	1,40	16	40	**41600**
63	1,50	16	40	**41700**
63	1,60	16	40	**41800**
63	1,70	16	40	**41900**
63	1,80	16	40	**42000**
63	1,90	16	40	**42100**
63	2,00	16	40	**42200**
63	2,50	16	32	**42300**
63	3,00	16	32	**42400**
63	3,50	16	32	**42500**
63	4,00	16	32	**42600**
63	4,50	16	32	**42700**
63	5,00	16	24	**42800**
63	5,50	16	24	**42900**
63	6,00	16	24	**43000**
80	0,30	22	64	**45400**
80	0,35	22	64	**45500**
80	0,40	22	64	**45600**
80	0,50	22	64	**45700**
80	0,60	22	64	**45800**
80	0,70	22	64	**45900**
80	0,80	22	64	**46000**
80	0,90	22	48	**46100**
80	1,00	22	48	**46200**
80	1,10	22	48	**46300**
80	1,20	22	48	**46400**
80	1,30	22	48	**46500**
80	1,40	22	48	**46600**
80	1,50	22	48	**46700**
80	1,60	22	48	**46800**
80	1,70	22	40	**46900**
80	1,80	22	40	**47000**
80	1,90	22	40	**47100**
80	2,00	22	40	**47200**
80	2,50	22	40	**47300**
80	3,00	22	40	**47400**
80	3,50	22	32	**47500**
80	4,00	22	32	**47600**
80	4,50	22	32	**47700**
80	5,00	22	32	**47800**
80	5,50	22	32	**47900**
80	6,00	22	32	**48000**

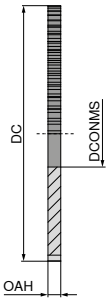
P	●
M	●
K	●
N	●
S	●
H	
O	●

→ v_c/f_z Page 469

Solid carbide circular saw blades, coarse-toothed, DIN 1838B

▲ coarse straight-cut





54 701 ...

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	
200	1,5	32	80	71700
200	1,6	32	80	71800
200	2,0	32	80	72200
200	2,5	32	80	72300
200	3,0	32	64	72400
200	4,0	32	64	72600

P	●
M	●
K	●
N	●
S	●
H	
O	●

→ v_c/f_z Page 469

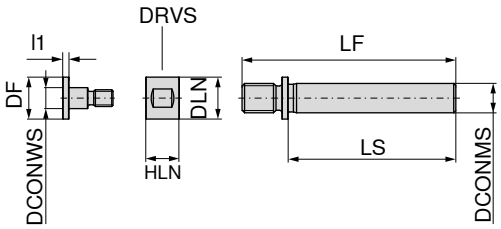
DIN 1838 B

54 701 ...

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	
100	0,5	22	80	50700
100	0,6	22	80	50800
100	0,7	22	80	50900
100	0,8	22	64	51000
100	0,9	22	64	51100
100	1,0	22	64	51200
100	1,1	22	64	51300
100	1,2	22	64	51400
100	1,3	22	48	51500
100	1,4	22	48	51600
100	1,5	22	48	51700
100	1,6	22	48	51800
100	1,7	22	48	51900
100	1,8	22	48	52000
100	1,9	22	48	52100
100	2,0	22	48	52200
100	2,5	22	48	52300
100	3,0	22	40	52400
100	3,5	22	40	52500
100	4,0	22	40	52600
100	4,5	22	40	52700
100	5,0	22	40	52800
100	5,5	22	32	52900
100	6,0	22	32	53000
125	0,6	22	80	55800
125	0,7	22	80	55900
125	0,8	22	80	56000
125	0,9	22	80	56100
125	1,0	22	80	56200
125	1,1	22	64	56300
125	1,2	22	64	56400
125	1,3	22	64	56500
125	1,4	22	64	56600
125	1,5	22	64	56700
125	1,6	22	64	56800
125	1,7	22	64	56900
125	1,8	22	64	57000
125	1,9	22	64	57100
125	2,0	22	64	57200
125	2,5	22	48	57300
125	3,0	22	48	57400
125	3,5	22	48	57500
125	4,0	22	48	57600
125	4,5	22	40	57700
125	5,0	22	40	57800
125	5,5	22	40	57900
125	6,0	22	40	58000
160	1,0	32	80	66200
160	1,2	32	80	66400
160	1,5	32	80	66700
160	1,6	32	80	66800
160	2,0	32	64	67200
160	2,5	32	64	67300
160	3,0	32	64	67400
160	4,0	32	48	67600

Cylindrical shank adapter for circular saw blades

▲ DCONWS = circular saw blade bore diameter



DCONWS h7 mm	DCONMS h7 mm	DLN mm	DF mm	LF mm	LS mm	HLN mm	l_1 mm	DRVS mm	72 900 ...
5	7	10	10	51	40	8	3	9	**005**
5	10	10	10	61	50	8	3	9	**105**
8	7	15	15	51	40	8	3	14	**008**
8	10	15	15	61	50	8	3	14	**108**
10	7	17	17	53	40	10	3	16	**010**
10	10	17	17	63	50	10	3	16	**110**
10	16	17	17	74	55	10	3	16	**210**
13	10	20	20	66	50	10	3	18	**113**
13	16	20	20	77	55	10	3	18	**213**
16	10	24	24	66	50	14	3	22	**116**
16	16	24	24	79	55	14	3	22	**216**

Screw – SR

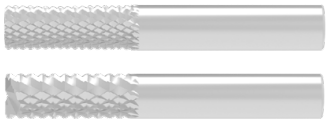
Lock nut – KM

Spare parts for Article no.	72 945 ...	72 945 ...
72 900 005	**000**	**005**
72 900 105	**000**	**005**
72 900 008	**001**	**006**
72 900 108	**001**	**006**
72 900 010	**002**	**007**
72 900 110	**002**	**007**
72 900 210	**010**	**012**
72 900 113	**003**	**008**
72 900 213	**003**	**008**
72 900 116	**004**	**009**
72 900 216	**011**	**013**

Application data for plastics cutters

Material	Strength N/mm² – HB	50 983 … 50 984 … 50 985 … 50 986 …	50 932 …	50 937 …	50 936 …	50 938 …	50 610 … 50 611 …	50 946 …	50 948 …	50 947 …
Aluminium (non alloyed, low alloyed)	< 350 N/mm²						●			
Aluminium	< 500 N/mm²						●			
Aluminium alloy 0,5–10% Si	< 400 N/mm²						●			
Aluminium alloy 10 - 15% Si	< 400 N/mm²					●		●	●	●
Aluminium	< 400 N/mm²					●		●	●	
Copper (non alloyed, low alloyed)	< 350 N/mm²						●			
Copper wrought alloys	< 700 N/mm²					●		●	●	●
Special copper alloys	< 200 HB					●		●	●	●
Special copper alloys	< 300 HB					●		●	●	●
Special copper alloys	< 300 HB					●		●	●	●
Short-chipping brass, bronze, red bronze	< 600 N/mm²						●			
Long-chipping brass	< 600 N/mm²						●			
Magnesium and Magnesium Alloys	< 850 N/mm²					●		●	●	●
Tungsten and tungsten alloys									●	●
Molybdenum and molybdenum alloys									●	●
Thermoplastics							●			
Duroplastics		●	●	●			●			
Fibre-reinforced plastics		●	●	●	●	●		●	●	●
Graphite		●	●	●	●	●		●		●
Machining direction		↘	↘	↘	↘	↘	↘	↘	↘	↘
		1	2	3	4	5	6	7	8	9

Tips



1 ▲ Very sharp cutting edges for GFK and CFK and to prevent delamination of the component.

2 ▲ For excellent tool life when machining AFK, CFK and Graphite.

3 ▲ Specialist for machining honeycomb materials; Milling of pockets not fully through the workpiece.

4

5 ▲ Specialist for machining honeycomb materials.

▲ Milling of recesses that pass through the material, the lower deck is pushed and upper deck pulled therefore the workpiece material is stabilized.

6 ▲ For machining non fibre-reinforced plastics and non-ferrous metals with low silicon content. (PE, PA, PVC, acrylic glass)

7

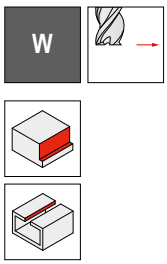
8 ▲ For machining fibre-reinforced plastics and non-ferrous metals with high silicon content.

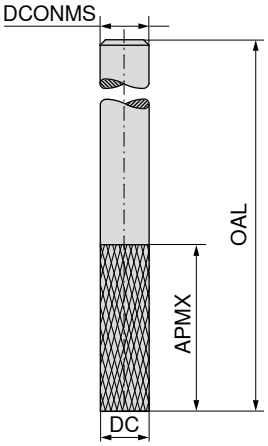
9

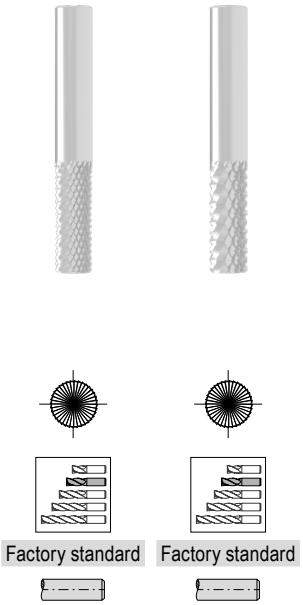
14

Cutter for plastics

- ▲ right hand cutting
- ▲ cross-pitched
- ▲ Downward chip evacuation
- ▲ 50 983 ... = fine pitch
- ▲ 50 984 ... = medium pitch







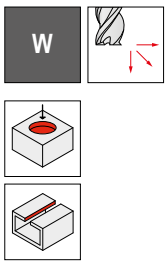
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	50 983 ...	50 984 ...
2,0	7	40	2,0	020	020
2,0	7	50	6,0	021	021
3,0	10	40	3,0	030	030
3,0	12	50	6,0	031	031
3,5	12	40	3,5	035	035
4,0	15	40	4,0	040	040
4,0	20	50	6,0	041	041
4,5	15	50	4,5	045	045
5,0	16	50	5,0	050	050
5,0	25	75	6,0	051	051
6,0	18	50	6,0	060	060
6,0	35	75	6,0	061	061
7,0	22	60	7,0	070	070
8,0	25	63	8,0	080	080
8,0	40	100	8,0	081	081
9,0	25	63	9,0	090	090
10,0	30	72	10,0	100	100
12,0	32	83	12,0	120	120
14,0	32	83	14,0	140	140
16,0	36	92	16,0	160	160
18,0	40	92	18,0	180	180
20,0	45	104	20,0	200	200

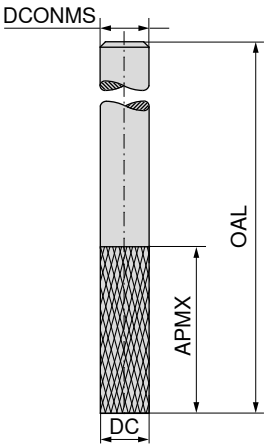
P		
M		
K		
N		
S		
H		
O	●	●

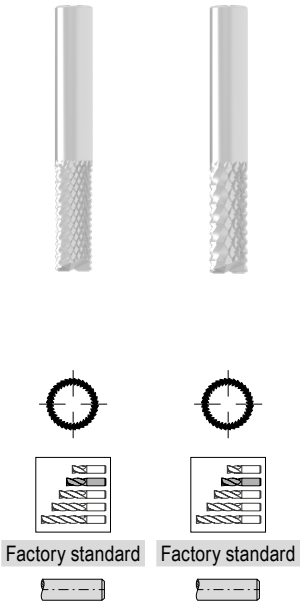
→ v_c/f_z Page 418

Cutter for plastics

- ▲ right hand cutting
- ▲ cross-pitched
- ▲ Downward chip evacuation
- ▲ 50 985 ... = fine pitch
- ▲ 50 986 ... = medium pitch







DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	50 985 ...		50 986 ...
2,0	7	40	2,0	020		020
2,0	7	50	6,0	021		021
3,0	10	40	3,0	030		030
3,0	12	50	6,0	031		031
3,5	12	40	3,5	035		035
4,0	15	40	4,0	040		040
4,0	20	50	6,0	041		041
4,5	15	50	4,5	045		045
5,0	16	50	5,0	050		050
5,0	25	75	6,0	051		051
6,0	18	50	6,0	060		060
6,0	35	75	6,0	061		061
7,0	22	60	7,0	070		070
8,0	25	63	8,0	080		080
8,0	40	100	8,0	081		081
9,0	25	63	9,0	090		090
10,0	30	72	10,0	100		100
12,0	32	83	12,0	120		120
14,0	32	83	14,0	140		140
16,0	36	92	16,0	160		160
18,0	40	92	18,0	180		180
20,0	45	104	20,0	200		200

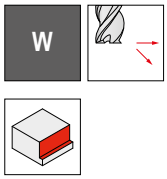
P		
M		
K		
N		
S		
H		
O	●	●

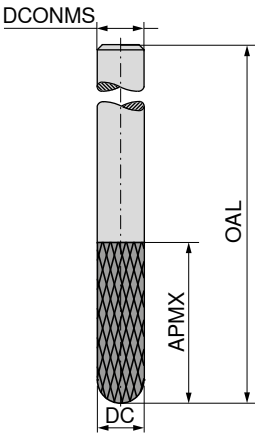
→ v_c/f_z Page 418

Ball nosed cutter for plastics

▲ right hand cutting
▲ cross-pitched

W





DIAMOND

Factory standard

50 932 ...

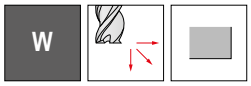
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	
2	7	40	2	**020**
2	7	50	6	**022**
3	10	40	3	**030**
3	12	50	6	**032**
4	15	40	4	**040**
4	20	50	6	**042**
5	16	50	5	**050**
5	25	75	6	**052**
6	18	50	6	**060**
6	35	75	6	**062**
8	25	63	8	**080**
8	40	100	8	**082**
10	30	72	10	**100**
12	32	83	12	**120**
16	36	92	16	**160**
20	40	104	20	**200**

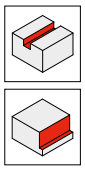
P	
M	
K	
N	
S	
H	
O	●

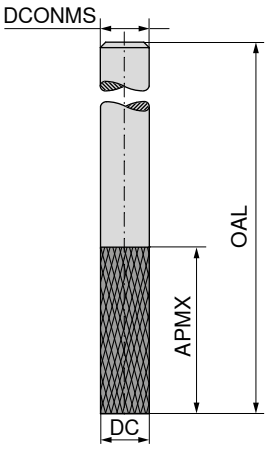
→ v_c/f_z Page 418

Cutter for plastics

▲ right hand cutting
▲ cross-pitched







Factory standard

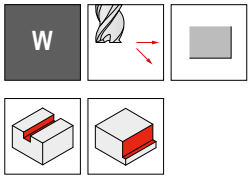
50 937 ...

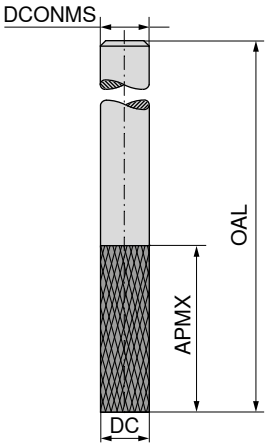
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	
5	16	60	6	**050**
5	28	75	6	**052**
6	20	60	6	**060**
6	35	75	6	**062**
8	22	63	8	**080**
8	40	100	8	**082**
10	25	72	10	**100**
10	50	100	10	**102**
12	30	83	12	**120**
12	50	100	12	**122**
16	35	92	16	**160**
16	60	125	16	**162**

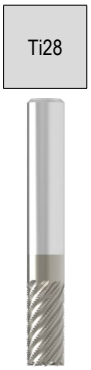
P	
M	
K	
N	
S	
H	
O	●

→ v_c/f_z Page 418

Cutter for honeycomb materials







Factory standard

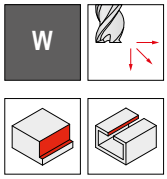
50 936 ...

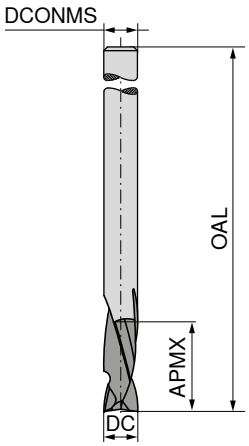
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	
6	16	50	6	**006**
8	19	63	8	**008**
10	22	72	10	**010**
12	26	83	12	**012**
16	17	100	12	**016**
20	17	100	12	**020**
24	10	100	12	**024**
24	17	100	12	**025**

P	
M	
K	
N	
S	
H	
O	●

→ v_c/f_z Page 418

Right and left hand helix cutter for fibre re-inforced plastics





Ti28

Factory standard

50 938 ...

DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	
2	6	40	6	2	**020**
3	12	40	3	2	**030**
3	12	50	6	2	**032**
4	14	40	4	2	**040**
5	16	50	5	2	**050**
6	18	50	6	2	**060**
8	20	63	8	2	**080**
10	25	72	10	2	**100**
12	30	83	12	2	**120**

P	
M	
K	
N	●
S	
H	
O	●

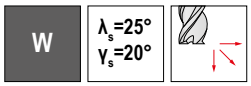
→ v_c/f_z Page 418

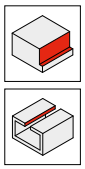
Single flute cutter

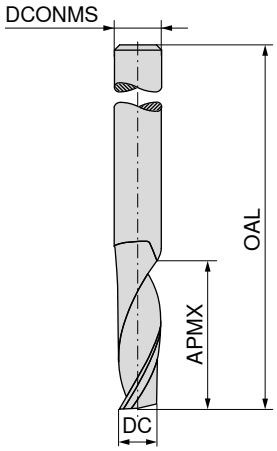
▲ With polished chip flutes

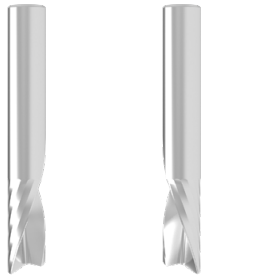
W

λ_s=25°
γ_s=25°









Right-hand helix
right-hand cutting

Factory standard

50 610 ...

Left-hand helix
right-hand cutting

Factory standard

50 611 ...

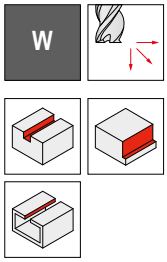
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP		
1,5	6	40	3,0	1	015	015
2,0	10	40	2,0	1	020	020
2,0	6	40	3,0	1	019	019
2,0	10	60	6,0	1	022	022
2,0	12	60	6,0	1	024	024
2,5	6	40	2,5	1	025	025
3,0	12	60	6,0	1	034	034
3,0	12	40	3,0	1	030	030
3,0	10	40	6,0	1	032	032
3,0	15	60	6,0	1	036	036
4,0	20	75	6,0	1	044	044
4,0	15	40	4,0	1	040	040
4,0	15	60	6,0	1	042	042
5,0	16	60	6,0	1	052	052
5,0	16	50	5,0	1	050	050
5,0	28	75	6,0	1	054	054
6,0	20	60	6,0	1	060	060
6,0	30	60	6,0	1	062	062
6,0	35	75	6,0	1	064	064
8,0	22	63	8,0	1	080	080
8,0	40	100	8,0	1	084	084
10,0	55	100	10,0	1	105	105
10,0	25	72	10,0	1	100	100
12,0	30	83	12,0	1	120	120
16,0	35	92	16,0	1	160	160

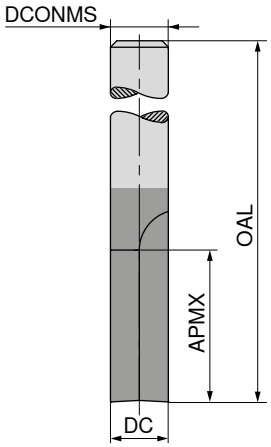
P		
M		
K		
N	●	●
S		
H		
O	●	●

→ v_c/f_z Page 418

Cutter for plastics

▲ With polished flutes





Factory standard

50 946 ...

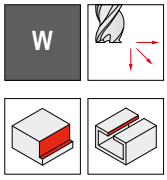
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	
1,5	6	40	3	1	**015**
2,0	6	40	3	1	**020**
2,0	10	40	2	1	**022**
2,0	10	60	6	1	**024**
2,0	12	60	6	1	**026**
3,0	12	40	3	1	**030**
3,0	12	60	6	1	**032**
3,0	15	60	6	1	**034**
4,0	15	60	6	1	**040**
4,0	20	75	6	1	**042**
5,0	16	60	6	1	**050**
5,0	28	75	6	1	**052**
6,0	20	60	6	1	**060**
6,0	30	60	6	1	**062**
6,0	35	75	6	1	**064**
8,0	22	63	8	1	**080**
8,0	40	100	8	1	**082**
10,0	25	72	10	1	**100**
10,0	55	100	10	1	**102**
12,0	30	83	12	1	**120**

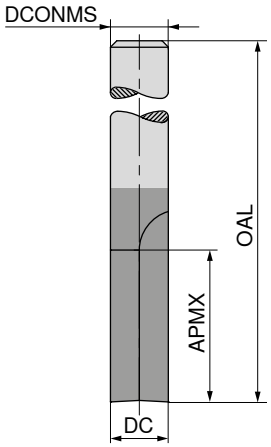
P	
M	
K	
N	●
S	
H	
O	●

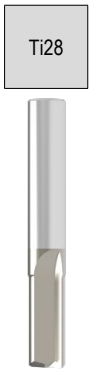
→ v_c/f_z Page 418

Cutter for plastics

▲ with polished flutes







Factory standard

50 948 ...

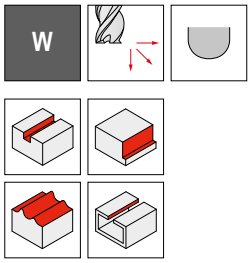
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	
2	6	40	6	2	**020**
3	12	40	3	2	**030**
3	12	50	6	2	**031**
4	14	40	6	2	**040**
5	16	50	5	2	**050**
6	18	50	6	2	**060**
8	20	63	8	2	**080**
10	25	72	10	2	**100**
12	30	83	12	2	**120**

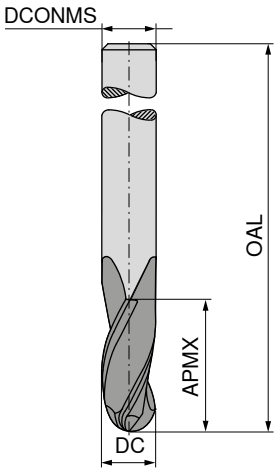
P	
M	
K	
N	●
S	
H	
O	●

→ v_c/f_z Page 418

Ball nosed cutter for plastics

▲ with polished flutes
▲ irregular pitch





Ti40

DIN 6527 L

50 947 ...

DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	
3	10	57	6	3	**030**
4	13	57	6	3	**040**
5	15	57	6	3	**050**
6	18	57	6	3	**060**
8	20	63	8	3	**080**
10	25	72	10	3	**100**
12	30	83	12	3	**120**

P	
M	
K	
N	●
S	
H	
O	●

→ v_c/f_z Page 418

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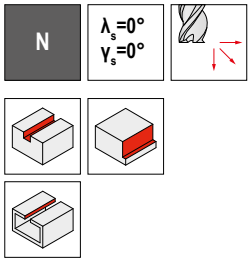
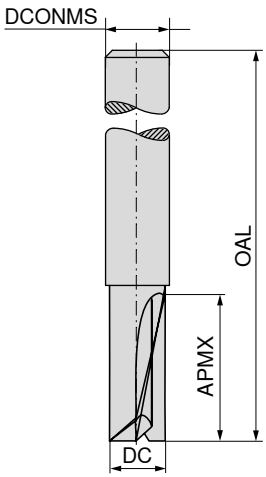
Slot milling cutter





Factory standard

52 168 ...

DC e8 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	
2	8	50	3	2	**020**
3	12	50	3	2	**030**
4	13	60	4	2	**040**
5	14	60	5	2	**050**
6	16	58	6	2	**060**
8	20	65	8	2	**080**
10	22	70	10	2	**100**
12	25	70	12	2	**120**

P	●
M	○
K	●
N	○
S	○
H	
O	●

→ v_c/f_z Page 480–483

Material examples for cutting data tables

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

* Tensile strength

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Cutting data standard values – MonsterMill – SCR – End mill, short – long

Index	Emulsion	Compressed air	MMS	Type short	Type long	52 600 ..., 52 601 ..., 52 602 ..., 52 603 ..., 52 604 ..., 52 606 ..., 52 607 ..., 52 608 ..., 52 611 ..., 52 612 ...														
						Ø DC (mm) =								Ø DC (mm) =								
						3,0–3,5			4,0–4,5					5,0–5,5			6,0–7,5			8,0–9,5		
						a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)			$a_{p\,max.}$ x DC		f_z (mm)						$a_{p\,max.}$ x DC		f_z (mm)								
P.1.1	90	160		1,0	1,0	0,031	0,024	0,017	0,043	0,033	0,024	1,0	1,0*	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
P.1.2	90	150		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.3	90	150		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.4	90	140		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.5	90	140		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.1	90	140		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.2	90	140		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.3	80	120		1,0	1,0	0,025	0,019	0,014	0,035	0,027	0,020	1,0	1,0*	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.2.4	80	120		1,0	1,0	0,025	0,019	0,014	0,035	0,027	0,020	1,0	1,0*	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.3.1	90	140		1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.2	80	130		1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.3	80	110		1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.4.1	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
P.4.2	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.1.1	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.2.1	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.3.1	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
K.1.1		200		1,0	1,0	0,040	0,031	0,022	0,055	0,043	0,031	1,0	1,0*	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.1.2		180		1,0	1,0	0,040	0,031	0,022	0,055	0,043	0,031	1,0	1,0*	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.2.1		200		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.2.2		180		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.3.1		140		1,0	1,0	0,028	0,022	0,016	0,040	0,031	0,022	1,0	1,0*	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
K.3.2		140		1,0	1,0	0,028	0,022	0,016	0,040	0,031	0,022	1,0	1,0*	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
N.1.1																						
N.1.2																						
N.2.1																						
N.2.2																						
N.2.3																						
N.3.1	150	280		1,0	1,0	0,031	0,024	0,017	0,043	0,033	0,024	1,0	1,0*	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
N.3.2	140	230		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.3.3	140	230		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.4.1																						
S.1.1	45			0,5	0,5	0,016	0,007	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.1.2	45			0,5	0,5	0,016	0,007	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.1	30			0,5	0,5	0,018	0,014	0,010	0,025	0,019	0,014	0,5	0,5	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
S.2.2	30			0,5	0,5	0,016	0,007	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.3	30			0,5	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.3.1	80			0,5	0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,5	0,5	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
S.3.2	60			0,5	0,5	0,025	0,019	0,014	0,035	0,027	0,019	0,5	0,5	0,050	0,037	0,025	0,066	0,049	0,033	0,09	0,07	0,04
S.3.3	60			0,5	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,5	0,5	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
H.1.1		80		0,3	0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,3	0,3	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
H.1.2		60		0,15	0,15	0,016	0,012	0,009	0,022	0,017	0,012	0,15	0,15	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
H.1.3																						
H.1.4																						
H.2.1		120		0,5	0,5	0,020	0,016	0,011	0,028	0,022	0,016	0,5	0,5	0,041	0,030	0,020	0,054	0,040	0,027	0,07	0,05	0,04
H.3.1		80		0,3	0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,3	0,3	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
O.1.1	180	300		1,0	1,0	0,067	0,052	0,038	0,094	0,073	0,053	1,0	1,0*	0,135	0,101	0,068	0,180	0,134	0,090	0,24	0,18	0,12
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

*= With an a_p of 1.5xD, the feed rate per tooth f_z should be multiplied by 0.8

SCR ball nosed cutters at full slot, reduce f_z by 25%!

Plunging angle for ramping and helical milling:
No. of teeth 4 = 4 °/No. of teeth 6 = 1°

Index	52 600 ..., 52 601 ..., 52 602 ..., 52 603 ..., 52 604 ..., 52 606 ..., 52 607 ..., 52 608 ..., 52 611 ..., 52 612 ...																		● 1st choice ○ suitable		
	Ø DC (mm) =																				
	10,0–11,5			12,0			14,0–15,5			16,0–17,0			18,0–19,5			20,0			Emulsion	Compressed air	MMS
	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_s 0,6–1,0 x DC	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_s 0,6–1,0 x DC			
	f_z (mm)																				
P.1.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,16	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	○	●	○
P.1.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.4	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.5	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.3	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.2.4	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.3.1	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.2	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.4.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
P.4.2	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.1.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.2.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.3.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
K.1.1	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,21	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16		●	
K.1.2	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,21	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16		●	
K.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14		●	
K.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14		●	
K.3.1	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,15	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11		●	
K.3.2	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,15	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11		●	
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,16	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	●		○
N.3.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.3.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.4.1																					
S.1.1	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,10	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07	●		
S.2.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.3	0,07	0,05	0,04	0,08	0,03	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.3.1	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●		
S.3.2	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,11	0,09	0,16	0,13	0,10	●		
S.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●		
H.1.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,10	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
H.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06		●	
H.1.3																					
H.1.4																					
H.2.1	0,09	0,07	0,05	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,07	0,13	0,11	0,08		●	
H.3.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,10	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
O.1.1	0,30	0,22	0,15	0,33	0,25	0,17	0,33	0,26	0,18	0,36	0,27	0,21	0,38	0,31	0,24	0,43	0,35	0,27	●		○
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

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Feed rate guide values for ball nosed and torus cutters on → **Page** 486

Cutting data standard values – MonsterMill – SCR– End mill, extra long

Index	Emulsion	Compressed air	MMS	Type extra long		52 605 ... / 52 608 ...															
						Ø DC (mm) = 3			4			5			6			8			
						a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)			$a_{p\,max.}$ x DC		f_z (mm)															
P.1.1	80	110		1,0*	0,5	0,031	0,024	0,017	0,043	0,033	0,024	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
P.1.2	80	110		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.3	80	110		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.4	80	110		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.5	80	110		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.1	80	90		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.2	80	90		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.3	70	80		1,0*	0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.2.4	70	80		1,0*	0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.3.1	70	80		1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.2	70	80		1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.3	70	80		1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.4.1	70			1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
P.4.2	70			1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.1.1	70			1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.2.1	70			1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.3.1	70			1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
K.1.1		160		1,0*	0,5	0,040	0,031	0,022	0,055	0,043	0,031	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.1.2		120		1,0*	0,5	0,040	0,031	0,022	0,055	0,043	0,031	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.2.1		160		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.2.2		120		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.3.1		100		1,0*	0,5	0,028	0,022	0,016	0,040	0,031	0,022	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
K.3.2		100		1,0*	0,5	0,028	0,022	0,016	0,040	0,031	0,022	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	120	240		1,0*	0,5	0,031	0,024	0,017	0,043	0,033	0,024	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
N.3.2	100	200		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.3.3	100	200		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.4.1																					
S.1.1	40			0,5*	0,25	0,016	0,007	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.1.2	40			0,5*	0,25	0,016	0,007	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.1	25			0,5*	0,25	0,018	0,014	0,010	0,025	0,019	0,014	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
S.2.2	25			0,5*	0,25	0,016	0,007	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.3	25			0,5*	0,25	0,016	0,012	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.3.1	60			0,5*	0,25	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
S.3.2	50			0,5*	0,25	0,025	0,019	0,014	0,035	0,027	0,019	0,050	0,037	0,025	0,066	0,049	0,033	0,09	0,07	0,04
S.3.3	50			0,5*	0,25	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
H.1.1		60		0,5*	0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
H.1.2		50		0,5*	0,15	0,016	0,012	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
H.1.3																					
H.1.4																					
H.2.1		80		0,5*	0,5	0,020	0,016	0,011	0,028	0,022	0,016	0,041	0,030	0,020	0,054	0,040	0,027	0,07	0,05	0,04
H.3.1		60		0,5*	0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
O.1.1	120	240		1,0*	0,5	0,067	0,052	0,038	0,094	0,073	0,053	0,135	0,101	0,068	0,180	0,134	0,090	0,24	0,18	0,12
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

* = Trimming and trochoidal slot milling

Plunging angle for ramping and helical milling: No. of teeth 4 = 4 °/No. of teeth 6 = 1°

Index	52 605 ... / 52 608 ...																		● 1st choice ○ suitable		
	Ø DC (mm) =																				
	10			12			14			16			18			20					
	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_s 0,6–1,0 x DC	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_s 0,6–1,0 x DC	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_s 0,6–1,0 x DC	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_s 0,6–1,0 x DC	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_s 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																				
P.1.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,15	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	○	●	○
P.1.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.4	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.5	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.3	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.2.4	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.3.1	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.2	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.4.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
P.4.2	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.1.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.2.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.3.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
K.1.1	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,20	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16	○	●	○
K.1.2	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,20	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16	○	●	○
K.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
K.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
K.3.1	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,14	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11	○	●	○
K.3.2	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,14	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11	○	●	○
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,15	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	●		○
N.3.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.3.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.4.1																					
S.1.1	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,09	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07	●		
S.2.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.3	0,07	0,05	0,04	0,08	0,03	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.3.1	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●		
S.3.2	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,09	0,07	0,12	0,10	0,08	0,14	0,11	0,09	0,16	0,13	0,10	●		
S.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●		
H.1.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,09	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
H.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06		●	
H.1.3																					
H.1.4																					
H.2.1	0,09	0,07	0,05	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,11	0,08		●	
H.3.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,09	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
O.1.1	0,30	0,22	0,15	0,33	0,25	0,17	0,33	0,26	0,18	0,33	0,27	0,21	0,38	0,31	0,24	0,43	0,35	0,27	●		○
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

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Cutting data standard values – MonsterMill – SCR – Torus face cutter, long

Index	v_c (m/min)	Type long $a_{p\,max.}$ x DC	52 609 ...															
			Ø DC (mm) =															
			3			4			5			6			8			
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)															
P.1.1	150	1,0	0,019	0,017	0,012	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03	
P.1.2	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
P.1.3	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
P.1.4	140	1,0	0,019	0,017	0,012	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
P.1.5	140	1,0	0,019	0,017	0,012	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
P.2.1	150	1,0	0,024	0,021	0,015	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03	
P.2.2	150	1,0	0,019	0,017	0,012	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03	
P.2.3	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
P.2.4	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
P.3.1	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
P.3.2	150	1,0	0,024	0,021	0,015	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03	
P.3.3	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
P.4.1																		
P.4.2																		
M.1.1																		
M.2.1																		
M.3.1																		
K.1.1	170	1,0	0,028	0,025	0,018	0,043	0,033	0,024	0,056	0,042	0,028	0,072	0,054	0,036	0,10	0,07	0,05	
K.1.2	170	1,0	0,028	0,025	0,018	0,043	0,033	0,024	0,056	0,042	0,028	0,072	0,054	0,036	0,10	0,07	0,05	
K.2.1	150	1,0	0,024	0,021	0,015	0,036	0,028	0,020	0,046	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04	
K.2.2	150	1,0	0,024	0,021	0,015	0,036	0,028	0,020	0,046	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04	
K.3.1	80	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
K.3.2	80	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1																		
S.3.2																		
S.3.3																		
H.1.1	80	0,3	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
H.1.2	60	0,15	0,009	0,008	0,006	0,014	0,011	0,008	0,020	0,015	0,010	0,024	0,018	0,012	0,03	0,02	0,02	
H.1.3																		
H.1.4																		
H.2.1	100	0,5	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
H.3.1	80	0,3	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Index	52 609 ... Ø DC (mm) = 10 a_e 0,1–0,2 x DC	10 a_e 0,3–0,4 x DC	10 a_e 0,6–1,0 x DC	12 a_e 0,1–0,2 x DC	12 a_e 0,3–0,4 x DC	12 a_e 0,6–1,0 x DC	16 a_e 0,1–0,2 x DC	16 a_e 0,3–0,4 x DC	16 a_e 0,6–1,0 x DC	● 1st choice ○ suitable Emulsion	Compressed air	MMS
	f_z (mm)											
P.1.1	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.1.2	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.3	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.4	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.5	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.2.1	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.2.2	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.2.3	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.2.4	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.3.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.3.2	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.3.3	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
K.1.2	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
K.2.1	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
K.2.2	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
K.3.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
K.3.2	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
H.1.2	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03		●	
H.1.3												
H.1.4												
H.2.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
H.3.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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Cutting data standard values – MonsterMill – SCR – Torus face cutter, HSC machining

Index	v_c (m/min)	a_p x DC	a_e x DC	52 609 ... Ø DC (mm) = 3	4	5	6	8	10	12	16	● 1st choice ○ suitable Emulsion	Compressed air	MMS
				f_z (mm)										
P.1.1	200	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.1.2	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.1.3	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.1.4	190	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
P.1.5	190	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
P.2.1	200	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.2.2	200	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.2.3	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.2.4	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.3.1	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.3.2	200	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.3.3	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.4.1														
P.4.2														
M.1.1														
M.2.1														
M.3.1														
K.1.1	230	0,05	0,6	0,120	0,160	0,200	0,240	0,32	0,40	0,48	0,64	○	●	
K.1.2	230	0,05	0,6	0,120	0,160	0,200	0,240	0,32	0,40	0,48	0,64	○	●	
K.2.1	200	0,04	0,5	0,096	0,130	0,160	0,192	0,26	0,32	0,38	0,51	○	●	
K.2.2	200	0,04	0,5	0,096	0,130	0,160	0,192	0,26	0,32	0,38	0,51	○	●	
K.3.1	100	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
K.3.2	100	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
N.1.1														
N.1.2														
N.2.1														
N.2.2														
N.2.3														
N.3.1														
N.3.2														
N.3.3														
N.4.1														
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1														
S.3.2														
S.3.3														
H.1.1	100	0,03	0,3	0,060	0,080	0,100	0,120	0,16	0,20	0,24	0,32		●	
H.1.2	90	0,02	0,3	0,048	0,064	0,080	0,096	0,13	0,16	0,19	0,26		●	
H.1.3	80	0,02	0,2	0,024	0,056	0,070	0,084	0,11	0,14	0,17	0,22		●	
H.1.4	60	0,02	0,2	0,036	0,048	0,060	0,072	0,10	0,12	0,14	0,19		●	
H.2.1	130	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38		●	
H.3.1	100	0,03	0,3	0,060	0,080	0,100	0,120	0,16	0,20	0,24	0,32		●	
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

Cutting data standard values – MonsterMill – FRP CR fine pitched

Index	Compressed air	Type long	52 598 ...					● 1st choice ○ suitable		
			Ø DC (mm) =							
			> Ø 5 ≤ Ø 6	> Ø 6 ≤ Ø 8	> Ø 8 ≤ Ø 10	> Ø 10 ≤ Ø 12	> Ø 12 ≤ Ø 14			
			a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC			
	v_c (m/min)	$a_{p\,max.}$ x DC	f (mm/rev)					Emulsion	Compressed air	MMS
O.1.1										
O.1.2										
O.2.1										
O.2.2	200	1,0	0,125	0,150	0,175	0,200	0,225		●	
O.3.1										

For the MonsterMill FRP CR cutters, the feed rate must be selected in mm/rev.

Cutting data standard values – MonsterMill – FRP CR coarse pitched

Index	Compressed air	Type long	52 599 ...					● 1st choice ○ suitable		
			Ø DC (mm) =							
			> Ø 5 ≤ Ø 6	> Ø 6 ≤ Ø 8	> Ø 8 ≤ Ø 10	> Ø 10 ≤ Ø 12	> Ø 12 ≤ Ø 14			
			a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC			
	v_c (m/min)	$a_{p\,max.}$ x DC	f (mm/rev)					Emulsion	Compressed air	MMS
O.1.1										
O.1.2										
O.2.1										
O.2.2	200	1,5	0,100	0,120	0,140	0,160	0,180		●	
O.3.1										

For the MonsterMill FRP CR cutters, the feed rate must be selected in mm/rev.

Cutting data standard values – MonsterMill – FRP

Index	Compressed air	Type long	52 595 ..., 52 596 ..., 52 597 ...					● 1st choice ○ suitable		
			Ø DC (mm) =							
			> Ø 5 ≤ Ø 6	> Ø 6 ≤ Ø 8	> Ø 8 ≤ Ø 10	> Ø 10 ≤ Ø 12	> Ø 12 ≤ Ø 14			
			a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC			
	v_c (m/min)	$a_{p\,max.}$ x DC	f (mm/rev)					Emulsion	Compressed air	MMS
O.1.1										
O.1.2										
O.2.1										
O.2.2	200	1,0	0,018	0,022	0,026	0,03	0,034		●	
O.3.1										

The optimum usage recommendations may differ from those provided here depending on the machining process and application.Please get in touch with your contact at CERATIZIT to determine the best recommendation for your application.

Cutting data standard values – MonsterMill – ICR – End mill, short

Index	Emulsion	Compressed air	MMS	Type short	52 784 ... Ø DC (mm) = 1,5 a_e 0,1–0,2 x DC	1,5 a_e 0,3–0,4 x DC	1,5 a_e 0,6–1,0 x DC	2 a_e 0,1–0,2 x DC	2 a_e 0,3–0,4 x DC	2 a_e 0,6–1,0 x DC	2,5 a_e 0,1–0,2 x DC	2,5 a_e 0,3–0,4 x DC	2,5 a_e 0,6–1,0 x DC	● 1st choice ○ suitable Emulsion	Compressed air	MMS
	v_c (m/min)			$a_{p\,max.}$ x DC	f_z (mm)											
P.1.1	140	130		0,25	0,014	0,013	0,010	0,020	0,019	0,014	0,029	0,024	0,018	○	●	○
P.1.2	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.1.3	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.1.4	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.1.5	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.2.1	120			0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.2.2	120	110		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.2.3	80	90		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	○	●	○
P.2.4	80	90		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	○	●	○
P.3.1	80	90		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
P.3.2	80	90		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
P.3.3	100	110		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
P.4.1	100			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
P.4.2	100			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
M.1.1	**100**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
M.2.1	**80**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
M.3.1	**100**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
K.1.1		180		0,25	0,020	0,019	0,014	0,025	0,024	0,018	0,036	0,030	0,022		●	
K.1.2		160		0,25	0,020	0,019	0,014	0,025	0,024	0,018	0,036	0,030	0,022		●	
K.2.1		180		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019		●	
K.2.2		160		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019		●	
K.3.1		120		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016		●	
K.3.2		120		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016		●	
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1	280	280		0,25	0,007	0,007	0,005	0,020	0,019	0,014	0,029	0,024	0,018	●		○
N.3.2	220	220		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●		○
N.3.3	220	220		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●		○
N.4.1																
S.1.1	45			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,012	0,012	●		
S.1.2	45			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,012	0,012	●		
S.2.1	25			0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●		
S.2.2	30			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,012	0,012	●		
S.2.3	25			0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●		
S.3.1	80			0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	●		
S.3.2	60			0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	●		
S.3.3	60			0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	●		
H.1.1		80		0,20	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013		●	
H.1.2		60		0,15	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012		●	
H.1.3																
H.1.4																
H.2.1		80		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015		●	
H.3.1		80		0,20	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013		●	
O.1.1	300	300		0,25	0,029	0,027	0,020	0,043	0,040	0,030	0,051	0,043	0,032	●		○
O.1.2																
O.2.1																
O.2.2																
O.3.1																

Plunging angle for ramping and helical milling: No. of teeth 3 = 5 °/No. of teeth 4 = 4°/No. of teeth 5 = 3°

Cutting data standard values – MonsterMill – ICR – End mill, short – long

Index	Emulsion	Compressed air	MMS	Type short	Type long	52 784 ..., 52 786 ... Ø DC (mm) = 3 a_e 0,1–0,2 x DC	3 a_e 0,3–0,4 x DC	3 a_e 0,6–1,0 x DC	4 a_e 0,1–0,2 x DC	4 a_e 0,3–0,4 x DC	4 a_e 0,6–1,0 x DC	5 a_e 0,1–0,2 x DC	5 a_e 0,3–0,4 x DC	5 a_e 0,6–1,0 x DC	6 a_e 0,1–0,2 x DC	6 a_e 0,3–0,4 x DC	6 a_e 0,6–1,0 x DC	● 1st choice ○ suitable Emulsion	Compressed air	MMS
	v_c (m/min)			$a_{p\,max.}$ x DC		f_z (mm)														
P.1.1	140	130		1,0	1,0*	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,074	0,057	0,041	○	●	○
P.1.2	140	130		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
P.1.3	140	130		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
P.1.4	140	130		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
P.1.5	140	130		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
P.2.1	120	110		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
P.2.2	120	110		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
P.2.3	80	90		1,0	1,0*	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	○	●	○
P.2.4	80	90		1,0	1,0*	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	○	●	○
P.3.1	80	90		1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○
P.3.2	80	90		1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○
P.3.3	100	110		1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○
P.4.1	100			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
P.4.2	100			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
M.1.1	**100**			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
M.2.1	**80**			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
M.3.1	**100**			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
K.1.1		180		1,0	1,0*	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053		●	
K.1.2		160		1,0	1,0*	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053		●	
K.2.1		180		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045		●	
K.2.2		160		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045		●	
K.3.1		120		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038		●	
K.3.2		120		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038		●	
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	280	280		1,0	1,0*	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,741	0,572	0,413	●		○
N.3.2	220	220		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○
N.3.3	220	220		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○
N.4.1																				
S.1.1	45			0,5	0,5	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
S.1.2	45			0,5	0,5	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
S.2.1	25			0,5	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	●		
S.2.2	30			0,5	0,5	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
S.2.3	25			0,5	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	●		
S.3.1	80			0,5	0,5	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	●		
S.3.2	60			0,5	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	●		
S.3.3	60			0,5	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	●		
H.1.1		80		0,3	0,3	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030		●	
H.1.2		60		0,15	0,15	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026		●	
H.1.3																				
H.1.4																				
H.2.1		80		0,5	0,5	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034		●	
H.3.1		80		0,3	0,3	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030		●	
O.1.1	300	300		1,0	1,0*	0,058	0,045	0,033	0,108	0,083	0,060	0,135	0,104	0,075	0,162	0,125	0,090	●		○
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

* = with an a_p of 1.5 x d_1 the f_z should be multiplied by 0.8

Continued on the next page

Plunging angle for ramping and helical milling: No. of teeth 3 = 5 °/No. of teeth 4 = 4°/No. of teeth 5 = 3°

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Cutting data standard values – MonsterMill – ICR – End mill, short – long

Index	Emulsion	Compressed air	MMS	Type short	Type long	52 784 ..., 52 786 ... Ø DC (mm) = 8			10			12			14		
						a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)			$a_{p\,max.}$ x DC		f_z (mm)											
P.1.1	140	130		1,0	1,0*	0,10	0,08	0,06	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10
P.1.2	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.1.3	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.1.4	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.1.5	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.2.1	120	110		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.2.2	120	110		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.2.3	80	90		1,0	1,0*	0,08	0,06	0,05	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08
P.2.4	80	90		1,0	1,0*	0,08	0,06	0,05	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08
P.3.1	80	90		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
P.3.2	80	90		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
P.3.3	100	110		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
P.4.1	100			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06
P.4.2	100			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06
M.1.1	**100**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
M.2.1	**80**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
M.3.1	**100**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
K.1.1		180		1,0	1,0*	0,13	0,10	0,07	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12
K.1.2		160		1,0	1,0*	0,13	0,10	0,07	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12
K.2.1		180		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,14	0,11	0,08	0,19	0,15	0,11
K.2.2		160		1,0	1,0*	0,11	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,19	0,15	0,11
K.3.1		120		1,0	1,0*	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
K.3.2		120		1,0	1,0*	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1	280	280		1,0	1,0*	0,10	0,08	0,06	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10
N.3.2	220	220		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08
N.3.3	220	220		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08
N.4.1																	
S.1.1	45			0,5	0,5	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
S.1.2	45			0,5	0,5	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
S.2.1	25			0,5	0,5	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
S.2.2	30			0,5	0,5	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
S.2.3	25			0,5	0,5	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,05	0,06	0,13	0,10	0,07
S.3.1	80			0,5	0,5	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08
S.3.2	60			0,5	0,5	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
S.3.3	60			0,5	0,5	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
H.1.1		80		0,3	0,3	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
H.1.2		60		0,15	0,15	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
H.1.3																	
H.1.4																	
H.2.1		80		0,5	0,5	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08
H.3.1		80		0,3	0,3	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
O.1.1	300	300		1,0	1,0*	0,22	0,17	0,12	0,27	0,21	0,15	0,32	0,25	0,18	0,38	0,29	0,21
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

* = with an a_p of 1.5 x d_1 the f_z should be multiplied by 0.8

Plunging angle for ramping and helical milling: No. of teeth 3 = 5 °/No. of teeth 4 = 4°/No. of teeth 5 = 3°

Index	52 784 ..., 52 786 ...									● 1st choice ○ suitable		
	Ø DC (mm) =											
	16			18			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z (mm)									Emulsion	Compressed air	MMS
P.1.1	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	○	●	○
P.1.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.3	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.4	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.5	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.1	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.3	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.2.4	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.3.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.2	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.3	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.4.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
P.4.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.1.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.2.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.3.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
K.1.1	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.1.2	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.2.1	0,19	0,16	0,12	0,20	0,17	0,13	0,25	0,22	0,18		●	
K.2.2	0,19	0,16	0,12	0,20	0,17	0,13	0,22	0,19	0,15		●	
K.3.1	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
K.3.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	●		○
N.3.2	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.3.3	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.4.1												
S.1.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.1.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.2.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.3	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.3.1	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	●		
S.3.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
S.3.3	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
H.1.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10		●	
H.1.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09		●	
H.1.3												
H.1.4												
H.2.1	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11		●	
H.3.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10		●	
O.1.1	0,38	0,31	0,24	0,41	0,35	0,27	0,43	0,38	0,30	●		○
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data standard values – MonsterMill – ICR– End mill, extra long

Index	Emulsion	Compressed air	MMS	Type extra long		52 784 ...															
						Ø DC (mm) =															
						3			4			5			6			8		
						a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)			$a_{p\,max.}$ x DC		f_z (mm)															
P.1.1	120	110		1,0	0,5	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,074	0,057	0,041	0,10	0,08	0,06
P.1.2	120	110		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.1.3	120	110		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.1.4	120	110		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.1.5	120	110		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.2.1	100	90		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.2.2	100	90		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.2.3	70	70		1,0	0,5	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
P.2.4	70	70		1,0	0,5	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
P.3.1	70	70		1,0	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
P.3.2	70	70		1,0	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
P.3.3	85	90		1,0	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
P.4.1	85			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
P.4.2	85			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
M.1.1	85			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
M.2.1	70			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
M.3.1	85			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
K.1.1		150		1,0	0,5	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053	0,13	0,10	0,07
K.1.2		140		1,0	0,5	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053	0,13	0,10	0,07
K.2.1		150		1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
K.2.2		140		1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
K.3.1		105		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
K.3.2		105		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	240	240		1,0	0,5	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,741	0,572	0,413	0,10	0,08	0,06
N.3.2	190	190		1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
N.3.3	190	190		1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
N.4.1																					
S.1.1	38			0,5	0,25	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
S.1.2	38			0,5	0,25	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
S.2.1	23			0,5	0,25	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
S.2.2	27			0,5	0,25	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
S.2.3	23			0,5	0,25	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
S.3.1	70			0,5	0,25	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
S.3.2	50			0,5	0,25	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
S.3.3	50			0,5	0,25	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
H.1.1		70		0,5*		0,027	0,021		0,036	0,028		0,045	0,035		0,054	0,042		0,07	0,06	
H.1.2		50		0,5*		0,025	0,019		0,031	0,024		0,040	0,031		0,047	0,036		0,06	0,05	
H.1.3																					
H.1.4																					
H.2.1		70		0,5*		0,031	0,024		0,040	0,031		0,052	0,040		0,061	0,047		0,08	0,06	
H.3.1		70		0,5*		0,027	0,021		0,036	0,028		0,045	0,035		0,054	0,042		0,07	0,06	
O.1.1	250	250		1,0	0,5	0,058	0,045	0,033	0,108	0,083	0,060	0,135	0,104	0,075	0,162	0,125	0,090	0,22	0,17	0,12
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

*= Edge Milling and Trochoidal Milling

Plunging angle for ramping and helical milling: No. of teeth 3 = 5 °/No. of teeth 4 = 4°/No. of teeth 5 = 3°

Index	52 784 ... Ø DC (mm) = 10			12			14			16			18			20			● 1st choice ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																				
P.1.1	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	○	●	○
P.1.2	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.3	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.4	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.5	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.1	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.2	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.3	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.2.4	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.3.1	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.2	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.3	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.4.1	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
P.4.2	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.1.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.2.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.3.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
K.1.1	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.1.2	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.2.1	0,14	0,10	0,08	0,14	0,11	0,08	0,19	0,15	0,11	0,19	0,16	0,12	0,20	0,17	0,13	0,25	0,22	0,18		●	
K.2.2	0,12	0,09	0,07	0,14	0,11	0,08	0,19	0,15	0,11	0,19	0,16	0,12	0,20	0,17	0,13	0,22	0,19	0,15		●	
K.3.1	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
K.3.2	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	●		○
N.3.2	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.3.3	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.4.1																					
S.1.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.1.2	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.1	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.2.2	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.3	0,09	0,07	0,05	0,11	0,05	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.3.1	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	●		
S.3.2	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
S.3.3	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
H.1.1	0,09	0,07		0,11	0,08		0,13	0,10		0,13	0,10		0,14	0,12		0,14	0,13			●	
H.1.2	0,08	0,06		0,09	0,07		0,11	0,09		0,11	0,09		0,12	0,10		0,13	0,11			●	
H.1.3																					
H.1.4																					
H.2.1	0,10	0,08		0,12	0,09		0,14	0,11		0,14	0,12		0,16	0,13		0,16	0,14			●	
H.3.1	0,09	0,07		0,11	0,08		0,13	0,10		0,13	0,10		0,14	0,12		0,14	0,13			●	
O.1.1	0,27	0,21	0,15	0,32	0,25	0,18	0,38	0,29	0,21	0,38	0,31	0,24	0,41	0,35	0,27	0,43	0,38	0,30	●		○
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

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Cutting data standard values – MonsterMill – TCR – End mill

Index	Type long	Type extra long	Type long	Type extra long	52 504 ..., 52 508 ...											
					Ø DC (mm) =											
					4			5			6			8		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)		$a_{p\,max.}$ x DC		f_z (mm)											
P.4.1	110	88	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
P.4.2	100	80	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
M.1.1	110	88	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
M.2.1	80	64	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
M.3.1	100	80	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1	**80**	**96**	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,050	0,037	0,025
S.3.2	**70**	**80**	1,0	0,5	0,020	0,015	0,010	0,030	0,022	0,014	0,040	0,029	0,019	0,048	0,035	0,022
S.3.3	**60**	**64**	1,0	0,5	0,150	0,010	0,008	0,025	0,018	0,010	0,035	0,025	0,015	0,040	0,030	0,018

Cutting data standard values – MonsterMill – TCR – End mill

Index	Type long	Type long	52 506 ...											
			Ø DC (mm) =											
			4		5		6		8		10		12	
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											
P.4.1	110	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06
P.4.2	100	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06
M.1.1	110	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06
M.2.1	80	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06
M.3.1	100	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	**80**	**1,0**	0,022	0,017	0,032	0,024	0,042	0,031	0,050	0,037	0,064	0,048	0,080	0,060
S.3.2	**70**	**1,0**	0,020	0,015	0,030	0,022	0,040	0,029	0,048	0,035	0,062	0,046	0,078	0,058
S.3.3	**60**	**1,0**	0,150	0,010	0,025	0,018	0,035	0,025	0,040	0,030	0,055	0,035	0,070	0,050

Index	52 504 ..., 52 508 ...												● 1st choice ○ suitable		
	Ø DC (mm) =														
	10			12			16			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)														
P.4.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
P.4.2	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
M.1.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
M.2.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
M.3.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	0,064	0,048	0,032	0,080	0,060	0,040	0,085	0,065	0,045	0,111	0,090	0,070	●		
S.3.2	0,062	0,046	0,030	0,078	0,058	0,038	0,083	0,063	0,043	0,109	0,088	0,068	●		
S.3.3	0,055	0,035	0,025	0,070	0,050	0,030	0,075	0,055	0,035	0,100	0,080	0,060	●		

Index	52 506 ...				● 1st choice ○ suitable		
	Ø DC (mm) =						
	16		20				
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	Emulsion	Compressed air	MMS
	f_z (mm)						
P.4.1	0,085	0,065	0,111	0,09	●	○	
P.4.2	0,085	0,065	0,111	0,09	●	○	
M.1.1	0,085	0,065	0,111	0,09	●	○	
M.2.1	0,085	0,065	0,111	0,09	●	○	
M.3.1	0,085	0,065	0,111	0,09	●	○	
S.1.1							
S.1.2							
S.2.1							
S.2.2							
S.2.3							
S.3.1	0,085	0,065	0,111	0,090	●		
S.3.2	0,083	0,063	0,109	0,088	●		
S.3.3	0,075	0,055	0,100	0,080	●		

Cutting data standard values – MonsterMill – TCR – Ball-nosed end mill

Index	Type long	Type extra long		52 514 ...											
				Ø DC (mm) =											
				2		3		4		5		6		8	
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
	v_c (m/min)		$a_{p\,max.}$ x DC	f_z (mm)											
P.4.1	110	65	0,1 - 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
P.4.2	100	60	0,1 - 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
M.1.1	110	65	0,1 - 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
M.2.1	80	55	0,1 - 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
M.3.1	100	60	0,1 - 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	**80**	**60**	0,1 - 0,2	0,017	0,013	0,02	0,014	0,022	0,017	0,022	0,017	0,034	0,025	0,053	0,042
S.3.2	**70**	**50**	0,1 - 0,2	0,014	0,011	0,017	0,012	0,019	0,014	0,019	0,014	0,029	0,022	0,046	0,036
S.3.3	**60**	**40**	0,1 - 0,2	0,012	0,009	0,014	0,01	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,03

Cutting data standard values – MonsterMill – TCR – Torus face cutter

● 1st choice
○ suitable

Index	Type long	Type extra long		52 512 ...									Emulsion	Compressed air	MMS
				Ø DC (mm) =											
				2	3	4	5	6	8	10	12	16			
				a_e 0,1–1,0 x DC											
	v_c (m/min)		$a_{p\,max.}$ x DC	f_z (mm)											
P.4.1	120	110	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
P.4.2	110	100	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
M.1.1	120	110	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
M.2.1	100	90	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
M.3.1	110	100	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	**130**	**120**	0,06	0,025	0,040	0,060	0,070	0,090	0,11	0,13	0,18	0,22	●		
S.3.2	**110**	**100**	0,06	0,020	0,035	0,055	0,065	0,085	0,10	0,12	0,16	0,20	●		
S.3.3	**90**	**80**	0,06	0,015	0,030	0,050	0,060	0,080	0,09	0,11	0,15	0,18	●		

Index	52 514 ...						● 1st choice ○ suitable		
	Ø DC (mm) =								
	10		12		16				
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	Emulsion	Compressed air	MMS
	f_z (mm)								
P.4.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
P.4.2	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
M.1.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
M.2.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
M.3.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1	0,059	0,046	0,066	0,056	0,073	0,063	●		
S.3.2	0,05	0,04	0,056	0,048	0,062	0,054	●		
S.3.3	0,042	0,033	0,047	0,04	0,052	0,045	●		

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Cutting data standard values – MonsterMill – NCR – End mill, long

Index	ZEFP = 4			Type long	53 030 ...											
					Ø DC (mm) =											
					4			5			6			8		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)			$a_{p\,max.}$ x DC	f_z (mm)											
M.1.1	120	100	70	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
M.2.1	100	80	60	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
M.3.1	120	100	70	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.1.1	**50**	**40**	**30**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.1.2	**50**	**40**	**30**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.2.1	**35**	**30**	**25**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.2.2	**35**	**30**	**25**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.2.3	**35**	**30**	**25**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.3.1	**120**	**100**	**80**	1,0	0,04	0,03	0,02	0,05	0,04	0,03	0,05	0,04	0,03	0,07	0,06	0,04
S.3.2	**100**	**80**	**60**	1,0	0,04	0,03	0,02	0,05	0,04	0,03	0,05	0,04	0,03	0,07	0,06	0,04
S.3.3	**80**	**70**	**60**	1,0	0,04	0,03	0,02	0,05	0,04	0,03	0,05	0,04	0,03	0,07	0,06	0,04

Plunging angle for ramping and helical milling: 3°

Index	ZEFP = 5	Type long	53 031 ...												● 1st choice ○ suitable		
			Ø DC (mm) =														
			6		8		10		12		16		20				
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	Emulsion	Compressed air	MMS
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)														
M.1.1	100	1,5	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		○
M.2.1	80	1,5	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		○
M.3.1	100	1,5	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		○
S.1.1	**40**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.1.2	**40**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.2.1	**35**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.2.2	**35**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.2.3	**35**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.3.1	**100**	**1,5**	**0,05**	0,04	0,06	0,05	0,08	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		
S.3.2	**80**	**1,5**	**0,05**	0,04	0,06	0,05	0,08	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		
S.3.3	**70**	**1,5**	**0,05**	0,04	0,06	0,05	0,08	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		

Plunging angle for ramping and helical milling = 1°

Index	53 030 ...												● 1st choice ○ suitable		
	Ø DC (mm) =														
	10			12			16			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)														
M.1.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		○
M.2.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		○
M.3.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		○
S.1.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.1.2	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.2.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.2.2	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.2.3	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.3.1	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,16	0,12	0,08	●		
S.3.2	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,16	0,12	0,08	●		
S.3.3	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,16	0,12	0,08	●		

Cutting data standard values – MonsterMill – NCR – End mill, extra long

Index	ZEFP = 4		Type extra long	53 030 ...											
				Ø DC (mm) =											
				4		5		6		8		10		12	
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
	v_c (m/min)		$a_{p\,max.}$ x DC	f_z (mm)											
M.1.1	100	80	1,0	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
M.2.1	90	70	1,0	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
M.3.1	100	80	1,0	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.1.1	**50**	**40**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.1.2	**50**	**40**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.2.1	**35**	**30**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.2.2	**35**	**30**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.2.3	**35**	**30**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.3.1	**100**	**80**	**1,0**	0,04	0,03	0,05	0,04	0,05	0,04	0,07	0,06	0,09	0,07	0,11	0,08
S.3.2	**80**	**70**	**1,0**	0,04	0,03	0,05	0,04	0,05	0,04	0,07	0,06	0,09	0,07	0,11	0,08
S.3.3	**70**	**60**	**1,0**	0,04	0,03	0,05	0,04	0,05	0,04	0,07	0,06	0,09	0,07	0,11	0,08

Plunging angle for ramping and helical milling: 3°

Cutting data standard values – MonsterMill – NCR – ball-nosed end mill

Index	Type long	Type extra long	$a_{p\,max.}$ x DC	53 032 ... / 53 033 ...											
				Ø DC (mm) =											
				2		3		4		5		6		8	
				a_e 0,01–0,02 x DC	a_e 0,03–0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,05 x DC
	v_c (m/min)			f_z (mm)											
M.1.1	120	90	0.02	0.02	0.015	0.03	0.02	0.035	0.025	0.04	0.03	0.055	0.04	0.07	0.05
M.2.1	100	80	0.02	0.02	0.015	0.03	0.02	0.035	0.025	0.04	0.03	0.055	0.04	0.07	0.05
M.3.1	120	90	0.02	0.02	0.015	0.03	0.02	0.035	0.025	0.04	0.03	0.055	0.04	0.07	0.05
S.1.1	**60**	**50**	**0.02**	0.015	0.01	0.025	0.015	0.03	0.02	0.04	0.025	0.05	0.03	0.06	0.04
S.1.2	**60**	**50**	**0.02**	0.015	0.01	0.025	0.015	0.03	0.02	0.04	0.025	0.05	0.03	0.06	0.04
S.2.1	**50**	**40**	**0.02**	0.015	0.01	0.025	0.015	0.03	0.02	0.04	0.025	0.05	0.03	0.06	0.04
S.2.2	**50**	**40**	**0.02**	0.015	0.01	0.025	0.015	0.03	0.02	0.04	0.025	0.05	0.03	0.06	0.04
S.2.3	**50**	**40**	**0.02**	0.015	0.01	0.025	0.015	0.03	0.02	0.04	0.025	0.05	0.03	0.06	0.04
S.3.1	100	80	0.02	0.02	0.015	0.03	0.02	0.035	0.025	0.04	0.03	0.055	0.04	0.07	0.05
S.3.2	90	70	0.02	0.02	0.015	0.03	0.02	0.035	0.025	0.04	0.03	0.055	0.04	0.07	0.05
S.3.3	90	70	0.02	0.02	0.015	0.03	0.02	0.035	0.025	0.04	0.03	0.055	0.04	0.07	0.05

Index	53 030 ... Ø DC (mm) = 16 a_e 0,1–0,2 x DC	16 a_e 0,3–0,4 x DC	20 a_e 0,1–0,2 x DC	20 a_e 0,3–0,4 x DC	Emulsion	Compressed air	MMS
	f_z (mm)				● 1st choice ○ suitable		
M.1.1	0,12	0,09	0,14	0,10	●		○
M.2.1	0,12	0,09	0,14	0,10	●		○
M.3.1	0,12	0,09	0,14	0,10	●		○
S.1.1	0,12	0,09	0,14	0,10	●		
S.1.2	0,12	0,09	0,14	0,10	●		
S.2.1	0,12	0,09	0,14	0,10	●		
S.2.2	0,12	0,09	0,14	0,10	●		
S.2.3	0,12	0,09	0,14	0,10	●		
S.3.1	0,13	0,10	0,16	0,12	●		
S.3.2	0,13	0,10	0,16	0,12	●		
S.3.3	0,13	0,10	0,16	0,12	●		

Index	53 032 ... / 53 033 ... Ø DC (mm) = 10 a_e 0,01–0,02 x DC	10 a_e 0,03–0,05 x DC	12 a_e 0,01–0,02 x DC	12 a_e 0,03–0,05 x DC	16 a_e 0,01–0,02 x DC	16 a_e 0,03–0,05 x DC	Emulsion	Compressed air	MMS
	f_z (mm)						● 1st choice ○ suitable		
M.1.1	0.08	0.06	0.09	0.07	0.12	0.1	●		○
M.2.1	0.08	0.06	0.09	0.07	0.12	0.1	●		○
M.3.1	0.08	0.06	0.09	0.07	0.12	0.1	●		○
S.1.1	0.07	0.05	0.08	0.06	0.1	0.08	●		
S.1.2	0.07	0.05	0.08	0.06	0.1	0.08	●		
S.2.1	0.07	0.05	0.08	0.06	0.1	0.08	●		
S.2.2	0.07	0.05	0.08	0.06	0.1	0.08	●		
S.2.3	0.07	0.05	0.08	0.06	0.1	0.08	●		
S.3.1	0.08	0.06	0.09	0.07	0.12	0.1	●		
S.3.2	0.08	0.06	0.09	0.07	0.12	0.1	●		
S.3.3	0.08	0.06	0.09	0.07	0.12	0.1	●		

Cutting data standard values – MonsterMill – HCR – End mill

Index	$T_x \leq 2,5 \times DC$		53 603 ..., 53 604 ...									
			Ø DC (mm) =									
	Peripheral milling		0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
P.2.3	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
P.3.3	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
H.1.1	170	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
H.1.2	160	1,0	0,005	0,005	0,010	0,010	0,014	0,014	0,019	0,024	0,029	0,034
H.1.3	150	1,0	0,004	0,004	0,008	0,008	0,012	0,012	0,016	0,020	0,024	0,028
H.1.4	110	1,0	0,003	0,003	0,006	0,006	0,010	0,010	0,013	0,016	0,019	0,022

Index	$T_x \leq 2,5 \times DC$		53 603 ..., 53 604 ...									
			Ø DC (mm) =									
	Z-layer milling / face milling		0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.2.3	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.3.3	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.1	110	0,05	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.2	100	0,05	0,002	0,002	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017
H.1.3	80	0,03	0,002	0,002	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,014
H.1.4	60	0,03	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011

Index	$T_x \leq 2,5 \times DC$		53 603 ..., 53 604 ...									
			Ø DC (mm) =									
	Full slot		0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.2.3	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.3.3	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.1	55	0,05	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.2	45	0,05	0,001	0,001	0,003	0,003	0,004	0,005	0,006	0,007	0,008	0,010
H.1.3												
H.1.4												

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

Index	53 603 ..., 53 604 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,05 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
P.2.3	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
P.3.3	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
H.1.1	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
H.1.2	0,043	0,048	0,067	0,101	0,134	0,168	0,192	○	●	●
H.1.3	0,036	0,040	0,056	0,084	0,112	0,140	0,160	○	●	●
H.1.4	0,029	0,032	0,045	0,067	0,090	0,112	0,128	○	●	●

Index	53 603 ..., 53 604 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,05 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.2.3	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.3.3	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.1	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.2	0,022	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●
H.1.3	0,018	0,020	0,028	0,042	0,056	0,070	0,080	○	●	●
H.1.4	0,014	0,016	0,022	0,034	0,045	0,056	0,064	○	●	●

Index	53 603 ..., 53 604 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,05 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
P.2.3	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
P.3.3	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
H.1.1	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
H.1.2	0,012	0,015	0,020	0,030	0,033	0,035	0,040	○	●	●
H.1.3										
H.1.4										

Cutting data standard values – MonsterMill – HCR – End mill

Index	T_x ≤ 2,6–5,0 x DC		53 603 ..., 53 604 ...									
			Ø DC (mm) =									
	Peripheral milling		0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
P.2.3	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
P.3.3	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
H.1.1	119	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
H.1.2	112	1,0	0,004	0,004	0,007	0,007	0,011	0,011	0,014	0,018	0,022	0,025
H.1.3	105	1,0	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.4	77	1,0	0,002	0,002	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017

Index	T_x ≤ 2,6–5,0 x DC		53 603 ..., 53 604 ...									
			Ø DC (mm) =									
	Z-layer milling / face milling		0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,03 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
P.2.3	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
P.3.3	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
H.1.1	77	0,05	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
H.1.2	70	0,05	0,002	0,002	0,004	0,004	0,005	0,005	0,007	0,009	0,011	0,013
H.1.3	56	0,03	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.4	60	0,03	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011

Index	T_x ≤ 2,6–5,0 x DC		53 603 ..., 53 604 ...									
			Ø DC (mm) =									
	Full slot		0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 1,0 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.2.3	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.3.3	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.1	39	0,05	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.2	32	0,05	0,001	0,001	0,002	0,002	0,003	0,003	0,004	0,005	0,006	0,007
H.1.3												
H.1.4												

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

Index	53 603 ..., 53 604 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,05 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
P.2.3	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
P.3.3	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
H.1.1	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
H.1.2	0,032	0,036	0,050	0,076	0,101	0,126	0,144	○	●	●
H.1.3	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.4	0,022	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●

Index	53 603 ..., 53 604 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,03 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
P.2.3	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
P.3.3	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
H.1.1	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
H.1.2	0,016	0,018	0,025	0,038	0,050	0,063	0,072	○	●	●
H.1.3	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.4	0,011	0,012	0,017	0,025	0,034	0,042	0,048	○	●	●

Index	53 603 ..., 53 604 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 1,0 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.2.3	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.3.3	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.1	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.2	0,009	0,010	0,014	0,021	0,028	0,035	0,040	○	●	●
H.1.3										
H.1.4										

Cutting data standard values – MonsterMill – HCR – End mill

Index	$T_x \leq 5{,}1–10{,}0 \times DC$		53 603 ..., 53 604 ...									
	Peripheral milling		Ø DC (mm) =									
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.2.3	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.3.3	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.1	94	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.2	88	0,75	0,002	0,002	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017
H.1.3	83	0,75	0,002	0,002	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,014
H.1.4	61	0,75	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011

Index	$T_x \leq 5{,}1–10{,}0 \times DC$		53 603 ..., 53 604 ...									
	Z-layer milling / face milling		Ø DC (mm) =									
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,3 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.2.3	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.3.3	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.1	61	0,05	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.2	55	0,05	0,001	0,001	0,002	0,002	0,004	0,004	0,005	0,006	0,007	0,008
H.1.3	44	0,03	0,001	0,001	0,002	0,002	0,003	0,003	0,004	0,005	0,006	0,007
H.1.4	33	0,03	0,001	0,001	0,002	0,002	0,002	0,002	0,003	0,004	0,005	0,006

● 1st choice
○ suitable

Index	$T_x \leq 10{,}1–15{,}0 \times DC$		53 603 ..., 53 604 ...												
	Peripheral milling		Ø DC (mm) =												
			0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2	2,5	3	4	Emulsion	Compressed air	MMS
			a_e 0,05 x DC													
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)													
P.1.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024	0,034	○	●	●
P.2.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024	0,034	○	●	●
P.3.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024	0,034	○	●	●
H.1.1	77	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024	0,034	○	●	●
H.1.2	72	0,5	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,013	0,017	0,019	0,027	○	●	●
H.1.3	68	0,5	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011	0,014	0,016	0,022	○	●	●
H.1.4	50	0,5	0,003	0,003	0,004	0,004	0,005	0,006	0,008	0,009	0,012	0,013	0,018	○	●	●

● 1st choice
○ suitable

Index	$T_x \leq 10{,}1–15{,}0 \times DC$		53 603 ..., 53 604 ...												
	Z-layer milling / face milling		Ø DC (mm) =												
			0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2	2,5	3	4	Emulsion	Compressed air	MMS
			a_e 0,3 x DC													
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)													
P.1.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024	0,034	○	●	●
P.2.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024	0,034	○	●	●
P.3.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024	0,034	○	●	●
H.1.1	77	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024	0,034	○	●	●
H.1.2	72	0,5	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,013	0,017	0,019	0,027	○	●	●
H.1.3	68	0,5	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011	0,014	0,016	0,022	○	●	●
H.1.4	50	0,5	0,003	0,003	0,004	0,004	0,005	0,006	0,008	0,009	0,012	0,013	0,018	○	●	●

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

Index	53 603 ..., 53 604 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,05 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.2.3	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.3.3	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.1	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.2	0,022	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●
H.1.3	0,018	0,020	0,028	0,042	0,056	0,070	0,080	○	●	●
H.1.4	0,014	0,016	0,022	0,034	0,045	0,056	0,064	○	●	●

Index	53 603 ..., 53 604 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,3 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.2.3	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.3.3	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.1	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.2	0,011	0,012	0,017	0,025	0,034	0,042	0,048	○	●	●
H.1.3	0,009	0,010	0,014	0,021	0,028	0,035	0,040	○	●	●
H.1.4	0,007	0,008	0,011	0,017	0,022	0,028	0,032	○	●	●

Cutting data standard values – MonsterMill – HCR – End mill

Index	$T_x \leq 2 \times DC$		53 605 ...								● 1st choice ○ suitable		
			Ø DC (mm) =										
	Peripheral milling		1	2	3	4	6	8	10	12	Emulsion	Compressed air	MMS
			a_e 0,05 x DC										
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)										
P.1.3	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
P.2.3	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
P.3.3	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
H.1.1	160	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
H.1.2	130	2,0	0,014	0,022	0,030	0,041	0,060	0,074	0,096	0,108	○	●	●
H.1.3	120	2,0	0,012	0,018	0,025	0,034	0,050	0,062	0,080	0,090	○	●	●
H.1.4	110	2,0	0,010	0,014	0,020	0,027	0,040	0,050	0,064	0,072	○	●	●

Index	$T_x \leq 2 \times DC$		53 605 ...								● 1st choice ○ suitable		
			Ø DC (mm) =										
	Face milling		1	2	3	4	6	8	10	12	Emulsion	Compressed air	MMS
			a_e 0,05 x DC										
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)										
P.1.3	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.2.3	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.3.3	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.1	110	0,05	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.2	90	0,05	0,012	0,017	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●
H.1.3	75	0,03	0,010	0,014	0,020	0,028	0,042	0,056	0,070	0,080	○	●	●
H.1.4	60	0,03	0,008	0,011	0,016	0,022	0,034	0,045	0,056	0,064	○	●	●

Index	$T_x \leq 3 \times DC$		53 606 ...								● 1st choice ○ suitable		
			Ø DC (mm) =										
	Peripheral milling		1	2	3	4	6	8	10	12	Emulsion	Compressed air	MMS
			a_e 0,04 x DC										
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)										
P.1.3	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
P.2.3	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
P.3.3	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
H.1.1	119	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
H.1.2	112	2,0	0,011	0,019	0,026	0,036	0,053	0,066	0,084	0,096	○	●	●
H.1.3	105	2,0	0,009	0,016	0,022	0,030	0,044	0,055	0,070	0,080	○	●	●
H.1.4	77	2,0	0,007	0,013	0,018	0,024	0,035	0,044	0,056	0,064	○	●	●

Index	$T_x \leq 3 \times DC$		53 606 ...								● 1st choice ○ suitable		
			Ø DC (mm) =										
	Face milling		1	2	3	4	6	8	10	12	Emulsion	Compressed air	MMS
			a_e 0,04 x DC										
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)										
P.1.3	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
P.2.3	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
P.3.3	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
H.1.1	84	0,05	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
H.1.2	77	0,05	0,007	0,011	0,018	0,029	0,043	0,058	0,072	0,084	○	●	●
H.1.3	63	0,03	0,006	0,009	0,015	0,024	0,036	0,048	0,060	0,070	○	●	●
H.1.4	42	0,03	0,005	0,007	0,012	0,019	0,029	0,038	0,048	0,056	○	●	●

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

Cutting data standard values – MonsterMill – HCR – Ball-nosed end mill

Index	$T_x \leq 2,5 \times DC$		53 602 ...						● 1st choice ○ suitable		
			Ø DC (mm) =								
			3	4	6	8	10	12			
			a_e 0,05 x DC								
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)						Emulsion	Compressed air	MMS
P.1.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
P.2.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
P.3.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
H.1.1	180	0,05	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
H.1.2	160	0,05	0,030	0,040	0,060	0,081	0,101	0,121	○	●	●
H.1.3	150	0,03	0,025	0,034	0,050	0,067	0,084	0,101	○	●	●
H.1.4	130	0,03	0,020	0,027	0,040	0,054	0,067	0,081	○	●	●

Index	$T_x \leq 2,6–5,0 \times DC$		53 602 ...						● 1st choice ○ suitable		
			Ø DC (mm) =								
			3	4	6	8	10	12			
			a_e 0,05 x DC								
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)						Emulsion	Compressed air	MMS
P.1.3	120	0,07	0,03	0,04	0,053	0,073	0,093	0,113	○	●	●
P.2.3	120	0,07	0,03	0,04	0,053	0,073	0,093	0,113	○	●	●
P.3.3	120	0,07	0,03	0,04	0,053	0,073	0,093	0,113	○	●	●
H.1.1	108	0,05	0,030	0,040	0,053	0,073	0,093	0,113	○	●	●
H.1.2	96	0,05	0,024	0,032	0,042	0,058	0,075	0,091	○	●	●
H.1.3	90	0,03	0,020	0,027	0,035	0,049	0,062	0,076	○	●	●
H.1.4	78	0,03	0,016	0,022	0,028	0,039	0,050	0,060	○	●	●

Index	$T_x \leq 5,1–10,0 \times DC$		53 602 ...						● 1st choice ○ suitable		
			Ø DC (mm) =								
			3	4	6	8	10	12			
			a_e 0,04 x DC								
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)						Emulsion	Compressed air	MMS
P.1.3	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
P.2.3	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
P.3.3	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
H.1.1	81	0,04	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
H.1.2	72	0,04	0,018	0,024	0,024	0,036	0,048	0,060	○	●	●
H.1.3	68	0,02	0,015	0,020	0,020	0,030	0,040	0,050	○	●	●
H.1.4	59	0,02	0,012	0,016	0,016	0,024	0,032	0,040	○	●	●

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For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

Cutting data standard values – MonsterMill – HCR – Ball-nosed end mill

Index	$T_x \leq 2,5 \times DC$		53 600 ..., 53 601 ...									
			Ø DC (mm) =									
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
P.2.3	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
P.3.3	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
H.1.1	180	0,05	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
H.1.2	160	0,05	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
H.1.3	150	0,03	0,002	0,004	0,005	0,007	0,010	0,012	0,014	0,018	0,022	0,024
H.1.4	130	0,03	0,002	0,003	0,004	0,006	0,008	0,010	0,011	0,014	0,018	0,019

Index	$T_x \leq 2,6–5,0 \times DC$		53 600 ..., 53 601 ...									
			Ø DC (mm) =									
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
P.2.3	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
P.3.3	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
H.1.1	108	0,05	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
H.1.2	96	0,05	0,002	0,004	0,005	0,007	0,010	0,011	0,014	0,017	0,020	0,023
H.1.3	90	0,03	0,002	0,003	0,004	0,006	0,008	0,010	0,012	0,015	0,017	0,019
H.1.4	78	0,03	0,001	0,002	0,003	0,004	0,006	0,008	0,009	0,012	0,014	0,015

Index	$T_x \leq 5,1–10,0 \times DC$		53 600 ..., 53 601 ...									
			Ø DC (mm) =									
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
P.2.3	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
P.3.3	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
H.1.1	81	0,04	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
H.1.2	72	0,04	0,001	0,002	0,004	0,005	0,007	0,008	0,011	0,013	0,014	0,017
H.1.3	68	0,02	0,001	0,002	0,003	0,004	0,006	0,007	0,009	0,011	0,012	0,014
H.1.4	59	0,02	0,001	0,002	0,002	0,003	0,005	0,006	0,007	0,009	0,010	0,011

Index	$T_x \leq 10,1–15,0 \times DC$		53 600 ..., 53 601 ...									
			Ø DC (mm) =									
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,04 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.2.3	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.3.3	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.1	63	0,03	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.2	56	0,03	0,001	0,001	0,002	0,004	0,005	0,006	0,007	0,008	0,010	0,012
H.1.3	53	0,01	0,001	0,001	0,002	0,003	0,004	0,005	0,006	0,007	0,008	0,010
H.1.4	46	0,01	0,001	0,001	0,002	0,002	0,003	0,004	0,005	0,006	0,006	0,008

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

Index	53 600 ..., 53 601 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,05 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
P.2.3	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
P.3.3	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
H.1.1	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
H.1.2	0,036	0,043	0,058	0,086	0,115	0,144	0,173	○	●	●
H.1.3	0,030	0,036	0,048	0,072	0,096	0,120	0,144	○	●	●
H.1.4	0,024	0,029	0,038	0,058	0,077	0,096	0,115	○	●	●

Index	53 600 ..., 53 601 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,05 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
P.2.3	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
P.3.3	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
H.1.1	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
H.1.2	0,029	0,035	0,046	0,060	0,084	0,107	0,130	○	●	●
H.1.3	0,024	0,029	0,039	0,050	0,070	0,089	0,108	○	●	●
H.1.4	0,019	0,023	0,031	0,040	0,056	0,071	0,086	○	●	●

Index	53 600 ..., 53 601 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,05 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
P.2.3	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
P.3.3	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
H.1.1	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
H.1.2	0,022	0,026	0,035	0,035	0,052	0,069	0,086	○	●	●
H.1.3	0,018	0,022	0,029	0,029	0,043	0,058	0,072	○	●	●
H.1.4	0,014	0,018	0,023	0,023	0,035	0,046	0,058	○	●	●

Index	53 600 ..., 53 601 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,04 x DC		a_e 0,05 x DC							
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
P.2.3	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
P.3.3	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
H.1.1	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
H.1.2	0,017	0,022	0,028	0,028	0,041	0,055	0,069	○	●	●
H.1.3	0,014	0,018	0,023	0,023	0,035	0,046	0,058	○	●	●
H.1.4	0,011	0,014	0,019	0,018	0,028	0,037	0,046	○	●	●

Cutting data standard values – MonsterMill – PCR – End mill, UNI version

Index	Short / long / extra long version		52 613 ..., 52 614 ..., 52 615 ..., 52 619 ...																					
			Ø DC (mm) =																					
			5,0			5,7–6,0			6,7–7,0			7,7–8,0			8,7–9,0			9,7–10,0			11,7–12,0		
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)																					
P.1.1	240	1,0	0,096	0,068	0,043	0,107	0,075	0,048	0,122	0,086	0,054	0,136	0,096	0,061	0,150	0,106	0,067	0,163	0,115	0,073	0,188	0,133	0,084
P.1.2	230	1,0	0,092	0,065	0,041	0,102	0,072	0,046	0,116	0,082	0,052	0,130	0,092	0,058	0,143	0,101	0,064	0,156	0,110	0,070	0,179	0,127	0,080
P.1.3	220	1,0	0,087	0,062	0,039	0,097	0,069	0,043	0,111	0,078	0,050	0,124	0,088	0,055	0,136	0,096	0,061	0,148	0,105	0,066	0,171	0,121	0,076
P.1.4	205	1,0	0,083	0,059	0,037	0,092	0,065	0,041	0,105	0,074	0,047	0,118	0,083	0,053	0,130	0,092	0,058	0,141	0,100	0,063	0,162	0,115	0,072
P.1.5	195	1,0	0,079	0,056	0,035	0,087	0,062	0,039	0,100	0,070	0,045	0,111	0,079	0,050	0,123	0,087	0,055	0,134	0,094	0,060	0,153	0,109	0,069
P.2.1	220	1,0	0,096	0,068	0,043	0,107	0,075	0,048	0,122	0,086	0,054	0,136	0,096	0,061	0,150	0,106	0,067	0,163	0,115	0,073	0,188	0,133	0,084
P.2.2	200	1,0	0,087	0,062	0,039	0,097	0,069	0,043	0,111	0,078	0,050	0,124	0,088	0,055	0,136	0,096	0,061	0,148	0,105	0,066	0,171	0,121	0,076
P.2.3	180	1,0	0,079	0,056	0,035	0,087	0,062	0,039	0,100	0,070	0,045	0,111	0,079	0,050	0,123	0,087	0,055	0,134	0,094	0,060	0,153	0,109	0,069
P.2.4	140	1,0	0,073	0,051	0,033	0,081	0,057	0,036	0,092	0,065	0,041	0,103	0,073	0,046	0,114	0,080	0,051	0,124	0,087	0,055	0,142	0,100	0,064
P.3.1	130	1,0	0,084	0,060	0,038	0,094	0,066	0,042	0,107	0,076	0,048	0,120	0,085	0,054	0,132	0,093	0,059	0,143	0,101	0,064	0,165	0,117	0,074
P.3.2	120	1,0	0,080	0,057	0,036	0,089	0,063	0,040	0,101	0,072	0,045	0,114	0,080	0,051	0,125	0,088	0,056	0,136	0,096	0,061	0,156	0,111	0,070
P.3.3	110	1,0	0,076	0,053	0,034	0,084	0,059	0,038	0,096	0,068	0,043	0,107	0,076	0,048	0,118	0,084	0,053	0,129	0,091	0,058	0,148	0,104	0,066
P.4.1	90	1,0	0,058	0,041	0,026	0,065	0,046	0,029	0,074	0,052	0,033	0,083	0,058	0,037	0,091	0,064	0,041	0,099	0,070	0,044	0,114	0,080	0,051
P.4.2	90	1,0	0,058	0,041	0,026	0,065	0,046	0,029	0,074	0,052	0,033	0,083	0,058	0,037	0,091	0,064	0,041	0,099	0,070	0,044	0,114	0,080	0,051
M.1.1	60	1,0	0,051	0,036	0,023	0,057	0,040	0,025	0,065	0,046	0,029	0,072	0,051	0,032	0,080	0,056	0,036	0,087	0,061	0,039	0,099	0,070	0,044
M.2.1	55	1,0	0,042	0,030	0,019	0,047	0,033	0,021	0,054	0,038	0,024	0,060	0,042	0,027	0,066	0,047	0,029	0,072	0,051	0,032	0,082	0,058	0,037
M.3.1	60	1,0	0,044	0,031	0,020	0,048	0,034	0,022	0,055	0,039	0,025	0,062	0,044	0,028	0,068	0,048	0,031	0,074	0,052	0,033	0,085	0,060	0,038
K.1.1	240	1,0	0,145	0,103	0,065	0,162	0,114	0,072	0,185	0,130	0,083	0,206	0,146	0,092	0,227	0,161	0,102	0,247	0,175	0,111	0,284	0,201	0,127
K.1.2	180	1,0	0,102	0,072	0,046	0,113	0,080	0,051	0,129	0,091	0,058	0,145	0,102	0,065	0,159	0,113	0,071	0,173	0,122	0,077	0,199	0,141	0,089
K.2.1	220	1,0	0,124	0,087	0,055	0,137	0,097	0,061	0,157	0,111	0,070	0,175	0,124	0,078	0,193	0,137	0,086	0,210	0,149	0,094	0,242	0,171	0,108
K.2.2	180	1,0	0,102	0,072	0,046	0,113	0,080	0,051	0,129	0,091	0,058	0,145	0,102	0,065	0,159	0,113	0,071	0,173	0,122	0,077	0,199	0,141	0,089
K.3.1	160	1,0	0,102	0,072	0,046	0,113	0,080	0,051	0,129	0,091	0,058	0,145	0,102	0,065	0,159	0,113	0,071	0,173	0,122	0,077	0,199	0,141	0,089
K.3.2	150	1,0	0,087	0,062	0,039	0,097	0,069	0,043	0,111	0,078	0,050	0,124	0,088	0,055	0,136	0,096	0,061	0,148	0,105	0,066	0,171	0,121	0,076
N.1.1																							
N.1.2																							
N.2.1																							
N.2.2																							
N.2.3																							
N.3.1																							
N.3.2																							
N.3.3																							
N.4.1																							
S.1.1																							
S.1.2																							
S.2.1																							
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S.3.1																							
S.3.2																							
S.3.3																							
H.1.1																							
H.1.2																							
H.1.3																							
H.1.4																							
H.2.1																							
H.3.1																							
O.1.1																							
O.1.2																							
O.2.1																							
O.2.2																							
O.3.1																							

With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.

Index	52 613 ..., 52 614 ..., 52 615 ..., 52 619 ...														● 1st choice ○ suitable		
	Ø DC (mm) =									Ramping	Helical milling			Drilling			
	13,7–14,0			15,5–16,0			17,5–20,0			1,0 x DC		Hole diameter		1,0 x DC			
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Max. plunging angle	$\alpha_{R\,max.}$*	$D_{min.}$ DC x 1,5	$D_{max.}$ DC x 1,8	f_z Factor	Emulsion	Compressed air	MMS
	f_z (mm)																
P.1.1	0,209	0,148	0,094	0,229	0,162	0,102	0,262	0,185	0,117	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.2	0,200	0,141	0,089	0,219	0,155	0,098	0,250	0,177	0,112	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.3	0,190	0,135	0,085	0,208	0,147	0,093	0,238	0,168	0,107	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.4	0,181	0,128	0,081	0,198	0,140	0,088	0,226	0,160	0,101	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.5	0,171	0,121	0,077	0,187	0,133	0,084	0,214	0,152	0,096	45	0,75 x DC	25°	16°	0,9	○	●	○
P.2.1	0,209	0,148	0,094	0,229	0,162	0,102	0,262	0,185	0,117	45	0,75 x DC	25°	16°	0,8	○	●	○
P.2.2	0,190	0,135	0,085	0,208	0,147	0,093	0,238	0,168	0,107	45	0,75 x DC	25°	16°	0,8	○	●	○
P.2.3	0,171	0,121	0,077	0,187	0,133	0,084	0,214	0,152	0,096	45	0,75 x DC	25°	16°	0,8	○	●	○
P.2.4	0,159	0,112	0,071	0,174	0,123	0,078	0,198	0,140	0,089	45	0,75 x DC	25°	16°	0,7	○	●	○
P.3.1	0,184	0,130	0,082	0,201	0,142	0,090	0,230	0,163	0,103	30	0,5 x DC	18°	11°	0,8	●		○
P.3.2	0,175	0,123	0,078	0,191	0,135	0,085	0,218	0,154	0,098	30	0,5 x DC	18°	11°	0,7	●		○
P.3.3	0,165	0,117	0,074	0,181	0,128	0,081	0,206	0,146	0,092	30	0,5 x DC	18°	11°	0,7	●		○
P.4.1	0,127	0,090	0,057	0,139	0,098	0,062	0,159	0,112	0,071	15	0,5 x DC	18°	11°		●		○
P.4.2	0,127	0,090	0,057	0,139	0,098	0,062	0,159	0,112	0,071	15	0,5 x DC	18°	11°		●		○
M.1.1	0,111	0,079	0,050	0,122	0,086	0,054	0,139	0,098	0,062	15	0,5 x DC	18°	11°		●		
M.2.1	0,092	0,065	0,041	0,101	0,071	0,045	0,115	0,081	0,051	15	0,5 x DC	18°	11°		●		
M.3.1	0,095	0,067	0,043	0,104	0,074	0,047	0,119	0,084	0,053	15	0,5 x DC	18°	11°		●		
K.1.1	0,317	0,224	0,142	0,347	0,245	0,155	0,397	0,281	0,178	45	0,75 x DC	25°	16°	0,8		●	
K.1.2	0,222	0,157	0,099	0,243	0,172	0,109	0,278	0,196	0,124	45	0,75 x DC	25°	16°	0,8		●	
K.2.1	0,270	0,191	0,121	0,295	0,209	0,132	0,337	0,239	0,151	45	0,75 x DC	25°	16°	0,8		●	
K.2.2	0,222	0,157	0,099	0,243	0,172	0,109	0,278	0,196	0,124	45	0,75 x DC	25°	16°	0,8		●	
K.3.1	0,222	0,157	0,099	0,243	0,172	0,109	0,278	0,196	0,124	45	0,75 x DC	25°	16°	0,8		●	
K.3.2	0,190	0,135	0,085	0,208	0,147	0,093	0,238	0,168	0,107	45	0,75 x DC	25°	16°	0,8		●	
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
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S.3.3																	
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

14

* Width of cut per helical revolution

Cutting data for ramping and helical milling = 100 %
Multiply cutting data for drilling by the factor from the table

Cutting data standard values – MonsterMill – PCR – End mill, UNI version – trochoidal

Index	Type long		52 619																			
			Ø DC (mm) =																			
			5				6				8				10				12			
	v_c (m/min)	max. angle of engagement	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m
			f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)			
P.1.1	505	46°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,038	0,19	0,14	0,11	0,043
P.1.2	480	46°	0,09	0,06	0,05	0,020	0,11	0,07	0,06	0,024	0,13	0,10	0,08	0,030	0,16	0,11	0,09	0,036	0,19	0,13	0,11	0,041
P.1.3	460	46°	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,029	0,15	0,11	0,09	0,034	0,18	0,12	0,10	0,039
P.1.4	435	46°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,021	0,12	0,09	0,07	0,027	0,15	0,10	0,08	0,033	0,17	0,12	0,10	0,038
P.1.5	415	46°	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,020	0,12	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,036
P.2.1	460	46°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,038	0,19	0,14	0,11	0,043
P.2.2	415	46°	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,029	0,15	0,11	0,09	0,034	0,18	0,12	0,10	0,039
P.2.3	375	46°	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,020	0,12	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,036
P.2.4	290	46°	0,07	0,05	0,04	0,016	0,08	0,06	0,05	0,019	0,11	0,08	0,06	0,024	0,13	0,09	0,07	0,029	0,15	0,10	0,08	0,033
P.3.1	270	46°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,022	0,12	0,09	0,07	0,028	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,038
P.3.2	250	46°	0,08	0,06	0,05	0,018	0,09	0,07	0,05	0,021	0,12	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,036
P.3.3	230	46°	0,07	0,05	0,04	0,017	0,09	0,06	0,05	0,019	0,11	0,08	0,06	0,025	0,13	0,09	0,08	0,030	0,15	0,11	0,09	0,034
P.4.1	190	46°	0,06	0,04	0,03	0,013	0,07	0,05	0,04	0,015	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,023	0,12	0,08	0,07	0,026
P.4.2	190	46°	0,06	0,04	0,03	0,013	0,07	0,05	0,04	0,015	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,023	0,12	0,08	0,07	0,026
M.1.1	220	35°	0,05	0,03		0,011	0,06	0,04		0,013	0,08	0,05		0,018	0,10	0,06		0,022	0,12	0,07		0,027
M.2.1	200	35°	0,06	0,04		0,013	0,07	0,05		0,016	0,10	0,06		0,021	0,12	0,08		0,027	0,14	0,10		0,032
M.3.1	200	35°	0,06	0,04		0,013	0,07	0,05		0,016	0,10	0,06		0,021	0,12	0,08		0,027	0,14	0,10		0,032
K.1.1	500	46°	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,037	0,21	0,15	0,12	0,048	0,26	0,18	0,15	0,057	0,29	0,21	0,17	0,066
K.1.2	375	46°	0,10	0,07	0,06	0,022	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,033	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,046
K.2.1	460	46°	0,12	0,09	0,07	0,027	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,041	0,22	0,15	0,13	0,049	0,25	0,18	0,14	0,056
K.2.2	375	46°	0,10	0,07	0,06	0,022	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,033	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,046
K.3.1	335	46°	0,10	0,07	0,06	0,022	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,033	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,046
K.3.2	315	46°	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,029	0,15	0,11	0,09	0,034	0,18	0,12	0,10	0,039
N.1.1																						
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O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

Cutting depth corresponding to the cutting length

milling

Index	52 619 .... Ø DC (mm) = 14				16				18				20				● 1st choice ○ suitable		
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)						
P.1.1	0,22	0,15	0,13	0,049	0,24	0,17	0,14	0,053	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,061	○	●	○
P.1.2	0,21	0,15	0,12	0,046	0,23	0,16	0,13	0,051	0,24	0,17	0,14	0,054	0,26	0,18	0,15	0,058	○	●	○
P.1.3	0,20	0,14	0,11	0,044	0,22	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,17	0,14	0,055	○	●	○
P.1.4	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,046	0,22	0,16	0,13	0,049	0,23	0,17	0,14	0,052	○	●	○
P.1.5	0,18	0,13	0,10	0,040	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,047	0,22	0,16	0,13	0,050	○	●	○
P.2.1	0,22	0,15	0,13	0,049	0,24	0,17	0,14	0,053	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,061	○	●	○
P.2.2	0,20	0,14	0,11	0,044	0,22	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,17	0,14	0,055	○	●	○
P.2.3	0,18	0,13	0,10	0,040	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,047	0,22	0,16	0,13	0,050	○	●	○
P.2.4	0,16	0,12	0,09	0,037	0,18	0,13	0,10	0,040	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,046	○	●	○
P.3.1	0,19	0,13	0,11	0,043	0,21	0,15	0,12	0,047	0,22	0,16	0,13	0,050	0,24	0,17	0,14	0,053	●		○
P.3.2	0,18	0,13	0,10	0,040	0,20	0,14	0,11	0,044	0,21	0,15	0,12	0,048	0,23	0,16	0,13	0,051	●		○
P.3.3	0,17	0,12	0,10	0,038	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,048	●		○
P.4.1	0,13	0,09	0,08	0,029	0,14	0,10	0,08	0,032	0,15	0,11	0,09	0,035	0,16	0,12	0,09	0,037	●		○
P.4.2	0,13	0,09	0,08	0,029	0,14	0,10	0,08	0,032	0,15	0,11	0,09	0,035	0,16	0,12	0,09	0,037	●		○
M.1.1	0,14	0,08		0,031	0,16	0,10		0,036	0,18	0,11		0,040	0,20	0,12		0,045	●		
M.2.1	0,17	0,11		0,038	0,19	0,13		0,043	0,22	0,14		0,048	0,24	0,16		0,054	●		
M.3.1	0,17	0,11		0,038	0,19	0,13		0,043	0,22	0,14		0,048	0,24	0,16		0,054	●		
K.1.1	0,33	0,23	0,19	0,073	0,36	0,25	0,21	0,080	0,39	0,27	0,22	0,086	0,41	0,29	0,24	0,092		●	
K.1.2	0,23	0,16	0,13	0,051	0,25	0,18	0,15	0,056	0,27	0,19	0,16	0,061	0,29	0,20	0,17	0,064		●	
K.2.1	0,28	0,20	0,16	0,062	0,31	0,22	0,18	0,068	0,33	0,23	0,19	0,074	0,35	0,25	0,20	0,078		●	
K.2.2	0,23	0,16	0,13	0,051	0,25	0,18	0,15	0,056	0,27	0,19	0,16	0,061	0,29	0,20	0,17	0,064		●	
K.3.1	0,23	0,16	0,13	0,051	0,25	0,18	0,15	0,056	0,27	0,19	0,16	0,061	0,29	0,20	0,17	0,064		●	
K.3.2	0,20	0,14	0,11	0,044	0,22	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,17	0,14	0,055		●	
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O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

Cutting data standard values – MonsterMill – PCR – End mill, AL version

Index	Type long / extra long		52 616 ..., 52 617 ..., 52 618 ...																				
			Ø DC (mm) =																				
			5,0			5,7–7,0			7,7–8,0			8,7–10,0			11,7–12,0			13,7–14,0			15,5–16,0		
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)																				
P.1.1																							
P.1.2																							
P.1.3																							
P.1.4																							
P.1.5																							
P.2.1																							
P.2.2																							
P.2.3																							
P.2.4																							
P.3.1																							
P.3.2																							
P.3.3																							
P.4.1																							
P.4.2																							
M.1.1																							
M.2.1																							
M.3.1																							
K.1.1																							
K.1.2																							
K.2.1																							
K.2.2																							
K.3.1																							
K.3.2																							
N.1.1	630	1,0	0,111	0,078	0,050	0,149	0,105	0,067	0,167	0,118	0,075	0,200	0,141	0,089	0,229	0,162	0,103	0,256	0,181	0,115	0,280	0,198	0,125
N.1.2	575	1,0	0,101	0,071	0,045	0,135	0,096	0,061	0,151	0,107	0,068	0,181	0,128	0,081	0,208	0,147	0,093	0,233	0,165	0,104	0,255	0,180	0,114
N.2.1	380	1,0	0,106	0,075	0,047	0,142	0,101	0,064	0,159	0,112	0,071	0,190	0,135	0,085	0,219	0,155	0,098	0,244	0,173	0,109	0,267	0,189	0,120
N.2.2	305	1,0	0,111	0,078	0,050	0,149	0,105	0,067	0,167	0,118	0,075	0,200	0,141	0,089	0,229	0,162	0,103	0,256	0,181	0,115	0,280	0,198	0,125
N.2.3	220	1,0	0,121	0,086	0,054	0,162	0,115	0,073	0,182	0,129	0,081	0,218	0,154	0,097	0,250	0,177	0,112	0,279	0,198	0,125	0,306	0,216	0,137
N.3.1	275	1,0	0,050	0,036	0,023	0,068	0,048	0,030	0,076	0,054	0,034	0,091	0,064	0,041	0,104	0,074	0,047	0,116	0,082	0,052	0,127	0,090	0,057
N.3.2	165	1,0	0,081	0,057	0,036	0,108	0,077	0,048	0,121	0,086	0,054	0,145	0,103	0,065	0,167	0,118	0,075	0,186	0,132	0,083	0,204	0,144	0,091
N.3.3	220	1,0	0,081	0,057	0,036	0,108	0,077	0,048	0,121	0,086	0,054	0,145	0,103	0,065	0,167	0,118	0,075	0,186	0,132	0,083	0,204	0,144	0,091
N.4.1																							
S.1.1																							
S.1.2																							
S.2.1																							
S.2.2																							
S.2.3																							
S.3.1																							
S.3.2																							
S.3.3																							
H.1.1																							
H.1.2																							
H.1.3																							
H.1.4																							
H.2.1																							
H.3.1																							
O.1.1																							
O.1.2																							
O.2.1																							
O.2.2																							
O.3.1																							

With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.

Index	52 616 ..., 52 617 ..., 52 618 ...											● 1st choice ○ suitable		
	Ø DC (mm) =						Ramping	Helical milling			Drilling			
	17,5–18,0			19,5–20,0			1,0 x DC		Hole diameter		1,0 x DC			
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Max. plunging angle	$\alpha_{R\,max.}$*	$D_{min.}$ DC x 1,5	$D_{max.}$ DC x 1,8	f_z Factor	Emulsion	Compressed air	MMS
	f_z (mm)													
P.1.1														
P.1.2														
P.1.3														
P.1.4														
P.1.5														
P.2.1														
P.2.2														
P.2.3														
P.2.4														
P.3.1														
P.3.2														
P.3.3														
P.4.1														
P.4.2														
M.1.1														
M.2.1														
M.3.1														
K.1.1														
K.1.2														
K.2.1														
K.2.2														
K.3.1														
K.3.2														
N.1.1	0,301	0,213	0,135	0,320	0,226	0,143	45°	0,75 x DC	25°	16°	0,8	●		
N.1.2	0,274	0,194	0,123	0,291	0,206	0,130	45°	0,75 x DC	25°	16°	0,8	●		
N.2.1	0,288	0,203	0,129	0,306	0,216	0,137	45°	0,75 x DC	25°	16°	0,8	●		
N.2.2	0,301	0,213	0,135	0,320	0,226	0,143	45°	0,75 x DC	25°	16°	0,8	●		
N.2.3	0,329	0,233	0,147	0,349	0,247	0,156	45°	0,75 x DC	25°	16°	0,8	●		
N.3.1	0,137	0,097	0,061	0,146	0,103	0,065	45°	0,75 x DC	25°	16°	0,8	●		
N.3.2	0,219	0,155	0,098	0,233	0,165	0,104	45°	0,75 x DC	25°	16°	0,8	●		
N.3.3	0,219	0,155	0,098	0,233	0,165	0,104	45°	0,75 x DC	25°	16°	0,8	●		
N.4.1														
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1														
S.3.2														
S.3.3														
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

14

* Width of cut per helical revolution

Cutting data for ramping and helical milling = 100 %
Multiply cutting data for drilling by the factor from the table

Cutting data standard values – MonsterMill – PCR – End mill, AL version – trochoidal

Index	Type long		52 618 ...																			
			Ø DC (mm) =																			
			5				6				8				10				12			
	v_c (m/min)	max. angle of engagement	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m
			f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)			
P.1.1																						
P.1.2																						
P.1.3																						
P.1.4																						
P.1.5																						
P.2.1																						
P.2.2																						
P.2.3																						
P.2.4																						
P.3.1																						
P.3.2																						
P.3.3																						
P.4.1																						
P.4.2																						
M.1.1																						
M.2.1																						
M.3.1																						
K.1.1																						
K.1.2																						
K.2.1																						
K.2.2																						
K.3.1																						
K.3.2																						
N.1.1	800	66°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,024	0,14	0,10	0,08	0,031	0,17	0,12	0,10	0,037	0,19	0,13	0,11	0,043
N.1.2	725	66°	0,08	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,028	0,15	0,11	0,09	0,034	0,17	0,12	0,10	0,039
N.2.1	485	66°	0,09	0,06	0,05	0,020	0,10	0,07	0,06	0,023	0,13	0,09	0,08	0,030	0,16	0,11	0,09	0,035	0,18	0,13	0,11	0,041
N.2.2	385	66°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,024	0,14	0,10	0,08	0,031	0,17	0,12	0,10	0,037	0,19	0,13	0,11	0,043
N.2.3	280	66°	0,10	0,07	0,06	0,023	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,034	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,047
N.3.1	350	66°	0,04	0,03	0,02	0,009	0,05	0,03	0,03	0,011	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,019
N.3.2	210	66°	0,07	0,05	0,04	0,015	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,027	0,14	0,10	0,08	0,031
N.3.3	280	66°	0,07	0,05	0,04	0,015	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,027	0,14	0,10	0,08	0,031
N.4.1																						
S.1.1																						
S.1.2																						
S.2.1																						
S.2.2																						
S.2.3																						
S.3.1																						
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S.3.3																						
H.1.1																						
H.1.2																						
H.1.3																						
H.1.4																						
H.2.1																						
H.3.1																						
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

Cutting depth corresponding to the cutting length

milling

Index	52 618 ... Ø DC (mm) = 14 a_e 0,1 x DC f_z (mm)	14 a_e 0,2 x DC f_z (mm)	14 a_e 0,3 x DC f_z (mm)	14 h_m	16 a_e 0,1 x DC f_z (mm)	16 a_e 0,2 x DC f_z (mm)	16 a_e 0,3 x DC f_z (mm)	16 h_m	18 a_e 0,1 x DC f_z (mm)	18 a_e 0,2 x DC f_z (mm)	18 a_e 0,3 x DC f_z (mm)	18 h_m	20 a_e 0,1 x DC f_z (mm)	20 a_e 0,2 x DC f_z (mm)	20 a_e 0,3 x DC f_z (mm)	20 h_m	● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1																			
P.1.2																			
P.1.3																			
P.1.4																			
P.1.5																			
P.2.1																			
P.2.2																			
P.2.3																			
P.2.4																			
P.3.1																			
P.3.2																			
P.3.3																			
P.4.1																			
P.4.2																			
M.1.1																			
M.2.1																			
M.3.1																			
K.1.1																			
K.1.2																			
K.2.1																			
K.2.2																			
K.3.1																			
K.3.2																			
N.1.1	0,21	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,056	0,27	0,19	0,15	0,060	●		
N.1.2	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,047	0,23	0,16	0,13	0,051	0,24	0,17	0,14	0,054	●		
N.2.1	0,20	0,14	0,12	0,045	0,22	0,16	0,13	0,050	0,24	0,17	0,14	0,054	0,25	0,18	0,15	0,057	●		
N.2.2	0,21	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,056	0,27	0,19	0,15	0,060	●		
N.2.3	0,23	0,16	0,13	0,052	0,25	0,18	0,15	0,057	0,27	0,19	0,16	0,061	0,29	0,21	0,17	0,065	●		
N.3.1	0,10	0,07	0,06	0,022	0,11	0,07	0,06	0,024	0,11	0,08	0,07	0,025	0,12	0,09	0,07	0,027	●		
N.3.2	0,15	0,11	0,09	0,035	0,17	0,12	0,10	0,038	0,18	0,13	0,11	0,041	0,19	0,14	0,11	0,043	●		
N.3.3	0,15	0,11	0,09	0,035	0,17	0,12	0,10	0,038	0,18	0,13	0,11	0,041	0,19	0,14	0,11	0,043	●		
N.4.1																			
S.1.1																			
S.1.2																			
S.2.1																			
S.2.2																			
S.2.3																			
S.3.1																			
S.3.2																			
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

Cutting data standard values – MonsterMill – MCR – End mill, short – long

Index	Type short		50 752 ...						Type short	Type long	50 752 ...											
			Ø DC (mm) =								Ø DC (mm) =											
			1			2					3			4			5			6		
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	$a_{p\,max.}$ x DC		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)								f_z (mm)											
P.1.1	160	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030
P.1.2	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030
P.1.3	120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030
P.1.4	120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030
P.1.5	100	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030
P.2.1	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030
P.2.2	120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030
P.2.3	100	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030
P.2.4	80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030
P.3.1	80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030
P.3.2	80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030
P.3.3	80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030
P.4.1	60	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023	0,058	0,043	0,027
P.4.2	60	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023	0,058	0,043	0,027
M.1.1	60	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023	0,058	0,043	0,027
M.2.1																						
M.3.1	60	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023	0,058	0,043	0,027
K.1.1	160	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035	0,090	0,066	0,042
K.1.2	160	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035	0,090	0,066	0,042
K.2.1	140	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035	0,090	0,066	0,042
K.2.2	140	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035	0,090	0,066	0,042
K.3.1	100	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030	0,077	0,057	0,036
K.3.2	100	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030	0,077	0,057	0,036
N.1.1																						
N.1.2																						
N.2.1																						
N.2.2																						
N.2.3																						
N.3.1	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030
N.3.2	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030
N.3.3	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030
N.4.1																						
S.1.1																						
S.1.2																						
S.2.1																						
S.2.2																						
S.2.3																						
S.3.1	60	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020	0,051	0,038	0,024
S.3.2	60	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020	0,051	0,038	0,024
S.3.3	60	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020	0,051	0,038	0,024
H.1.1																						
H.1.2																						
H.1.3																						
H.1.4																						
H.2.1	80	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030
H.3.1																						
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

* = with an a_p of 1.5 x d_1 the f_z should be multiplied by 0.8

Plunging angle for ramping and helical milling: Diameter 3–5 = 3° / Diameter 6–9 = 5° / Diameter 10–20 = 8°

Index	50 752 ...																		● 1st choice ○ suitable		
	Ø DC (mm) =																				
	8			10			12			14			16			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																				
P.1.1	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.1.2	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.1.3	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.1.4	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.1.5	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.2.1	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.2.2	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.2.3	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.2.4	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.3.1	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.3.2	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.3.3	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.4.1	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
P.4.2	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
M.1.1	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
M.2.1																					
M.3.1	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
K.1.1	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
K.1.2	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
K.2.1	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
K.2.2	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
K.3.1	0,10	0,08	0,05	0,13	0,10	0,06	0,14	0,11	0,07	0,15	0,12	0,08	0,16	0,14	0,10	0,19	0,16	0,12		●	
K.3.2	0,10	0,08	0,05	0,13	0,10	0,06	0,14	0,11	0,07	0,15	0,12	0,08	0,16	0,14	0,10	0,19	0,16	0,12		●	
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10	●		
N.3.2	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10	●		
N.3.3	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10	●		
N.4.1																					
S.1.1																					
S.1.2																					
S.2.1																					
S.2.2																					
S.2.3																					
S.3.1	0,07	0,05	0,03	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,13	0,10	0,08	●		
S.3.2	0,07	0,05	0,03	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,13	0,10	0,08	●		
S.3.3	0,07	0,05	0,03	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,13	0,10	0,08	●		
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
H.3.1																					
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

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Cutting data standard values – MonsterMill – MCR – End mill, extra long

Index	Type extra long			50 752 ...															
				Ø DC (mm) =															
				3			4			5			6			8			
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC		f_z (mm)															
P.1.1	120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.2	100	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.3	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.4	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.5	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.1	100	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.2	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.3	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.4	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.3.1	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.3.2	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.3.3	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.4.1	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
P.4.2	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
M.1.1	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
M.2.1																		
M.3.1	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
K.1.1	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.1.2	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.2.1	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.2.2	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.3.1	100	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
K.3.2	100	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	120	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
N.3.2	120	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
N.3.3	120	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1	60	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
S.3.2	60	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
S.3.3	60	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1	80	0,5*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

* = Trimming and trochoidal slot milling

Plunging angle for ramping and helical milling:
Diameter 3–5 = 3° / Diameter 6–9 = 5° / Diameter 10–20 = 8°

Index	50 752 ... Ø DC (mm) = 10			12			14			16			20			● 1st choice ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																	
P.1.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.2	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.3	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.4	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.5	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.2	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.3	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.4	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.3.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.3.2	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.3.3	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.4.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
P.4.2	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
M.1.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
M.2.1																		
M.3.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
K.1.1	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.1.2	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.2.1	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.2.2	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.3.1	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
K.3.2	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
N.3.2	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
N.3.3	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
S.3.2	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
S.3.3	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

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Cutting data – CircularLine – End Mills – CCR-UNI, short – long

Index	Type short / long		53 585..., 53 587..., 53 586 ..., 53 642 ...															
			Ø DC (mm) =															
			6				8				10				12			
	v_c (m/min)	max. angle of engagement	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m
			f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)			
P.1.1	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.1.2	280	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.3	280	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.4	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.5	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.2.1	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.2.2	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.2.3	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.2.4	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.1	220	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.2	220	45°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.3	200	45°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.4.1	180	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
P.4.2	160	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.1.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.2.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.3.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
K.1.1	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.1.2	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.2.1	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.2.2	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
K.3.1	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
K.3.2	200	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	80	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.1.2	80	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.1	60	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.2	60	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.3																		
S.3.1	140	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.2	100	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Depth of cut corresponds to the flute length

Index	53 585..., 53 587..., 53 586 ..., 53 642 ...																● 1st choice ○ suitable		
	Ø DC (mm) =																		
	14				16				18				20						
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)						
P.1.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
P.1.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.1.3	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.1.4	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.1.5	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.2.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
P.2.2	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
P.2.3	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.2.4	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.3.1	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.3.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.3.3	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.4.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
P.4.2	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.1.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.2.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.3.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
K.1.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
K.1.2	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
K.2.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
K.2.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
K.3.1	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
K.3.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1																			
N.3.2																			
N.3.3																			
N.4.1																			
S.1.1	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.1.2	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.1	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.2	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.3																			
S.3.1	0,15	0,10	0,08	0,033	0,16	0,11	0,09	0,035	0,17	0,12	0,10	0,037	0,18	0,12	0,10	0,040	●		
S.3.2	0,15	0,10	0,08	0,033	0,16	0,11	0,09	0,035	0,17	0,12	0,10	0,037	0,18	0,12	0,10	0,040	●		
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

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Cutting data standard values – CircularLine – End mill – CCR-UNI, extra long

Index	Type extra long			53 589 … / 53 593 …															
				Ø DC (mm) =															
	4xDC	5xDC	max. angle of engagement	6			8			10			12			14			
				a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m
	v_c (m/min)			f_z (mm)			f_z (mm)			f_z (mm)			f_z (mm)			f_z (mm)		
P.1.1	250	220	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.1.2	250	220	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.3	250	220	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.4	230	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.5	230	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.2.1	250	220	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.2.2	250	220	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.2.3	230	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.2.4	230	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.1	200	180	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.2	200	180	45°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.3	180	160	45°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.4.1	150	130	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
P.4.2	130	110	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.1.1	110	90	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.2.1	110	90	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.3.1	110	90	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
K.1.1	260	230	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.1.2	260	230	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.2.1	260	230	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.2.2	230	210	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.3.1	230	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
K.3.2	180	170	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	70	60	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.1.2	70	60	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.1	50	40	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.2	50	40	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.3																		
S.3.1	120	100	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.3.2	90	80	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Depth of cut corresponds to the flute length

Index	53 589 ... / 53 593 ...									● 1st choice ○ suitable		
	Ø DC (mm) =											
	16			18			20					
	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)			f_z (mm)			f_z (mm)					
P.1.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.1.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.4	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.5	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.2.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.2.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.2.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.2.4	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.1	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.4.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
P.4.2	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.1.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.2.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.3.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
K.1.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.1.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.2.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.2.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.3.1	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
K.3.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.1.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.3												
S.3.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

14

Cutting data standard values – CircularLine – CCR-VA, long 3xDC

Index	Type long		53 643 ...															
			Ø DC (mm) =															
			6				8				10				12			
	v_c (m/min)	max. angle of engagement	a_s 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_s 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_s 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_s 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m
			f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)			
P.1.1																		
P.1.2																		
P.1.3																		
P.1.4																		
P.1.5																		
P.2.1																		
P.2.2																		
P.2.3																		
P.2.4																		
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1	200	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
P.4.2	180	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.1.1	**160**	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.2.1	**160**	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.3.1	**160**	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
K.1.1																		
K.1.2																		
K.2.1																		
K.2.2																		
K.3.1																		
K.3.2																		
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	**85**	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.1.2	**85**	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.1	**65**	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.2	**65**	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.3	**65**	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.3.1	**160**	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.2	**120**	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Depth of cut corresponds to the flute length

Index	53 643 ... Ø DC (mm) = 14				16				18				20				● 1st choice ○ suitable		
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)						
P.1.1																			
P.1.2																			
P.1.3																			
P.1.4																			
P.1.5																			
P.2.1																			
P.2.2																			
P.2.3																			
P.2.4																			
P.3.1																			
P.3.2																			
P.3.3																			
P.4.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
P.4.2	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.1.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.2.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.3.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
K.1.1																			
K.1.2																			
K.2.1																			
K.2.2																			
K.3.1																			
K.3.2																			
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1																			
N.3.2																			
N.3.3																			
N.4.1																			
S.1.1	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.1.2	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.1	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.2	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.3	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.3.1	0,15	0,10	0,08	0,033	0,16	0,11	0,09	0,035	0,17	0,12	0,10	0,037	0,18	0,12	0,10	0,040	●		
S.3.2	0,15	0,10	0,08	0,033	0,16	0,11	0,09	0,035	0,17	0,12	0,10	0,037	0,18	0,12	0,10	0,040	●		
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

14

Cutting data standard values – CircularLine – CCR-VA, extra-long 4xDC

Index	Type extra long		53 644 ...															
			Ø DC (mm) =															
			6			8			10			12			14			
	v_c (m/min)	max. angle of engagement	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	
			f_z (mm)			f_z (mm)			f_z (mm)			f_z (mm)			f_z (mm)			
P.1.1																		
P.1.2																		
P.1.3																		
P.1.4																		
P.1.5																		
P.2.1																		
P.2.2																		
P.2.3																		
P.2.4																		
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1	170	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020	
P.4.2	150	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020	
M.1.1	125	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020	
M.2.1	125	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020	
M.3.1	125	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020	
K.1.1																		
K.1.2																		
K.2.1																		
K.2.2																		
K.3.1																		
K.3.2																		
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	75	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.1.2	75	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.2.1	55	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.2.2	55	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.2.3	55	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.3.1	140	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.3.2	105	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Depth of cut corresponds to the flute length

Index	53 644 ...									● 1st choice ○ suitable		
	Ø DC (mm) =											
	16			18			20					
	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)			f_z (mm)			f_z (mm)					
P.1.1												
P.1.2												
P.1.3												
P.1.4												
P.1.5												
P.2.1												
P.2.2												
P.2.3												
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
P.4.2	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.1.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.2.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.3.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
K.1.1												
K.1.2												
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.1.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.3	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

14

Cutting data standard values – CircularLine – CCR-AL

Index	Type long	Type extra long		max. angle of engagement	53 590 ..., 53 591 ..., 53 594 ..., 53 595 ..., 53 641 ...															
					Ø DC (mm) =															
					6				8				10				12			
	3xDC	4xDC	5xDC		a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m
	v_c (m/min)				f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)			
P.1.1																				
P.1.2																				
P.1.3																				
P.1.4																				
P.1.5																				
P.2.1																				
P.2.2																				
P.2.3																				
P.2.4																				
P.3.1																				
P.3.2																				
P.3.3																				
P.4.1																				
P.4.2																				
M.1.1																				
M.2.1																				
M.3.1																				
K.1.1																				
K.1.2																				
K.2.1																				
K.2.2																				
K.3.1																				
K.3.2																				
N.1.1	500	400	300	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.1.2	500	400	300	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.2.1	500	400	300	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.2.2	500	400	300	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.2.3	400	350	265	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.3.1	400	350	265	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.3.2	400	350	265	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.3.3	300	250	190	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.4.1																				
S.1.1																				
S.1.2																				
S.2.1																				
S.2.2																				
S.2.3																				
S.3.1																				
S.3.2																				
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

Depth of cut corresponds to the flute length

Plunging angle for ramping and helical milling: 4°

Index	53 590 ..., 53 591 ..., 53 594 ..., 53 595 ..., 53 641 ...																● 1st choice ○ suitable		
	Ø DC (mm) =																		
	14				16				18				20						
	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)						
P.1.1																			
P.1.2																			
P.1.3																			
P.1.4																			
P.1.5																			
P.2.1																			
P.2.2																			
P.2.3																			
P.2.4																			
P.3.1																			
P.3.2																			
P.3.3																			
P.4.1																			
P.4.2																			
M.1.1																			
M.2.1																			
M.3.1																			
K.1.1																			
K.1.2																			
K.2.1																			
K.2.2																			
K.3.1																			
K.3.2																			
N.1.1	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.1.2	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.2.1	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.2.2	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.2.3	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.3.1	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.3.2	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.3.3	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.4.1																			
S.1.1																			
S.1.2																			
S.2.1																			
S.2.2																			
S.2.3																			
S.3.1																			
S.3.2																			
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

Cutting data standard values – CircularLine – CCR Ti, long

Index	Type long		52 510 ...											
			Ø DC (mm) =											
			6				8				10			
	v_c (m/min)	max. angle of engagement	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m
			f_z (mm)				f_z (mm)				f_z (mm)			
P.4.1	200	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
P.4.2	180	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
M.1.1	200	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
M.2.1	160	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
M.3.1	180	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	**140**	25°	0,060	0,042	0,034	0,020	0,070	0,049	0,040	0,030	0,089	0,063	0,052	0,040
S.3.2	**120**	25°	0,060	0,042	0,034	0,020	0,070	0,049	0,040	0,030	0,089	0,063	0,052	0,040
S.3.3	**100**	25°	0,045	0,032	0,026	0,018	0,052	0,037	0,030	0,028	0,067	0,047	0,039	0,038

Cutting data standard values – CircularLine – CCR-Ti, extra-long

Index	Type extra long		52 510 ...											
			Ø DC (mm) =											
			6			8			10			12		
	v_c (m/min)	max. angle of engagement	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m
			f_z (mm)			f_z (mm)			f_z (mm)			f_z (mm)		
P.4.1	170	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
P.4.2	150	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
M.1.1	170	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
M.2.1	130	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
M.3.1	150	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	**120**	25°	0,031	0,022	0,015	0,036	0,025	0,020	0,045	0,032	0,030	0,054	0,038	0,040
S.3.2	**100**	25°	0,031	0,022	0,015	0,036	0,025	0,020	0,045	0,032	0,030	0,054	0,038	0,040
S.3.3	**90**	25°	0,022	0,016	0,013	0,027	0,019	0,015	0,036	0,025	0,025	0,045	0,032	0,035

Depth of cut corresponds to the flute length

Index	52 510 ... Ø DC (mm) = 12				16				20				● 1st choice ○ suitable		
	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)				f_z (mm)				f_z (mm)						
P.4.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
P.4.2	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
M.1.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
M.2.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
M.3.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	0,113	0,080	0,065	0,050	0,157	0,111	0,090	0,060	0,217	0,153	0,125	0,075	●		
S.3.2	0,113	0,080	0,065	0,050	0,157	0,111	0,090	0,060	0,217	0,153	0,125	0,075	●		
S.3.3	0,085	0,060	0,049	0,048	0,117	0,083	0,068	0,058	0,163	0,115	0,094	0,070	●		

Index	52 510 ... Ø DC (mm) = 16			20			● 1st choice ○ suitable		
	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)			f_z (mm)					
P.4.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
P.4.2	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
M.1.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
M.2.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
M.3.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1	0,076	0,054	0,050	0,107	0,076	0,060	●		
S.3.2	0,076	0,054	0,050	0,107	0,076	0,060	●		
S.3.3	0,058	0,041	0,045	0,080	0,057	0,055	●		

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Cutting data standard values – CircularLine – End mill – CCR-H

Index	Type long		53 596 ...												● 1st choice ○ suitable		
			Ø DC (mm) = 6				8				10						
	v_c (m/min)	max. angle of engagement	a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC	h_m	Emulsion	Compressed air	MMS
			f_z (mm)				f_z (mm)				f_z (mm)						
H.1.1	130	30°	0,11	0,07	0,05	0,015	0,13	0,08	0,06	0,019	0,16	0,10	0,07	0,023		●	○
H.1.2	120	30°	0,06	0,04	0,03	0,008	0,07	0,05	0,03	0,010	0,09	0,06	0,04	0,012		●	○
H.1.3	115	30°	0,04	0,03		0,006	0,05	0,03		0,007	0,06	0,04		0,009		●	○
H.1.4	110	30°	0,02			0,003	0,03				0,04			0,006		●	○
H.2.1	130	30°	0,11	0,07	0,05	0,015	0,13	0,08	0,06	0,019	0,16	0,10	0,07	0,023		●	○
H.3.1	130	30°	0,11	0,07	0,05	0,015	0,13	0,08	0,06	0,019	0,16	0,10	0,07	0,023			

Index	Type long		53 596 ...												● 1st choice ○ suitable		
			Ø DC (mm) = 12				16				20						
	v_c (m/min)	max. angle of engagement	a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC	h_m	Emulsion	Compressed air	MMS
			f_z (mm)				f_z (mm)				f_z (mm)						
H.1.1	130	30°	0,19	0,12	0,08	0,027	0,22	0,14	0,10	0,031	0,24	0,15	0,11	0,034		●	○
H.1.2	120	30°	0,10	0,07	0,05	0,015	0,13	0,08		0,018	0,14	0,09		0,020		●	○
H.1.3	115	30°	0,07	0,05		0,010	0,09	0,06		0,012	0,09	0,06		0,013		●	○
H.1.4	110	30°	0,05			0,006	0,06			0,008	0,08			0,011		●	○
H.2.1	130	30°	0,19	0,12	0,08	0,027	0,22	0,14		0,031	0,24	0,15		0,034		●	○
H.3.1	130	30°	0,19	0,12	0,08	0,027	0,22	0,14	0,10	0,031	0,24	0,15	0,11	0,034		●	○

Depth of cut corresponds to the flute length

Cutting data standard values – SilverLine – NC deburring cutter

Index	50 560 ..., 50 561 ..., 50 562 ..., 50 563 ...							50 564 ..., 50 565 ..., 50 566 ..., 50 567 ...							● 1st choice ○ suitable		
		DPB72S						uncoated									
		Ø DC (mm) =						Ø DC (mm) =									
		4	6	8	10	12	16	4	6	8	10	12	16		Emulsion	Compressed air	MMS
	v_c (m/min)	f_z (mm)						v_c (m/min)	f_z (mm)								
P.1.1	130	0,03	0,035	0,045	0,06	0,08	0,09	70	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.2	130	0,03	0,035	0,045	0,06	0,08	0,09	70	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.3	120	0,03	0,035	0,045	0,06	0,08	0,09	65	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.4	120	0,03	0,035	0,045	0,06	0,08	0,09	65	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.5	90	0,025	0,03	0,04	0,055	0,075	0,085	50	0,015	0,02	0,03	0,045	0,065	0,075	●	○	○
P.2.1	130	0,03	0,035	0,045	0,06	0,08	0,09	70	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.2.2	100	0,03	0,035	0,045	0,06	0,08	0,09	60	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.2.3	90	0,025	0,03	0,04	0,055	0,075	0,085	50	0,015	0,02	0,03	0,045	0,065	0,075	●	○	○
P.2.4	80	0,02	0,02	0,025	0,03	0,04	0,05	45	0,01	0,015	0,015	0,02	0,03	0,04	●	○	○
P.3.1	120	0,03	0,035	0,04	0,055	0,075	0,085	65	0,02	0,025	0,03	0,045	0,065	0,075	●	○	○
P.3.2	70	0,02	0,02	0,025	0,03	0,04	0,05	40	0,01	0,015	0,015	0,02	0,03	0,04	●	○	○
P.3.3	70	0,02	0,02	0,025	0,03	0,04	0,05	40	0,01	0,015	0,015	0,02	0,03	0,04	●	○	○
P.4.1	100	0,03	0,035	0,04	0,055	0,075	0,085	60	0,02	0,025	0,03	0,045	0,065	0,075	●		
P.4.2	95	0,025	0,03	0,04	0,055	0,075	0,085	55	0,015	0,02	0,03	0,045	0,065	0,075	●		
M.1.1	100	0,025	0,03	0,04	0,055	0,075	0,085	65	0,025	0,03	0,04	0,055	0,075	0,085	●		
M.2.1	80	0,02	0,02	0,025	0,03	0,04	0,05	50	0,02	0,02	0,025	0,03	0,04	0,05	●		
M.3.1	100	0,025	0,03	0,04	0,055	0,075	0,085	65	0,025	0,03	0,04	0,055	0,075	0,085	●		
K.1.1	130	0,03	0,035	0,045	0,06	0,08	0,09	85	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.1.2	100	0,03	0,035	0,045	0,06	0,08	0,09	65	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.2.1	130	0,03	0,035	0,045	0,06	0,08	0,09	85	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.2.2	120	0,03	0,035	0,045	0,06	0,08	0,09	80	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.3.1	130	0,03	0,035	0,045	0,06	0,08	0,09	85	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.3.2	120	0,03	0,035	0,045	0,06	0,08	0,09	80	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1	80	0,02	0,02	0,025	0,03	0,04	0,05	50	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.1.2	45	0,012	0,012	0,018	0,02	0,03	0,04	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.2.1	50	0,015	0,015	0,02	0,025	0,035	0,045	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.2.2	40	0,012	0,012	0,018	0,02	0,03	0,04	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.2.3	45	0,012	0,012	0,018	0,02	0,03	0,04	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.3.1	60	0,02	0,02	0,025	0,03	0,04	0,05	45	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.3.2	65	0,02	0,02	0,025	0,03	0,04	0,05	45	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.3.3	50	0,015	0,015	0,02	0,025	0,035	0,045	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

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Cutting data standard values – SilverLine – End mill

Index	Type short / long		50 993 …, 50 994 …, 50 995 …, 50 996 …, 50 997 …, 50 998 …																		● 1st choice ○ suitable		
			Ø DC (mm) =																				
			6			8			10			12			16			20					
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	Emulsion	Compressed air	MMS
			f_z (mm)																				
P.1.1	205	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.1.2	200	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.1.3	200	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.1.4	190	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.1.5	190	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.2.1	200	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.2.2	190	1,0	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.2.3	180	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.2.4	170	1,0	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.3.1	180	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.3.2	170	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.3.3	145	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.4.1	100	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
P.4.2	80	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.1.1	100	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.2.1	100	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.3.1	100	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
K.1.1	200	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
K.1.2	180	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
K.2.1	190	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
K.2.2	170	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
K.3.1	180	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
K.3.2	160	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
N.1.1																							
N.1.2																							
N.2.1																							
N.2.2																							
N.2.3																							
N.3.1	315	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
N.3.2	315	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
N.3.3	250	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
N.4.1																							
S.1.1	25	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.1.2	25	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.1	25	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.2	25	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.3	25	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.3.1	80	1,0	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●		
S.3.2																							
S.3.3																							
H.1.1																							
H.1.2																							
H.1.3																							
H.1.4																							
H.2.1																							
H.3.1																							
O.1.1																							
O.1.2																							
O.2.1																							
O.2.2																							
O.3.1																							

Plunging angle for ramping and helical milling = 2-3°

Cutting data standard values – SilverLine – End mill

Index	Type long		50 949 ..., 50 999 ...																			● 1st choice ○ suitable		
			Ø DC (mm) =																					
			6			8			10			12			16			20			Emulsion	Compressed air	MMS
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC			
			f_z (mm)																					
P.1.1	165	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.1.2	160	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.1.3	160	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.1.4	150	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.1.5	150	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.2.1	160	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.2.2	150	1,0	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.2.3	145	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.2.4	135	1,0	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.3.1	145	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.3.2	135	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.3.3	115	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.4.1	80	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
P.4.2	65	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.1.1	80	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.2.1	80	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.3.1	80	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
K.1.1	160	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
K.1.2	145	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
K.2.1	150	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
K.2.2	135	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
K.3.1	145	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
K.3.2	130	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
N.1.1																							
N.1.2																							
N.2.1																							
N.2.2																							
N.2.3																							
N.3.1	250	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
N.3.2	250	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
N.3.3	200	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
N.4.1																							
S.1.1	20	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.1.2	20	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.1	20	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.2	20	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.3	20	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.3.1	65	1,0	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●		
S.3.2																							
S.3.3																							
H.1.1																							
H.1.2																							
H.1.3																							
H.1.4																							
H.2.1																							
H.3.1																							
O.1.1																							
O.1.2																							
O.2.1																							
O.2.2																							
O.3.1																							

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Plunging angle for ramping and helical milling = 2-3°

Cutting data standard values – SilverLine – End mills – Trochoidal machining

Index	Type long		50 949 ..., 50 999 ...															
			Ø DC (mm) =															
			6				8				10				12			
	v_c (m/min)	max. angle of engagement	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m
			f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)			
P.1.1	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.1.2	280	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.3	280	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.4	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.5	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.2.1	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.2.2	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.2.3	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.2.4	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.1	220	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.2	220	45°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.3	200	45°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.4.1	180	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
P.4.2	160	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.1.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.2.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.3.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
K.1.1	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.1.2	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.2.1	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.2.2	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
K.3.1	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
K.3.2	200	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	80	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.1.2	80	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.1	60	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.2	60	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.3																		
S.3.1	140	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.2	100	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling = 2-3°

Cutting depth corresponding to the cutting length

Index	50 949 ..., 50 999 ...								● 1st choice ○ suitable		
	Ø DC (mm) =										
	16				20						
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)				f_z (mm)						
P.1.1	0,27	0,19	0,16	0,060	0,30	0,21	0,17	0,066	○	●	○
P.1.2	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
P.1.3	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
P.1.4	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
P.1.5	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
P.2.1	0,27	0,19	0,16	0,060	0,30	0,21	0,17	0,066	○	●	○
P.2.2	0,27	0,19	0,16	0,060	0,30	0,21	0,17	0,066	○	●	○
P.2.3	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
P.2.4	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
P.3.1	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
P.3.2	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
P.3.3	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
P.4.1	0,19	0,13	0,11	0,042	0,21	0,15	0,12	0,047	●		
P.4.2	0,19	0,13	0,11	0,042	0,21	0,15	0,12	0,047	●		
M.1.1	0,19	0,13	0,11	0,042	0,21	0,15	0,12	0,047	●		
M.2.1	0,19	0,13	0,11	0,042	0,21	0,15	0,12	0,047	●		
M.3.1	0,19	0,13	0,11	0,042	0,21	0,15	0,12	0,047	●		
K.1.1	0,27	0,19	0,16	0,060	0,30	0,21	0,17	0,066	○	●	○
K.1.2	0,27	0,19	0,16	0,060	0,30	0,21	0,17	0,066	○	●	○
K.2.1	0,27	0,19	0,16	0,060	0,30	0,21	0,17	0,066	○	●	○
K.2.2	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
K.3.1	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
K.3.2	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1	0,11	0,08	0,07	0,026	0,13	0,09	0,08	0,029	●		
S.1.2	0,11	0,08	0,07	0,026	0,13	0,09	0,08	0,029	●		
S.2.1	0,11	0,08	0,07	0,026	0,13	0,09	0,08	0,029	●		
S.2.2	0,11	0,08	0,07	0,026	0,13	0,09	0,08	0,029	●		
S.2.3											
S.3.1	0,16	0,11	0,09	0,035	0,18	0,12	0,10	0,040	●		
S.3.2	0,16	0,11	0,09	0,035	0,18	0,12	0,10	0,040	●		
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

Cutting data standard values – SilverLine – End mill

Index	Type long		50 558 ..., 50 958																		
			Ø DC (mm) =																		
			3,0			3,5–4,0			4,5–5,0			5,5–6,0			7,0–8,0			9,0–10,0		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)																		
P.1.1	110	1,0*	0,035	0,028	0,018	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036	0,086	0,069	0,043
P.1.2	90	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.1.3	90	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.1.4	80	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.1.5	80	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.1	90	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.2	70	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.3	70	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.4	55	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.3.1																				
P.3.2																				
P.3.3																				
P.4.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
P.4.2	40	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
M.1.1	40	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
M.2.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
M.3.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
K.1.1	130	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
K.1.2	120	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
K.2.1	130	1,0*	0,040	0,032	0,020	0,048	0,038	0,024	0,056	0,045	0,028	0,064	0,051	0,032	0,079	0,063	0,040	0,095	0,076	0,048
K.2.2	120	1,0*	0,040	0,032	0,020	0,048	0,038	0,024	0,056	0,045	0,028	0,064	0,051	0,032	0,079	0,063	0,040	0,095	0,076	0,048
K.3.1	130	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
K.3.2	120	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	200	1,0*	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,090	0,072	0,045	0,110	0,088	0,055
N.3.2	200	1,0*	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,090	0,072	0,045	0,110	0,088	0,055
N.3.3	140	1,0*	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,090	0,072	0,045	0,110	0,088	0,055
N.4.1																				
S.1.1	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.1.2	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.1	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.2	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.3	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.3.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
S.3.2	20	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

* = long version: $a_{p\,max.}$ = 1.5 x DC at f_z x 0.75

Plunging angle for ramping and helical milling = 6-10°

Index	50 558 ..., 50 958																● 1st choice ○ suitable		
	Ø DC (mm) =																		
	11,0–12,0			14,0			15,0–16,0			17,0–18,0			19,0–20,0						
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																		
P.1.1	0,102	0,082	0,051	0,116	0,093	0,058	0,124	0,099	0,062	0,131	0,105	0,066	0,139	0,111	0,070	●	○	○
P.1.2	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.1.3	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.1.4	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.1.5	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.1	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.2	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.3	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.4	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
P.4.2	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
M.1.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
M.2.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
M.3.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
K.1.1	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
K.1.2	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
K.2.1	0,110	0,088	0,055	0,126	0,101	0,063	0,134	0,107	0,067	0,142	0,114	0,071	0,150	0,120	0,075	●	○	○
K.2.2	0,110	0,088	0,055	0,126	0,101	0,063	0,134	0,107	0,067	0,142	0,114	0,071	0,150	0,120	0,075	●	○	○
K.3.1	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
K.3.2	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,130	0,104	0,065	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	0,180	0,144	0,090	●		
N.3.2	0,130	0,104	0,065	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	0,180	0,144	0,090	●		
N.3.3	0,130	0,104	0,065	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	0,180	0,144	0,090	●		
N.4.1																		
S.1.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.1.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.3	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.3.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
S.3.2	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

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Cutting data standard values – SilverLine – End mill

Index	Type short		Type long		Type extra long		50 966 ..., 50 967 ..., 50 992 ...														
							Ø DC (mm) =														
							3,0			3,5–4,0			4,5–5,0			5,5–6,0			6,5–8,0		
	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
							f_z (mm)														
P.1.1	252	1,0	210	1,0*	105	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.2	240	1,0	200	1,0*	100	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.3	240	1,0	200	1,0*	100	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.4	228	1,0	190	1,0*	95	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.5	228	1,0	190	1,0*	95	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.1	240	1,0	200	1,0*	100	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.2	228	1,0	190	1,0*	95	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.3	216	1,0	180	1,0*	90	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.4	204	1,0	170	1,0*	85	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.3.1																					
P.3.2																					
P.3.3																					
P.4.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
P.4.2	96	1,0	80	1,0*	50	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
M.1.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
M.2.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
M.3.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
K.1.1	240	1,0	200	1,0*	100	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
K.1.2	216	1,0	180	1,0*	90	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
K.2.1	228	1,0	190	1,0*	60	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
K.2.2	204	1,0	170	1,0*	85	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
K.3.1	216	1,0	180	1,0*	90	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
K.3.2	192	1,0	160	1,0*	80	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	420	1,0	350	1,0*	175	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
N.3.2	420	1,0	350	1,0*	175	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
N.3.3	336	1,0	280	1,0*	140	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
N.4.1																					
S.1.1	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.1.2	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.1	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.2	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.3	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.3.1	108	1,0	90	1,0*	45	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
S.3.2	60	1,0	50	1,0*	25	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
S.3.3																					
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1																					
H.3.1																					
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

* = long version: $a_{p\,max.}$ = 1.5 x DC at f_z x 0.75

"Extra-long" version: when profiling with an a_e of 0.1–0.4 x DC an a_p of 1.0 x DC should be used.

Plunging angle for ramping and helical milling: 3°

Index	50 966 ..., 50 967 ..., 50 992 ...																			● 1st choice ○ suitable		
	Ø DC (mm) =																					
	8,5–10,0			12,0			14,0			16,0			18,0			20,0			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z (mm)																					
P.1.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.3	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.4	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.5	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.3	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.4	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.3.1																					
P.3.2																					
P.3.3																					
P.4.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
P.4.2	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.1.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.2.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.3.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
K.1.1	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.1.2	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.2.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
K.2.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
K.3.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
K.3.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●		
N.3.2	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●		
N.3.3	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●		
N.4.1																					
S.1.1	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.1.2	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.1	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.2	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.3	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.3.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●		
S.3.2	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
S.3.3																					
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1																					
H.3.1																					
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

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Cutting data standard values – SilverLine – End mill

Index	Type long		50 976 ..., 50 977 ...															
			Ø DC (mm) =															
			3		4		5		6		8		10		12		14	
			a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)															
P.1.1	210	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.1.2	200	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.1.3	200	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.1.4	190	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.1.5	190	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.2.1	200	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.2.2	190	2,0	0,020	0,014	0,027	0,019	0,034	0,025	0,042	0,030	0,056	0,040	0,070	0,050	0,084	0,060	0,098	0,070
P.2.3	180	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.2.4	170	2,0	0,020	0,014	0,027	0,019	0,034	0,025	0,042	0,030	0,056	0,040	0,070	0,050	0,084	0,060	0,098	0,070
P.3.1	180	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.3.2	170	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.3.3	140	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.4.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047
P.4.2	100	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047
M.1.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047
M.2.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047
M.3.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047
K.1.1	200	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090
K.1.2	180	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090
K.2.1	190	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
K.2.2	170	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
K.3.1	180	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
K.3.2	160	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	350	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090
N.3.2	350	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090
N.3.3	280	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1																		
S.3.2																		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Profiling with an a_e < 0.3xDC only possible under certain conditions!

Plunging angle for ramping and helical milling: 3°

Index	50 976 ..., 50 977 ...						● 1st choice ○ suitable		
	Ø DC (mm) =								
	16		18		20				
	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)								
P.1.1	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.1.2	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.1.3	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.1.4	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.1.5	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.2.1	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.2.2	0,105	0,075	0,112	0,080	0,119	0,085	●	○	○
P.2.3	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.2.4	0,105	0,075	0,112	0,080	0,119	0,085	●	○	○
P.3.1	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.3.2	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.3.3	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.4.1	0,071	0,051	0,076	0,054	0,081	0,058	●		
P.4.2	0,071	0,051	0,076	0,054	0,081	0,058	●		
M.1.1	0,071	0,051	0,076	0,054	0,081	0,058	●		
M.2.1	0,071	0,051	0,076	0,054	0,081	0,058	●		
M.3.1	0,071	0,051	0,076	0,054	0,081	0,058	●		
K.1.1	0,134	0,096	0,143	0,102	0,151	0,108	●	●	●
K.1.2	0,134	0,096	0,143	0,102	0,151	0,108	●	●	●
K.2.1	0,121	0,087	0,129	0,092	0,137	0,098	●	●	●
K.2.2	0,121	0,087	0,129	0,092	0,137	0,098	●	●	●
K.3.1	0,121	0,087	0,129	0,092	0,137	0,098	●	●	●
K.3.2	0,121	0,087	0,129	0,092	0,137	0,098	●	●	●
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1	0,134	0,096	0,143	0,102	0,151	0,108	●	○	○
N.3.2	0,134	0,096	0,143	0,102	0,151	0,108	●	○	○
N.3.3	0,134	0,096	0,143	0,102	0,151	0,108	●	○	○
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data standard values – SilverLine – End mill

Index	Type extra long		50 970 ..., 50 971 ..., 50 974 ..., 50 975 ...																		
			Ø DC (mm) =																		
			3			4			5			6			8			10		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)																		
P.1.1	160	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.2	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.3	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.4	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.5	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.1	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.2	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.3	120	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.4	120	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.3.1	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.3.2	80	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.3.3	80	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.4.1	80	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
P.4.2	80	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
M.1.1	80	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
M.2.1	70	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
M.3.1	80	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
K.1.1	150	1,0	0,040	0,031	0,022	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,110	0,082	0,055
K.1.2	140	1,0	0,040	0,031	0,022	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,110	0,082	0,055
K.2.1	150	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
K.2.2	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
K.3.1	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
K.3.2	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	220	1,0	0,034	0,026	0,019	0,045	0,035	0,025	0,054	0,042	0,030	0,063	0,049	0,035	0,081	0,062	0,045	0,102	0,079	0,057
N.3.2	180	1,0	0,034	0,026	0,019	0,045	0,035	0,025	0,054	0,042	0,030	0,063	0,049	0,035	0,081	0,062	0,045	0,102	0,079	0,057
N.3.3	180	1,0	0,034	0,026	0,019	0,045	0,035	0,025	0,054	0,042	0,030	0,063	0,049	0,035	0,081	0,062	0,045	0,102	0,079	0,057
N.4.1																				
S.1.1	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.1.2	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.2.1	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.2.2	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.2.3	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.3.1	80	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,072	0,055	0,040	0,090	0,069	0,050
S.3.2	70	0,5	0,020	0,015	0,011	0,027	0,021	0,015	0,032	0,025	0,018	0,040	0,031	0,022	0,054	0,042	0,030	0,072	0,055	0,040
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

Plunging angle for ramping and helical milling: 3°

Index	50 970 ..., 50 971 ..., 50 974 ..., 50 975 ...															● 1st choice ○ suitable		
	Ø DC (mm) =																	
	12			14			16			18			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																	
P.1.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.3	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.4	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.5	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.3	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.4	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.3.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.3.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.3.3	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.4.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
P.4.2	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
M.1.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
M.2.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
M.3.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
K.1.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	●	●
K.1.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	●	●
K.2.1	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
K.2.2	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
K.3.1	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
K.3.2	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,126	0,097	0,070	0,153	0,118	0,085	0,180	0,139	0,100	0,198	0,153	0,110	0,216	0,166	0,120	●		
N.3.2	0,126	0,097	0,070	0,153	0,118	0,085	0,180	0,139	0,100	0,198	0,153	0,110	0,216	0,166	0,120	●		
N.3.3	0,126	0,097	0,070	0,153	0,118	0,085	0,180	0,139	0,100	0,198	0,153	0,110	0,216	0,166	0,120	●		
N.4.1																		
S.1.1	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.1.2	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.2.1	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.2.2	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.2.3	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.3.1	0,108	0,083	0,060	0,126	0,097	0,070	0,144	0,111	0,080	0,162	0,125	0,090	0,180	0,139	0,100	●		
S.3.2	0,090	0,069	0,050	0,099	0,076	0,055	0,108	0,083	0,060	0,126	0,097	0,070	0,144	0,111	0,080	●		
S.3.3																●		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting data standard values – SilverLine – End mill, roughing-finishing and rough milling cutter

Index	Type short	Type long		50 969 ..., 50 970..., 50 971 ..., 50 972 ..., 50 973 ..., 50 974 ..., 50 975 ..., 50 978 ..., 50 979 ...																		
				Ø DC (mm) =																		
				3,0			3,5–4,0			4,5–5,0			5,5–6,0			7,0–8,0			9,0–10,0		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)		$a_{p\,max.}$ x DC	f_z (mm)																		
P.1.1	253	230	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.2	242	220	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.3	242	220	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.4	230	210	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.5	230	210	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.2.1	242	220	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.2.2	230	210	1,0*	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050
P.2.3	220	200	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.2.4	210	190	1,0*	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050
P.3.1	220	200	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.3.2	210	190	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.3.3	176	160	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.4.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
P.4.2	100	90	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
M.1.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
M.2.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
M.3.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
K.1.1	242	220	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
K.1.2	220	200	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
K.2.1	230	210	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
K.2.2	210	190	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
K.3.1	220	200	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
K.3.2	200	180	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	385	350	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
N.3.2	308	350	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
N.3.3	308	280	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
N.4.1																					
S.1.1	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.1.2	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.1	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.2	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.3	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.3.1	110	90	0,5	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050
S.3.2	70	50	0,5	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
S.3.3																					
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1																					
H.3.1																					
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

* = long version: $a_{p\,max.}$ = 1.5 x DC at f_z x 0.75

Plunging angle for ramping and helical milling: 3°

Index	50 969 ..., 50 970..., 50 971 ..., 50 972 ..., 50 973 ..., 50 974 ..., 50 975 ..., 50 978 ..., 50 979 ...															● 1st choice ○ suitable		
	Ø DC (mm) =																	
	11,0–12,0			14,0			15,0–16,0			17,0→18,0			19,0–20,0					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																	
P.1.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.3	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.4	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.5	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.2.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.2.2	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.3	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.2.4	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.3.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.3.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.3.3	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.4.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
P.4.2	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.1.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.2.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.3.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
K.1.1	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●	●	●
K.1.2	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●	●	●
K.2.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.2.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.3.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.3.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●		
N.3.2	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●		
N.3.3	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●		
N.4.1																		
S.1.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.1.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.3	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.3.1	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●		
S.3.2	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

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Cutting data standard values – SilverLine – High-precision finish milling cutter

Index	Type long	Type extra long		50 991 ...							● 1st choice ○ suitable		
				Ø DC (mm) =									
				6	8	10	12	16	20	25			
				a_e 0,05 x DC									
	v_c (m/min)		$a_{p\,max.}$ x DC	f_z (mm)							Emulsion	Compressed air	MMS
P.1.1	260	180	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.1.2	250	175	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.1.3	250	175	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.1.4	230	160	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.1.5	230	160	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.2.1	250	175	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.2.2	230	160	2,0	0,023	0,031	0,039	0,047	0,059	0,067	0,077	●		
P.2.3	220	155	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.2.4	210	145	2,0	0,023	0,031	0,039	0,047	0,059	0,067	0,077	●		
P.3.1	220	155	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.3.2	210	145	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.3.3	175	120	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.4.1	120	80	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●		
P.4.2	100	70	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●		
M.1.1	120	80	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●		
M.2.1	120	80	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●		
M.3.1	120	80	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●		
K.1.1	250	175	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●		
K.1.2	220	155	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●		
K.2.1	230	160	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
K.2.2	210	145	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
K.3.1	220	155	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
K.3.2	200	140	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	430	300	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●		
N.3.2	430	300	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●		
N.3.3	350	245	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●		
N.4.1													
S.1.1	40	30	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●		
S.1.2	40	30	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●		
S.2.1	40	30	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●		
S.2.2	40	30	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●		
S.2.3	40	30	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●		
S.3.1	200	140	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
S.3.2	125	85	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●		
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

Plunging angle for ramping and helical milling = 1°

Cutting data standard values – SilverLine – Radius milling cutters – 50 990 ... – Finish machining

Index	Type long		50 990 ...								● 1st choice ○ suitable		
			Ø DC (mm) =										
			4	5	6	8	10	12	16	20			
			a_e 0,05 x DC										
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)								Emulsion	Compressed air	MMS
P.1.1	195	0,08	0,019	0,025	0,030	0,040	0,050	0,060	0,075	0,085	●	○	○
P.1.2	165	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.3	165	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.4	145	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.5	145	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.1	165	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.2	130	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.3	130	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.4	100	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.3.1													
P.3.2													
P.3.3													
P.4.1	90	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
P.4.2	75	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
M.1.1	75	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
M.2.1	90	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
M.3.1	90	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
K.1.1	235	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
K.1.2	220	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
K.2.1	235	0,08	0,028	0,033	0,039	0,050	0,061	0,072	0,089	0,100	●		○
K.2.2	220	0,08	0,028	0,033	0,039	0,050	0,061	0,072	0,089	0,100	●		○
K.3.1	235	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
K.3.2	220	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	360	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●	○	○
N.3.2	360	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●	○	○
N.3.3	255	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●	○	○
N.4.1													
S.1.1													
S.1.2													
S.2.1													
S.2.2													
S.2.3													
S.3.1													
S.3.2													
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

Plunging angle for ramping and helical milling: 3°

Cutting data standard values – SilverLine – Radius milling cutters – 50 990 ... – Rough machining

Index	Type long		50 990 ...																			
			Ø DC (mm) =																			
			4			5			6			8			10			12				
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)																			
P.1.1	130	1,0	0,026	0,022	0,017	0,031	0,027	0,021	0,036	0,031	0,024	0,047	0,040	0,031	0,056	0,049	0,038	0,067	0,058	0,045		
P.1.2	110	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040		
P.1.3	110	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040		
P.1.4	95	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040		
P.1.5	95	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040		
P.2.1	110	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040		
P.2.2	85	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040		
P.2.3	85	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040		
P.2.4	65	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040		
P.3.1																						
P.3.2																						
P.3.3																						
P.4.1	60	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030		
P.4.2	50	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030		
M.1.1	50	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030		
M.2.1	60	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030		
M.3.1	60	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030		
K.1.1	155	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072		
K.1.2	145	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072		
K.2.1	155	1,0	0,032	0,027	0,021	0,038	0,033	0,025	0,044	0,038	0,029	0,054	0,047	0,036	0,065	0,056	0,043	0,077	0,066	0,051		
K.2.2	145	1,0	0,032	0,027	0,021	0,038	0,033	0,025	0,044	0,038	0,029	0,054	0,047	0,036	0,065	0,056	0,043	0,077	0,066	0,051		
K.3.1	155	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072		
K.3.2	145	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072		
N.1.1																						
N.1.2																						
N.2.1																						
N.2.2																						
N.2.3																						
N.3.1	240	1,0	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066		
N.3.2	240	1,0	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066		
N.3.3	170	1,0	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066		
N.4.1																						
S.1.1																						
S.1.2																						
S.2.1																						
S.2.2																						
S.2.3																						
S.3.1																						
S.3.2																						
S.3.3																						
H.1.1																						
H.1.2																						
H.1.3																						
H.1.4																						
H.2.1																						
H.3.1																						
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

Plunging angle for ramping and helical milling: 3°

Index	50 990 ... Ø DC (mm) = 16 a_e 0,1–0,2 x DC f_z (mm)	16 a_e 0,3–0,4 x DC f_z (mm)	16 a_e 0,6–1,0 x DC f_z (mm)	20 a_e 0,1–0,2 x DC f_z (mm)	20 a_e 0,3–0,4 x DC f_z (mm)	20 a_e 0,6–1,0 x DC f_z (mm)	● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1	0,083	0,072	0,055	0,092	0,080	0,062	●	○	○
P.1.2	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.1.3	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.1.4	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.1.5	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.1	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.2	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.3	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.4	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.3.1									
P.3.2									
P.3.3									
P.4.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
P.4.2	0,056	0,049	0,038	0,063	0,055	0,042	●		
M.1.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
M.2.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
M.3.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
K.1.1	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
K.1.2	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
K.2.1	0,093	0,081	0,062	0,104	0,090	0,070	●	○	○
K.2.2	0,093	0,081	0,062	0,104	0,090	0,070	●	○	○
K.3.1	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
K.3.2	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1	0,125	0,108	0,083	0,141	0,122	0,094	●	○	○
N.3.2	0,125	0,108	0,083	0,141	0,122	0,094	●	○	○
N.3.3	0,125	0,108	0,083	0,141	0,122	0,094	●	○	○
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data standard values – SilverLine – Ball-nosed end mill

Index	Type short		Type long		50 963 ...																	
					Ø DC (mm) =																	
					3			4			5			6			7			8		
					a_e x DC																	
	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05
					f_z (mm)																	
P.1.1	300	0,08	180	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.2	280	0,08	170	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.3	225	0,08	135	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.4	225	0,08	135	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.5	245	0,08	145	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.2.1	280	0,08	170	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.2.2	215	0,08	130	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
P.2.3	190	0,08	115	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.2.4	210	0,08	125	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.3.1	210	0,08	125	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.3.2	175	0,08	105	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
P.3.3	130	0,08	80	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
P.4.1																						
P.4.2																						
M.1.1																						
M.2.1																						
M.3.1																						
K.1.1	330	0,08	200	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.1.2	280	0,08	170	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.2.1	330	0,08	200	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.2.2	280	0,08	170	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
K.3.1	330	0,08	200	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.3.2	280	0,08	170	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
N.1.1																						
N.1.2																						
N.2.1																						
N.2.2																						
N.2.3																						
N.3.1																						
N.3.2																						
N.3.3	455	0,08	275	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
N.4.1																						
S.1.1																						
S.1.2																						
S.2.1																						
S.2.2																						
S.2.3																						
S.3.1																						
S.3.2																						
S.3.3																						
H.1.1	100	0,08	60	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.1.2	60	0,08	35	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.1.3	55	0,08	35	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.1.4																						
H.2.1	70	0,08	40	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.3.1	100	0,08	60	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

Plunging angle for ramping and helical milling: 3°

Index	50 963 ...																		● 1st choice ○ suitable		
	Ø DC (mm) =																				
	10			12			14			16			18			20					
	a_e x DC																				
	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05	Emulsion	Compressed air	MMS
	f_z (mm)																				
P.1.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.2	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.3	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.4	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.5	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.2.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.2.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
P.2.3	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,025	0,500	0,400	0,250	●	○	○
P.2.4	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,025	0,500	0,400	0,250	●	○	○
P.3.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,025	0,500	0,400	0,250	●	○	○
P.3.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
P.3.3	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,180	0,144	0,090	0,210	0,168	0,105	0,240	0,192	0,120	●	○	○
P.4.1																					
P.4.2																					
M.1.1																					
M.2.1																					
M.3.1																					
K.1.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.1.2	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.2.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.2.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
K.3.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.3.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1																					
N.3.2																					
N.3.3	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,180	0,144	0,090	0,210	0,168	0,105	0,240	0,192	0,120	●		
N.4.1																					
S.1.1																					
S.1.2																					
S.2.1																					
S.2.2																					
S.2.3																					
S.3.1																					
S.3.2																					
S.3.3																					
H.1.1	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.1.2	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.1.3	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.1.4																					
H.2.1	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.3.1	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

14

Cutting data standard values – SilverLine – Torus face cutter

Index	Type long	Type extra long		50 989 ...															
				Ø DC (mm) =															
				6			8			10			12			16			
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC
	v_c (m/min)		$a_{p\,max.}$ x DC	f_z (mm)															
P.1.1	**240**	**190**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.2	**210**	**170**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.3	**210**	**170**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.4	**190**	**150**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.5	**190**	**150**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.1	**220**	**175**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.2	**200**	**160**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.3	**180**	**145**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.4	**170**	**135**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.3.1	**170**	**135**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.3.2	**150**	**120**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.3.3	**120**	**95**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.4.1	**90**	**70**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.4.2	**70**	**55**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
M.1.1	90	70	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
M.2.1	90	70	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
M.3.1	90	70	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.1.1	**250**	**200**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.1.2	**230**	**185**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.2.1	**200**	**160**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.2.2	**180**	**145**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.3.1	**220**	**175**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.3.2	**210**	**170**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3	250	200	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1																		
S.3.2																		
S.3.3																		
H.1.1	120	95	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
H.1.2	80	65	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
H.1.3																		
H.1.4																		
H.2.1	120	95	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
H.3.1	120	95	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling: 3°

Index	50 989 ... Ø DC (mm) = 20 a_e 0,1–0,2 x DC f_z (mm)	a_e 0,3–0,4 x DC f_z (mm)	a_e 0,5 x DC f_z (mm)	● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1	0,912	0,730	0,456	●	○	○
P.1.2	0,912	0,730	0,456	●	○	○
P.1.3	0,912	0,730	0,456	●	○	○
P.1.4	0,912	0,730	0,456	●	○	○
P.1.5	0,912	0,730	0,456	●	○	○
P.2.1	0,912	0,730	0,456	●	○	○
P.2.2	0,912	0,730	0,456	●	○	○
P.2.3	0,912	0,730	0,456	●	○	○
P.2.4	0,912	0,730	0,456	●	○	○
P.3.1	0,912	0,730	0,456	●	○	○
P.3.2	0,912	0,730	0,456	●	○	○
P.3.3	0,912	0,730	0,456	●	○	○
P.4.1	0,912	0,730	0,456	●		
P.4.2	0,912	0,730	0,456	●		
M.1.1	0,912	0,730	0,456	●		
M.2.1	0,912	0,730	0,456	●		
M.3.1	0,912	0,730	0,456	●		
K.1.1	0,912	0,730	0,456	●	○	○
K.1.2	0,912	0,730	0,456	●	○	○
K.2.1	0,912	0,730	0,456	●	○	○
K.2.2	0,912	0,730	0,456	●	○	○
K.3.1	0,912	0,730	0,456	●	○	○
K.3.2	0,912	0,730	0,456	●	○	○
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3	0,912	0,730	0,456	●	○	○
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1	0,736	0,589	0,368		●	●
H.1.2	0,736	0,589	0,368		●	●
H.1.3						
H.1.4						
H.2.1	0,736	0,589	0,368		●	●
H.3.1	0,736	0,589	0,368		●	●
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Cutting data standard values – S-Cut – End mill, short – long

Index	Type short / long		52 205 ..., 52 223 ..., 52 224 ..., 52 225 ..., 52 228 ...															
			Ø DC (mm) =															
			3			4			5			6			8			
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)															
P.1.1	150	1,0	0,036	0,028	0,020	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069	
P.1.2	150	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
P.1.3	130	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
P.1.4	140	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
P.1.5	120	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
P.2.1	140	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
P.2.2	120	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
P.2.3	140	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
P.2.4	120	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
P.3.1	100	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046	
P.3.2	120	1,0	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046	
P.3.3	100	1,0	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046	
P.4.1	130	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046	
P.4.2	110	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046	
M.1.1	100	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046	
M.2.1	50	1,0	0,020	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,020	0,053	0,039	0,026	0,069	0,029	0,035	
M.3.1	100	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046	
K.1.1	200	1,0	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081	
K.1.2	200	1,0	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081	
K.2.1	220	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
K.2.2	200	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
K.3.1	180	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
K.3.2	160	1,0	0,032	0,025	0,018	0,046	0,036	0,025	0,066	0,048	0,032	0,087	0,064	0,044	0,115	0,092	0,058	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	250	1,0	0,036	0,028	0,020	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069	
N.3.2	250	1,0	0,036	0,028	0,020	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069	
N.3.3	250	1,0	0,036	0,028	0,020	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069	
N.4.1																		
S.1.1	50	0,5	0,020	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,020	0,053	0,039	0,026	0,069	0,029	0,035	
S.1.2	50	0,5	0,020	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,020	0,053	0,039	0,026	0,069	0,029	0,035	
S.2.1	30	0,5	0,018	0,014	0,010	0,025	0,020	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035	
S.2.2	30	0,5	0,018	0,014	0,010	0,025	0,020	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035	
S.2.3	30	0,5	0,018	0,014	0,010	0,025	0,020	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035	
S.3.1	120	0,5	0,029	0,022	0,016	0,040	0,031	0,023	0,058	0,044	0,029	0,077	0,058	0,039	0,104	0,081	0,058	
S.3.2	110	0,5	0,029	0,022	0,016	0,040	0,031	0,022	0,058	0,043	0,029	0,076	0,056	0,038	0,104	0,081	0,058	
S.3.3	75	0,5	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046	
H.1.1	120	0,5	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046	
H.1.2	120	0,3	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046	
H.1.3	120	0,2	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046	
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.
With an a_p of 2.0 x DC the f_z should be multiplied by 0.5.

Plunging angle for ramping and helical milling: 3°

Index	52 205 ..., 52 223 ..., 52 224 ..., 52 225 ..., 52 228 ...																● 1st choice ○ suitable		
	Ø DC (mm) =																		
	10			12			16			20			25						
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																		
P.1.1	0,161	0,115	0,081	0,173	0,127	0,029	0,184	0,150	0,115	0,230	0,184	0,138	0,292	0,234	0,175	●	○	○
P.1.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.1.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.1.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.1.5	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,190	0,146	0,117	●		
P.3.2	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●	○	○
P.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●	○	○
P.4.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,190	0,146	0,117	●		
P.4.2	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,190	0,146	0,117	●		
M.1.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,190	0,146	0,117	●		
M.2.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,161	0,131	0,102	●		
M.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,190	0,146	0,117	●		
K.1.1	0,207	0,150	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,230	0,184	0,365	0,292	0,234	○	●	○
K.1.2	0,207	0,150	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,230	0,184	0,365	0,292	0,234	○	●	○
K.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	○	●	○
K.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	○	●	○
K.3.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	○	●	○
K.3.2	0,150	0,104	0,069	0,161	0,115	0,081	0,173	0,127	0,104	0,207	0,173	0,127	0,263	0,219	0,161	○	●	○
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,150	0,127	0,230	0,184	0,138	0,292	0,234	0,175	●		○
N.3.2	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,150	0,127	0,230	0,184	0,138	0,292	0,234	0,175	●		○
N.3.3	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,150	0,115	0,230	0,184	0,138	0,292	0,234	0,175	●		○
N.4.1																		
S.1.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,161	0,131	0,102	●		
S.1.2	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,161	0,131	0,102	●		
S.2.1	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
S.2.2	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
S.2.3	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
S.3.1	0,127	0,092	0,069	0,138	0,104	0,069	0,150	0,115	0,092	0,184	0,150	0,115	0,234	0,190	0,146	●		
S.3.2	0,127	0,092	0,069	0,138	0,104	0,069	0,150	0,115	0,092	0,184	0,150	0,115	0,234	0,190	0,146	●		
S.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●		
H.1.1	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,150	0,127	0,092	0,190	0,161	0,117		●	
H.1.2	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,150	0,127	0,092	0,190	0,161	0,117		●	
H.1.3	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,150	0,127	0,092	0,190	0,161	0,117		●	
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting data standard values – S-Cut– End mill, extra long

Index	Type extra long			52 205 ..., 52 226 ..., 52 227 ...														
				Ø DC (mm) =														
				3			4			5			6			8		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC		f_z (mm)														
P.1.1	130	1,0	0,5	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
P.1.2	120	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.3	100	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.4	120	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.5	100	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.1	110	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.2	100	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.3	100	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.4	90	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.3.1	70	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
P.3.2	100	1,0	0,5	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
P.3.3	90	1,0	0,5	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
P.4.1	70	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
P.4.2	60	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
M.1.1	60	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
M.2.1	40	1,0	0,5	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
M.3.1	60	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
K.1.1	180	1,0	0,5	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081
K.1.2	140	1,0	0,5	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081
K.2.1	180	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.2.2	140	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.3.1	140	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.3.2	120	1,0	0,5	0,032	0,025	0,018	0,046	0,036	0,025	0,066	0,048	0,032	0,087	0,064	0,044	0,115	0,092	0,058
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	250	1,0	0,5	0,036	0,028	0,020	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.3.2	250	1,0	0,5	0,036	0,028	0,020	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.3.3	250	1,0	0,5	0,036	0,028	0,020	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.4.1																		
S.1.1	40	0,5	0,25	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
S.1.2	40	0,5	0,25	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
S.2.1	25	0,5	0,25	0,018	0,014	0,010	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.2.2	25	0,5	0,25	0,018	0,014	0,010	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.2.3	25	0,5	0,25	0,018	0,014	0,010	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.3.1	50	0,5	0,25	0,029	0,022	0,016	0,040	0,031	0,023	0,058	0,044	0,029	0,077	0,058	0,039	0,104	0,081	0,058
S.3.2	40	0,5	0,25	0,029	0,022	0,016	0,040	0,031	0,022	0,058	0,043	0,029	0,076	0,056	0,038	0,104	0,081	0,058
S.3.3	40	0,5	0,25	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
H.1.1	100	0,5	0,5	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.2	100	0,5	0,3	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.3	100	0,5	0,15	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling: 3°

Index	52 205 ..., 52 226 ..., 52 227 ...																● 1st choice ○ suitable		
	Ø DC (mm) =																		
	10			12			16			20			25						
	a_p 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																		
P.1.1	0,161	0,115	0,081	0,173	0,127	0,029	0,184	0,15	0,115	0,23	0,184	0,138	0,276	0,23	0,184	●	○	○
P.1.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.1.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.1.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.1.5	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,15	0,115	●		
P.3.2	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●	○	○
P.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●	○	○
P.4.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,150	0,115	●		
P.4.2	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,150	0,115	●		
M.1.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,150	0,115	●		
M.2.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,15	0,127	0,104	●		
M.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,150	0,115	●		
K.1.1	0,207	0,15	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,23	0,184	0,345	0,288	0,230	○	●	○
K.1.2	0,207	0,15	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,23	0,184	0,345	0,288	0,230	○	●	○
K.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	○	●	○
K.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	○	●	○
K.3.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	○	●	○
K.3.2	0,15	0,104	0,069	0,161	0,115	0,081	0,173	0,127	0,104	0,207	0,173	0,127	0,242	0,207	0,173	○	●	○
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,127	0,23	0,184	0,138	0,276	0,230	0,184	●		○
N.3.2	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,127	0,23	0,184	0,138	0,276	0,230	0,184	●		○
N.3.3	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,115	0,23	0,184	0,138	0,276	0,230	0,184	●		○
N.4.1																		
S.1.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,15	0,127	0,104	●		
S.1.2	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,15	0,127	0,104	●		
S.2.1	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092	●		
S.2.2	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092	●		
S.2.3	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092	●		
S.3.1	0,127	0,092	0,069	0,138	0,104	0,069	0,15	0,115	0,092	0,184	0,15	0,115	0,219	0,184	0,15	●		
S.3.2	0,127	0,092	0,069	0,138	0,104	0,069	0,15	0,115	0,092	0,184	0,15	0,115	0,219	0,184	0,15	●		
S.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●		
H.1.1	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,150	0,127	0,092	0,173	0,150	0,127		●	
H.1.2	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,150	0,127	0,092	0,173	0,150	0,127		●	
H.1.3	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,150	0,127	0,092	0,173	0,150	0,127		●	
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

14

Cutting data standard values – S-Cut – End mills – SC-UNI, ZEFP = 5, long

Index	Type long	max. angle of engagement	52 230 ...															
			Ø DC (mm) =															
			6				8				10				12			
			a_e 0,050 x DC	a_e 0,1 x DC	a_e 0,150 x DC	h_m	a_e 0,050 x DC	a_e 0,1 x DC	a_e 0,150 x DC	h_m	a_e 0,050 x DC	a_e 0,1 x DC	a_e 0,150 x DC	h_m	a_e 0,050 x DC	a_e 0,1 x DC	a_e 0,150 x DC	h_m
	v_c (m/min)		f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)			
P.1.1	280	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
P.1.2	280	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
P.1.3	280	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
P.1.4	260	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
P.1.5	260	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
P.2.1	280	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
P.2.2	280	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
P.2.3	280	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
P.2.4	280	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
P.3.1	160	50°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
P.3.2	220	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
P.3.3	220	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
P.4.1	180	50°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
P.4.2	180	50°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
M.1.1	140	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
M.2.1	140	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
M.3.1	140	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
K.1.1	300	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
K.1.2	300	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
K.2.1	300	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
K.2.2	260	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
K.3.1	260	50°	0,112	0,079	0,065	0,025	0,157	0,111	0,090	0,035	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
K.3.2	200	50°	0,112	0,079	0,065	0,025	0,157	0,111	0,090	0,035	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	140	40°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
S.1.2	140	40°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
S.2.1	60	40°	0,045	0,032	0,026	0,010	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,060	0,049	0,019
S.2.2	60	40°	0,045	0,032	0,026	0,010	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,060	0,049	0,019
S.2.3	60	40°	0,045	0,032	0,026	0,010	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,060	0,049	0,019
S.3.1	140	40°	0,045	0,032	0,026	0,010	0,072	0,051	0,041	0,016	0,089	0,063	0,052	0,020	0,112	0,079	0,065	0,025
S.3.2	120	40°	0,045	0,032	0,026	0,010	0,072	0,051	0,041	0,016	0,089	0,063	0,052	0,020	0,112	0,079	0,065	0,025
S.3.3	100	40°	0,045	0,032	0,026	0,010	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,060	0,049	0,019
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting depth corresponding to the cutting length

Index	52 230 ... Ø DC (mm) = 16 a_p 0,050 x DC	a_e 0,1 x DC	a_e 0,150 x DC	h_m	20 a_p 0,050 x DC	a_e 0,1 x DC	a_e 0,150 x DC	h_m	● 1st choice ○ suitable Emulsion	Compressed air	MMS
	f_z (mm)				f_z (mm)						
P.1.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
P.1.2	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
P.1.3	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
P.1.4	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
P.1.5	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
P.2.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
P.2.2	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
P.2.3	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
P.2.4	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
P.3.1	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
P.3.2	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
P.3.3	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
P.4.1	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
P.4.2	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
M.1.1	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
M.2.1	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
M.3.1	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
K.1.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.1.2	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.2.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.2.2	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.3.1	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
K.3.2	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
S.1.2	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
S.2.1	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
S.2.2	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
S.2.3	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
S.3.1	0,157	0,111	0,090	0,035	0,219	0,155	0,127	0,049	●		
S.3.2	0,157	0,111	0,090	0,035	0,219	0,155	0,127	0,049	●		
S.3.3	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

Cutting data standard values – 3D Finish – barrel shape

Index	v_c (m/min)	52 739 ... Ø DC (mm) = 10 a_e 0,05–0,10 f_z (mm)	a_e 0,10–0,20 f_z (mm)	● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1	280	0,07	0,06	●	●	○
P.1.2	250	0,07	0,05	●	●	○
P.1.3	250	0,07	0,05	●	●	○
P.1.4	250	0,07	0,05	●	●	○
P.1.5	250	0,07	0,05	●	●	○
P.2.1	250	0,07	0,05	●	●	○
P.2.2	250	0,07	0,05	●	●	○
P.2.3	210	0,06	0,04	●	●	○
P.2.4	210	0,06	0,04	●	●	○
P.3.1	210	0,06	0,04	●	●	○
P.3.2	200	0,05	0,03		●	
P.3.3	200	0,05	0,03		●	
P.4.1	80	0,05	0,03	●		○
P.4.2	80	0,05	0,03	●		○
M.1.1	60	0,04	0,02	●		○
M.2.1	60	0,04	0,02	●		○
M.3.1	60	0,04	0,02	●		○
K.1.1	280	0,08	0,06		●	
K.1.2	280	0,08	0,06		●	
K.2.1	250	0,07	0,05		●	
K.2.2	250	0,07	0,05		●	
K.3.1	140	0,04	0,03		●	
K.3.2	140	0,04	0,03		●	
N.1.1	600	0,07	0,05	●		○
N.1.2	600	0,06	0,04	●		○
N.2.1	410	0,07	0,05	●		○
N.2.2						
N.2.3						
N.3.1	180	0,08	0,06	●	○	○
N.3.2	180	0,08	0,06	●		○
N.3.3	180	0,08	0,06	●		○
N.4.1	410	0,10	0,08	●		○
S.1.1	30	0,04	0,02	●		
S.1.2	30	0,04	0,02	●		
S.2.1	30	0,04	0,02	●		
S.2.2	30	0,04	0,02	●		
S.2.3	30	0,04	0,02	●		
S.3.1	100	0,04	0,02	●		
S.3.2	80	0,04	0,02	●		
S.3.3	60	0,04	0,02	●		
H.1.1	100	0,05	0,03		●	
H.1.2						
H.1.3						
H.1.4						
H.2.1	130	0,05	0,03		●	
H.3.1	100	0,05	0,03		●	
O.1.1	410	0,10	0,08	●	○	○
O.1.2	600	0,10	0,08	●		○
O.2.1						
O.2.2						
O.3.1						

In order to calculate the rotational speed n, the diameter DC has to be used.

Cutting data standard values – 3D Finish – oval shape

● 1st choice
○ suitable

Index	v_c (m/min)	52 745 ... Ø DC (mm) = 6			8			10			12			16			Emulsion	Compressed air	MMS
		a_e 0,05–0,10	a_e 0,1–0,2	a_e 0,2–0,3	a_e 0,05–0,10	a_e 0,1–0,2	a_e 0,2–0,3	a_e 0,05–0,10	a_e 0,1–0,2	a_e 0,2–0,3	a_e 0,05–0,10	a_e 0,1–0,2	a_e 0,2–0,3	a_e 0,05–0,10	a_e 0,1–0,2	a_e 0,2–0,3			
		f_z (mm)																	
P.1.1	280	0,04	0,04	0,04	0,06	0,06	0,05	0,07	0,07	0,06	0,08	0,08	0,07	0,11	0,11	0,10	●	●	○
P.1.2	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08	●	●	○
P.1.3	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08	●	●	○
P.1.4	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08	●	●	○
P.1.5	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08	●	●	○
P.2.1	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08	●	●	○
P.2.2	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08	●	●	○
P.2.3	210	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,10	0,08	0,06	●	●	○
P.2.4	210	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,10	0,08	0,06	●	●	○
P.3.1	210	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,10	0,08	0,06	●	●	○
P.3.2	200	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
P.3.3	200	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
P.4.1	80	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		○
P.4.2	80	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		○
M.1.1	60	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		○
M.2.1	60	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		○
M.3.1	60	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		○
K.1.1	280	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,10	0,08	0,07	0,13	0,11	0,10		●	
K.1.2	280	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,10	0,08	0,07	0,13	0,11	0,10		●	
K.2.1	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08		●	
K.2.2	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08		●	
K.3.1	140	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03		●	
K.3.2	140	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03		●	
N.1.1	600	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08	●		○
N.1.2	600	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,10	0,08	0,06	●		○
N.2.1	410	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08	●		○
N.2.2																			
N.2.3																			
N.3.1	180	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,10	0,08	0,07	0,13	0,11	0,10	●	○	○
N.3.2	180	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,10	0,08	0,07	0,13	0,11	0,10	●		○
N.3.3	180	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,10	0,08	0,07	0,13	0,11	0,10	●		○
N.4.1	410	0,06	0,05	0,05	0,08	0,06	0,06	0,10	0,08	0,08	0,12	0,10	0,10	0,16	0,13	0,13	●		○
S.1.1	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.1.2	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.2.1	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.2.2	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.2.3	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.3.1	100	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,10	0,08	0,06	●		
S.3.2	80	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		
S.3.3	60	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		
H.1.1	100	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1	130	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
H.3.1	100	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
O.1.1	410	0,06	0,05	0,05	0,08	0,06	0,06	0,10	0,08	0,08	0,12	0,10	0,10	0,16	0,13	0,13	●	○	○
O.1.2	600	0,06	0,05	0,05	0,08	0,06	0,06	0,10	0,08	0,08	0,12	0,10	0,10	0,16	0,13	0,13	●		○
O.2.1																			
O.2.2																			
O.3.1																			

In order to calculate the rotational speed n, the diameter DC has to be used.

14

Cutting data standard values – 3D Finish – taper shape

Index	v_c (m/min)	52 753 ..., 52 755 ...										● 1st choice ○ suitable		
		Ø DC (mm) =												
		6		8		10		12		16				
		a_e 0,05–0,10	a_e 0,1–0,2	a_e 0,05–0,10	a_e 0,1–0,2	a_e 0,05–0,10	a_e 0,1–0,2	a_e 0,05–0,10	a_e 0,1–0,2	a_e 0,05–0,10	a_e 0,1–0,2	Emulsion	Compressed air	MMS
		f_z (mm)												
P.1.1	280	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,10	0,06	●	●	○
P.1.2	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,10	0,06	●	●	○
P.1.3	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,10	0,06	●	●	○
P.1.4	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,10	0,06	●	●	○
P.1.5	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,10	0,06	●	●	○
P.2.1	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,10	0,06	●	●	○
P.2.2	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,10	0,06	●	●	○
P.2.3	210	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,08	0,05	●	●	○
P.2.4	210	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,08	0,05	●	●	○
P.3.1	210	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,08	0,05	●	●	○
P.3.2	200	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
P.3.3	200	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
P.4.1	80	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	●		○
P.4.2	80	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	●		○
M.1.1	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		○
M.2.1	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		○
M.3.1	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		○
K.1.1	280	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,11	0,08		●	
K.1.2	280	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,11	0,08		●	
K.2.1	250	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,10	0,08		●	
K.2.2	250	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,10	0,08		●	
K.3.1	140	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03		●	
K.3.2	140	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03		●	
N.1.1	600	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,10	0,06	●		○
N.1.2	600	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	●		○
N.2.1	410	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,10	0,06	●		○
N.2.2														
N.2.3														
N.3.1	180	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,10	0,08	●	○	○
N.3.2	180	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,10	0,08	●		○
N.3.3	180	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,10	0,08	●		○
N.4.1	410	0,06	0,05	0,08	0,06	0,10	0,08	0,12	0,10	0,16	0,13	●		○
S.1.1	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.1.2	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.2.1	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.2.2	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.2.3	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.3.1	100	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.3.2	80	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.3.3	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
H.1.1	100	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
H.1.2														
H.1.3														
H.1.4														
H.2.1	130	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
H.3.1	100	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
O.1.1	410	0,06	0,05	0,08	0,06	0,10	0,08	0,12	0,10	0,16	0,13	●	○	○
O.1.2	600	0,06	0,05	0,08	0,06	0,10	0,08	0,12	0,10	0,16	0,13	●		○
O.2.1														
O.2.2														
O.3.1														

In order to calculate the rotational speed n, the diameter DC has to be used.

Cutting data standard values – 3D Finish – lens shape

Index	v_c (m/min)	52 756 ... Ø DC (mm) = 4		6		8		10		12		● 1st choice ○ suitable: Emulsion	Compressed air	MMS
		Allowance 0,05–0,10	0,1–0,2	0,05–0,10	0,1–0,2	0,05–0,10	0,1–0,2	0,05–0,10	0,1–0,2	0,05–0,10	0,1–0,2			
		f_z (mm)												
P.1.1	280	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.2	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.3	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.4	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.5	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.2.1	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.2.2	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.2.3	200	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●	●	○
P.2.4	200	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●	●	○
P.3.1	200	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●	●	○
P.3.2	180	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04		●	
P.3.3	180	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04		●	
P.4.1	120	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		○
P.4.2	120	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		○
M.1.1	90	0,02	0,01	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,02	●		○
M.2.1	90	0,02	0,01	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,02	●		○
M.3.1	90	0,02	0,01	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,02	●		○
K.1.1	300	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07		●	
K.1.2	300	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07		●	
K.2.1	270	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06		●	
K.2.2	270	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06		●	
K.3.1	150	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04		●	
K.3.2	150	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04		●	
N.1.1	900	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●		○
N.1.2	900	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●		○
N.2.1	600	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●		○
N.2.2														
N.2.3														
N.3.1	270	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07	●	○	○
N.3.2	270	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07	●		○
N.3.3	270	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07	●		○
N.4.1	600	0,04	0,03	0,06	0,05	0,08	0,06	0,10	0,08	0,12	0,10	●		○
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	150	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●		
S.3.2	120	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		
S.3.3	90	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

In order to calculate the rotational speed n, the diameter DC has to be used.

Cutting data standard values – PCD milling cutter

Index	v_c (m/min)	50 011 ..., 50 012 ...		50 010 ..., 50 013 ...		50 014 ...		50 015 ...			
		$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e
N.1.1	900	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.1.2	900	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.2.1	700	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.2.2	600	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.2.3	400	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.3.1	500							0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.3.2											
N.3.3											
N.4.1	900							0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.1.1	120	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.1.2	250	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.2.1											
O.2.2	200–300	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.3.1	650	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC

Index	v_c (m/min)	50 016 ..., 50 017 ...				50 018 ...				50 020 ...			
		$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e
N.1.1	900	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.1.2	900	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.2.1	700	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.2.2	600	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.2.3	400	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.3.1	500	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.3.2													
N.3.3													
N.4.1	900	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.1.1	120	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.1.2	250	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.2.1													
O.2.2	200–300	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.3.1	650	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC

● 1st choice
○ suitable

Index	v_c (m/min)	50 019 ...				Ø DC (mm) =						Emulsion	Compressed air	MMS
						40	50	63	80	100	125			
		$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e	f_z (mm)								
N.1.1	2200	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.1.2	2100	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.2.1	1850	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.2.2	1850	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.2.3	1750	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.3.1	1000–1500	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.3.2														
N.3.3														
N.4.1	2200	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
O.1.1														
O.1.2														
O.2.1														
O.2.2	500–600	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,230	0,230	0,230	0,230	0,230	0,230	●		○
O.3.1														

Index	50 010 ..., 50 011 ..., 50 012 ..., 50 013 ..., 50 014 ..., 50 015 ...												● 1st choice ○ suitable		
	Ø DC (mm) =												Emulsion	Compressed air	MMS
	2	3	4	5	6	8	10	12	16	20	25	32			
	f_z (mm)														
N.1.1	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.1.2	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.1	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.2	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.3	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.2															
N.3.3															
N.4.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
O.1.1	0,025	0,038	0,050	0,071	0,100	0,150	0,200	0,250	0,300	0,400	0,440	0,460	●		○
O.1.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○
O.2.1															
O.2.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,20	0,220	0,260	●		○
O.3.1	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,20	0,220	0,260	●		○

Index	50 016 ..., 50 017 ..., 50 018 ..., 50 020 ...												● 1st choice ○ suitable		
	Ø DC (mm) =												Emulsion	Compressed air	MMS
	2	3	4	5	6	8	10	12	16	20	25	32			
	f_z (mm)														
N.1.1	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.1.2	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.1	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.2	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.3	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.2															
N.3.3															
N.4.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
O.1.1	0,025	0,038	0,050	0,0705	0,100	0,150	0,200	0,250	0,300	0,400	0,440	0,460	●		○
O.1.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○
O.2.1															
O.2.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○
O.3.1	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○

Cutting data standard values – AluLine – End mills – ZEFP = 2

Index	Type short		Medium-length version		53 623..., 53 624..., 53 625..., 53 626..., 53 633..., 53 634..., 53 635..., 53 636..., 53 619..., 53 620..., 53 621..., 53 622..., 53 629..., 53 630..., 53 631..., 53 632..., 52 627..., 53 628..., 53 637..., 53 638...																	
					Ø DC (mm) =																	
					2			2,5–3,0			3,5–4,0			4,5–5,0			5,5–6,0			6,5–8,0		
	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
					f_z (mm)																	
N.1.1	600	1,0	360	0,7	0,032	0,027	0,021	0,045	0,039	0,030	0,057	0,049	0,038	0,071	0,061	0,047	0,084	0,073	0,056	0,110	0,095	0,073
N.1.2	600	1,0	360	0,7	0,032	0,027	0,021	0,045	0,039	0,030	0,057	0,049	0,038	0,071	0,061	0,047	0,084	0,073	0,056	0,110	0,095	0,073
N.2.1	360	1,0	215	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.2.2	360	1,0	215	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.2.3	240	1,0	145	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.3.1	240	1,0	145	0,7	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039	0,078	0,068	0,052
N.3.2	240	1,0	145	0,7	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039	0,078	0,068	0,052
N.3.3	170	1,0	100	0,7	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039	0,078	0,068	0,052
N.4.1	220	1,0	130	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063

Cutting data standard values – AluLine – End mill – ZEFP = 3

Index	Type short / medium length		Type long		Type extra long		53 615..., 53 616..., 53 617..., 53 618..., 53 611..., 53 612..., 53 613..., 53 614..., 53 712..., 53 713..., 53 714..., 53 715..., 53 708..., 53 709..., 53 710..., 53 711..., 53 584..., 53 597...,													
							Ø DC (mm) =															
							2			2,5–3,0			3,5–4,0			4,5–5,0			5,5–6,0		
	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
							f_z (mm)															
N.1.1	600	1,0	480	0,8	240	0,6	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047
N.1.2	600	1,0	480	0,8	240	0,6	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047
N.2.1	360	1,0	290	0,8	145	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044
N.2.2	360	1,0	290	0,8	145	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044
N.2.3	240	1,0	190	0,8	95	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044
N.3.1	240	1,0	190	0,8	95	0,6	0,015	0,013	0,010	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033
N.3.2	240	1,0	190	0,8	95	0,6	0,015	0,013	0,010	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033
N.3.3	170	1,0	135	0,8	70	0,6	0,015	0,013	0,010	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033
N.4.1	220	1,0	175	0,8	90	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044

Cutting data standard values – AluLine – End mill – ZEFP = 4

Index	Type short / medium length		Type long		Type extra long		53 700..., 53 701..., 53 702..., 53 703..., 53 704..., 53 705..., 53 706..., 53 707..., 53 560..., 53 561..., 53 562..., 53 563..., 53 564..., 53 565..., 53 566..., 53 567..., 53 568..., 53 569...													
							Ø DC (mm) =															
							2			3,0			4,0			5,0			6,0		
	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
							f_z (mm)															
N.1.1	600	1,0	480	0,8	240	0,6	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039
N.1.2	600	1,0	480	0,8	240	0,6	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039
N.2.1	360	1,0	290	0,8	145	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035
N.2.2	480	1,0	385	0,8	145	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035
N.2.3	240	1,0	190	0,8	95	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035
N.3.1	240	1,0	190	0,8	95	0,6	0,014	0,012	0,009	0,021	0,018	0,014	0,029	0,025	0,019	0,037	0,032	0,025	0,045	0,039	0,030
N.3.2	240	1,0	190	0,8	95	0,6	0,014	0,012	0,009	0,021	0,018	0,014	0,029	0,025	0,019	0,037	0,032	0,025	0,045	0,039	0,030
N.3.3	170	1,0	135	0,8	70	0,6	0,014	0,012	0,009	0,021	0,018	0,014	0,029	0,025	0,019	0,037	0,032	0,025	0,045	0,039	0,030
N.4.1	220	1,0	175	0,8	90	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035

53 623..., 53 624..., 53 625..., 53 626..., 53 633..., 53 634..., 53 635..., 53 636..., 53 619..., 53 620..., 53 621..., 53 622..., 53 629..., 53 630..., 53 631..., 53 632..., 52 627..., 53 628..., 53 637..., 53 638...

● 1st choice
○ suitable

Index	Ø DC (mm) = 8,5–10,0			10,5–12,0			12,5–14,0			14,5–16,0			16,5–18,0			18,5–20,0			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z (mm)																				
N.1.1	0,137	0,118	0,091	0,162	0,140	0,108	0,189	0,164	0,126	0,203	0,176	0,135	0,216	0,187	0,144	0,230	0,199	0,153	●	○*	○
N.1.2	0,137	0,118	0,091	0,162	0,140	0,108	0,189	0,164	0,126	0,203	0,176	0,135	0,216	0,187	0,144	0,230	0,199	0,153	●	○*	○
N.2.1	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.2.2	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.2.3	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.3.1	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.3.2	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.3.3	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.4.1	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○

* = only suitable for DLC-coated cutters

53 598..., 53 599..., 53 578..., 53 579..., 53 580.../ 53 581..., 53 517..., 53 518..., 53 519..., 53 520..., 53 521..., 53 522..., 53 523..., 53 524...

● 1st choice
○ suitable

Index	Ø DC (mm) = 6,5–8,0			8,5–10,0			10,5–12,0			12,5–14,0			14,5–16,0			16,5–18,0			18,5–20,0			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z (mm)																							
N.1.1	0,095	0,082	0,063	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.1.2	0,095	0,082	0,063	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.2.1	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○
N.2.2	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○
N.2.3	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○
N.3.1	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,134	0,116	0,089	0,141	0,122	0,094	●	○*	○
N.3.2	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,134	0,116	0,089	0,141	0,122	0,094	●	○*	○
N.3.3	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,134	0,116	0,089	0,141	0,122	0,094	●	○*	○
N.4.1	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○

* = only suitable for DLC-coated cutters

53 700..., 53 701..., 53 702..., 53 703..., 53 704..., 53 705..., 53 706..., 53 707..., 53 560..., 53 561..., 53 562..., 53 563..., 53 564..., 53 565..., 53 566..., 53 567..., 53 568..., 53 569...

● 1st choice
○ suitable

Index	Ø DC (mm) = 8,0			8,5–10,0			12,0			14,0			16,0			18,0			20,0			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z (mm)																							
N.1.1	0,078	0,068	0,052	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.1.2	0,078	0,068	0,052	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.2.1	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○
N.2.2	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○
N.2.3	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○
N.3.1	0,060	0,052	0,040	0,075	0,065	0,050	0,090	0,078	0,060	0,105	0,091	0,070	0,113	0,098	0,075	0,120	0,104	0,080	0,128	0,111	0,085	●	○*	○
N.3.2	0,060	0,052	0,040	0,075	0,065	0,050	0,090	0,078	0,060	0,105	0,091	0,070	0,113	0,098	0,075	0,120	0,104	0,080	0,128	0,111	0,085	●	○*	○
N.3.3	0,060	0,052	0,040	0,075	0,065	0,050	0,090	0,078	0,060	0,105	0,091	0,070	0,113	0,098	0,075	0,120	0,104	0,080	0,128	0,111	0,085	●	○*	○
N.4.1	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○

* = only suitable for DLC-coated cutters

Cutting data standard values – AluLine – Roughing-finishing milling cutter

Index	Type short / long		Medium-length version		53 582 ..., 53 583 ...															
					Ø DC (mm) =															
					3			4			5			6			8			
	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
					f_z (mm)															
N.1.1	600	1,0	480	0,8	0,114	0,099	0,076	0,131	0,113	0,087	0,147	0,127	0,098	0,162	0,140	0,108	0,195	0,169	0,130
N.1.2	600	1,0	480	0,8	0,114	0,099	0,076	0,131	0,113	0,087	0,147	0,127	0,098	0,162	0,140	0,108	0,195	0,169	0,130
N.2.1	360	1,0	290	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108
N.2.2	360	1,0	290	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108
N.2.3	240	1,0	190	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108
N.3.1	240	1,0	190	0,8	0,049	0,042	0,033	0,065	0,056	0,043	0,081	0,070	0,054	0,098	0,085	0,065	0,129	0,112	0,086
N.3.2	240	1,0	190	0,8	0,049	0,042	0,033	0,065	0,056	0,043	0,081	0,070	0,054	0,098	0,085	0,065	0,129	0,112	0,086
N.3.3	170	1,0	135	0,8	0,049	0,042	0,033	0,065	0,056	0,043	0,081	0,070	0,054	0,098	0,085	0,065	0,129	0,112	0,086
N.4.1	220	1,0	175	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108

Cutting data – AluLine – Ball Nosed End Mills

Index	Type short		Type long		Type extra long		53 607 ..., 53 608 ..., 53 609 ..., 53 610 ...														
							Ø DC (mm) =														
							3			4			5			6			8		
	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
							f_z (mm)														
N.1.1	750	0,03	450	0,02	225	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.1.2	750	0,03	450	0,02	225	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.2.1	600	0,03	360	0,02	180	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
N.2.2	600	0,03	360	0,02	180	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
N.2.3	400	0,03	240	0,02	120	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
N.3.1	180	0,03	110	0,02	55	0,015	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044
N.3.2	180	0,03	110	0,02	55	0,015	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044
N.3.3	230	0,03	140	0,02	70	0,015	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044
N.4.1	350	0,03	210	0,02	105	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
O.1.1	65	0,03	40	0,03	40	0,03				0,135	0,104	0,075	0,200	0,149	0,100	0,240	0,179	0,120	0,300	0,224	0,150
O.1.2	240	0,03	145	0,03	145	0,03				0,135	0,104	0,075	0,200	0,149	0,100	0,240	0,179	0,120	0,300	0,224	0,150

Cutting data – AluLine – High Accuracy Finishing Cutters

Index	Type short	Type long	Type extra long	$a_{p\,max.}$ x DC	53 639 ...															
					Ø DC (mm) =															
					6			8			10			12			16			
	v_c (m/min)				a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC
					f_z (mm)															
N.1.1	500	400	300	2,0	0,036	0,031	0,024	0,047	0,040	0,031	0,056	0,049	0,038	0,067	0,058	0,045	0,083	0,072	0,055
N.1.2	500	400	300	2,0	0,036	0,031	0,024	0,047	0,040	0,031	0,056	0,049	0,038	0,067	0,058	0,045	0,083	0,072	0,055
N.2.1	300	240	180	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.2.2	300	240	180	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.2.3	210	170	125	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.3.1	210	170	125	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.3.2	210	170	125	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.3.3	150	120	90	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.4.1	200	160	120	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045

Index	53 582 ..., 53 583 ...												● 1st choice ○ suitable		
	Ø DC (mm) =														
	10			12			16			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)														
N.1.1	0,225	0,195	0,150	0,258	0,224	0,172	0,305	0,264	0,203	0,336	0,291	0,224	●		
N.1.2	0,225	0,195	0,150	0,258	0,224	0,172	0,305	0,264	0,203	0,336	0,291	0,224	●		
N.2.1	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		
N.2.2	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		
N.2.3	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		
N.3.1	0,161	0,139	0,107	0,194	0,168	0,129	0,240	0,208	0,160	0,272	0,235	0,181	●		
N.3.2	0,161	0,139	0,107	0,194	0,168	0,129	0,240	0,208	0,160	0,272	0,235	0,181	●		
N.3.3	0,161	0,139	0,107	0,194	0,168	0,129	0,240	0,208	0,160	0,272	0,235	0,181	●		
N.4.1	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		

Index	53 607 ..., 53 608 ..., 53 609 ..., 53 610 ...															● 1st choice ○ suitable		
	Ø DC (mm) =																	
	10			12			14			16			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																	
N.1.1	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,206	0,178	0,137	●	○	
N.1.2	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,206	0,178	0,137	●	○	
N.2.1	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●	○	
N.2.2	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●	○	
N.2.3	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●	○	
N.3.1	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,141	0,122	0,094	●	○	
N.3.2	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,141	0,122	0,094	●	○	
N.3.3	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,141	0,122	0,094	●	○	
N.4.1	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●	○	
O.1.1	0,400	0,298	0,200	0,500	0,373	0,250	0,548	0,424	0,300	0,592	0,452	0,350	0,712	0,581	0,450	●	○	
O.1.2	0,400	0,298	0,200	0,500	0,373	0,250	0,548	0,424	0,300	0,592	0,452	0,350	0,712	0,581	0,450	●	○	

Index	53 639 ...			● 1st choice ○ suitable		
	Ø DC (mm) =					
	10					
	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	Emulsion	Compressed air	MMS
	f_z (mm)					
N.1.1	0,092	0,080	0,062	●		○
N.1.2	0,092	0,080	0,062	●		○
N.2.1	0,077	0,066	0,051	●		○
N.2.2	0,077	0,066	0,051	●		○
N.2.3	0,077	0,066	0,051	●		○
N.3.1	0,077	0,066	0,051	●		○
N.3.2	0,077	0,066	0,051	●		○
N.3.3	0,077	0,066	0,051	●		○
N.4.1	0,077	0,066	0,051	●		○

Cutting data – Cutters for plastic machining

Index	Strength N/mm² – HB	50 983 ..., 50 984 ..., 50 985 ..., 50 986 ..., 50 932 ...	50 937 ...	50 936 ...	50 938 ...	50 610 ..., 50 611 ..., 52 76. ...	50 91. ...	50 946 ...	50 948 ...	50 947 ...
		v_c (m/min)								
N.1.1	60 HB					400–450	400–450			
N.1.2	340 N/mm² / 100 HB					400–450	400–450			
N.2.1	250 N/mm² / 75 HB					350–400	350–400			
N.2.2	300 N/mm² / 90 HB				300–400			300–400	300–400	300–400
N.2.3	440 N/mm² / 130 HB				300–400			250–300	250–300	250–300
N.3.1	375 N/mm² / 110 HB					350–400	350–400			
N.3.2	300 N/mm² / 90 HB					400–450	400–450			
N.3.3	340 N/mm² / 100 HB					400–450	400–450			
N.4.1	70 HB				250			250	250	250
O.1.1	≤ 150 N/mm²					500–550	500–550			
O.1.2	≤ 100 N/mm²					500–550	500–550			
O.2.1	≤ 1000 N/mm²	150–200	150–200	500–600	150–200					
O.2.2	≤ 1000 N/mm²	150–200	150–200	500–600	150–200					
O.3.1		300–400	500–600	500–600	300–400					

DC in mm	Plastics, Thermoset, Hardwood, Pressed Cardboard					Plastic, Thermoplast, Polycarbonate, Non-ferrous metal, Hard rubber				
	End milling cutter Type W			Ball nosed cutter Type W		End milling cutter Type W			Ball nosed cutter Type W	
	Shoulder milling, trimming		Slot milling	Copy milling - Line milling		Shoulder milling, trimming		Slot milling	Copy milling - Line milling	
	Roughing	Finishing		Roughing	Finishing	Roughing	Finishing		Roughing	Finishing
	a_p = 1,0 x DC	a_p = 1,0 x DC		a_e = 0,5 x DC	a_e = 0,03 x DC	a_e = 1,5 x DC	a_p = 1,0 x DC		a_e = 0,5 x DC	a_e = 0,03 x DC
	a_e = 0,4 x DC	a_e = 0,1 x DC		a_e = 0,5 x DC	a_e = 0,02 x DC	a_e = 0,8 x DC	a_e = 0,1 x DC		a_e = 0,5 x DC	a_e = 0,02 x DC
	f_z (mm)									
2	0,024	0,018	0,016	0,028	0,024	0,024	0,022	0,017	0,037	0,030
3	0,036	0,027	0,024	0,042	0,036	0,036	0,033	0,026	0,056	0,045
4	0,048	0,036	0,032	0,056	0,048	0,048	0,044	0,034	0,074	0,060
5	0,060	0,045	0,040	0,070	0,060	0,060	0,055	0,043	0,093	0,075
6	0,072	0,054	0,048	0,084	0,072	0,072	0,066	0,051	0,111	0,090
8	0,100	0,070	0,060	0,110	0,100	0,100	0,090	0,070	0,150	0,120
10	0,120	0,090	0,080	0,140	0,120	0,120	0,110	0,090	0,190	0,150
12	0,140	0,110	0,100	0,170	0,140	0,140	0,130	0,100	0,220	0,180
14	0,170	0,130	0,110	0,200	0,170	0,170	0,150	0,120	0,260	0,210
16	0,190	0,140	0,130	0,220	0,190	0,190	0,180	0,140	0,300	0,240
18	0,220	0,160	0,140	0,250	0,220	0,220	0,200	0,150	0,330	0,270
20	0,240	0,180	0,160	0,280	0,240	0,240	0,220	0,170	0,370	0,300

DC in mm	Fiber reinforced plastics AFK, CFK, GFK			
	End mill staggered teeth			
	Shoulder milling, trimming		Slot milling	
	a_p = 1,0 x DC		a_p = 0,35 x DC	
	a_e = 0,4 x DC			
	fine	medium	fine	medium
	f (mm/rev)			
2	0,16	0,14	0,14	0,12
3	0,24	0,21	0,21	0,18
4	0,32	0,28	0,28	0,24
5	0,40	0,35	0,35	0,30
6	0,48	0,42	0,42	0,36
8	0,64	0,56	0,56	0,48
10	0,80	0,70	0,70	0,60
12	0,96	0,84	0,84	0,72
16	1,28	1,12	1,12	0,96
20	1,60	1,40	1,40	1,20

Feedrate values for ball nosed and torus cutters on → **page 486**

Cutting data standard values – AluLine – NC deburring cutter

Index	v_c (m/min)	53 660 ..., 53 661 ..., 53 662 ..., 53 663 ... DLC Ø DC (mm) = 4	6	8	10	12	16	v_c (m/min)	53 664 ..., 53 665 ..., 53 666 ..., 53 667 ... uncoated Ø DC (mm) = 4	6	8	10	12	16	● 1st choice ○ suitable Emulsion	Compressed air	MMS
		f_z (mm)							f_z (mm)								
N.1.1	300	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.1.2	300	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.2.1	260	0,03	0,04	0,05	0,06	0,07	0,08	170	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.2.2	280	0,03	0,04	0,05	0,06	0,07	0,08	180	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.2.3	250	0,03	0,04	0,05	0,06	0,07	0,08	165	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.3.1	110	0,03	0,04	0,05	0,06	0,07	0,08	75	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.3.2	140	0,03	0,04	0,05	0,06	0,07	0,08	90	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.3.3	120	0,03	0,04	0,05	0,06	0,07	0,08	80	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.4.1																	
O.1.1	320	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○	○
O.1.2	320	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○	○
O.2.1																	
O.2.2																	
O.3.1																	

* = only suitable for DLC-coated cutters

Cutting data standard values – BlueLine – NC deburring cutter

Index	v_c (m/min)	52 560 ..., 52 561 ..., 52 562 ..., 52 563 ... Ti2000 Ø DC (mm) = 4	6	8	10	12	16	● 1st choice ○ suitable Emulsion	Compressed air	MMS
		f_z (mm)								
P.3.2	80	0,02	0,02	0,025	0,03	0,04	0,05		●	
P.3.3	70	0,02	0,02	0,025	0,03	0,04	0,05		●	
H.1.1	120	0,045	0,055	0,06	0,065	0,065	0,07		●	
H.1.2	90	0,04	0,05	0,055	0,06	0,06	0,065		●	
H.1.3	70	0,035	0,045	0,05	0,055	0,055	0,06		●	
H.1.4	50	0,025	0,03	0,04	0,045	0,045	0,05		●	
H.2.1										
H.3.1										

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Cutting data standard values – BlueLine – Micro-end mill / micro-torus cutter

Index	$T_X \leq 2,5$ x DC		52 345 ..., 52 346 ..., 52 347 ..., 52 349 ..., 52 350 ..., 52 351 ...											Compressed air
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0	
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											
P.3.2	190	0,5	0,0038	0,0045	0,0050	0,0078	0,0093	0,0131	0,0165	0,018	0,0195	0,0210	0,0225	0,0240	●
P.3.3	190	0,5	0,0038	0,0045	0,0050	0,0078	0,0093	0,0131	0,0165	0,018	0,0195	0,0210	0,0225	0,0240	●
H.1.1	120	0,5	0,0038	0,0045	0,0050	0,0078	0,0093	0,0131	0,0165	0,018	0,0195	0,0210	0,0225	0,0240	●
H.1.2	70	0,5	0,0030	0,0360	0,0045	0,0062	0,0074	0,0104	0,0132	0,0144	0,0156	0,0168	0,0180	0,0192	●
H.1.3	50	0,5	0,0025	0,0030	0,0040	0,0052	0,0062	0,0087	0,0110	0,0120	0,0130	0,0140	0,0150	0,0160	●
H.1.4															
H.2.1	190	0,5	0,0038	0,0045	0,0050	0,0078	0,0093	0,0131	0,0165	0,0180	0,0195	0,0210	0,0225	0,0240	●
H.3.1	70	0,5	0,0030	0,0360	0,0045	0,0062	0,0074	0,0104	0,0132	0,0144	0,0156	0,0168	0,0180	0,0192	●

Index	$T_X \leq 2,6–5,0$ x DC		52 345 ..., 52 346 ..., 52 347 ..., 52 349 ..., 52 350 ..., 52 351 ...											Compressed air
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0	
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											
P.3.2	170	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
P.3.3	170	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
H.1.1	108	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
H.1.2	63	0,5	0,0030	0,0032	0,0036	0,0050	0,0060	0,0082	0,0107	0,0121	0,0126	0,0140	0,0156	0,0156	●
H.1.3	45	0,5	0,0025	0,0027	0,0030	0,0042	0,0050	0,0068	0,0089	0,0101	0,0105	0,0117	0,0130	0,0130	●
H.1.4															
H.2.1	170	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
H.3.1	63	0,5	0,0030	0,0032	0,0036	0,0050	0,0060	0,0082	0,0107	0,0121	0,0126	0,0140	0,0156	0,0156	●

Index	$T_X \leq 5,1–10,0$ x DC		52 345 ..., 52 346 ..., 52 347 ..., 52 349 ..., 52 350 ..., 52 351 ...											Compressed air
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0	
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											
P.3.2	150	0,5	0,0030	0,0038	0,0045	0,0060	0,0068	0,0075	0,0083	0,0090	0,0105	0,0113	0,012	0,0128	●
P.3.3	150	0,5	0,0030	0,0038	0,0045	0,0060	0,0068	0,0075	0,0083	0,0090	0,0105	0,0113	0,012	0,0128	●
H.1.1	96	0,5	0,0030	0,0038	0,0045	0,0060	0,0068	0,0075	0,0083	0,0090	0,0105	0,0113	0,0120	0,0128	●
H.1.2	56	0,5	0,0024	0,0030	0,0036	0,0048	0,0054	0,0060	0,0066	0,0072	0,0084	0,0090	0,0096	0,0102	●
H.1.3	40	0,5	0,0020	0,0025	0,0030	0,0040	0,0045	0,0050	0,0055	0,0060	0,0070	0,0075	0,0080	0,0085	●
H.1.4															
H.2.1	150	0,5	0,0030	0,0038	0,0045	0,0060	0,0068	0,0075	0,0083	0,0090	0,0105	0,0113	0,0120	0,0128	●
H.3.1	56	0,5	0,0024	0,0030	0,0036	0,0048	0,0054	0,0060	0,0066	0,0072	0,0084	0,0090	0,0096	0,0102	●

Index	$T_x \leq 10{,}1–15{,}0 \times DC$		52 345 ..., 52 346 ..., 52 347 ..., 52 349 ..., 52 350 ..., 52 351 ...											Compressed air
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											
P.3.2	114	0,5	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	0,0066	●
P.3.3	114	0,5	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	0,0066	●
H.1.1	72	0,5	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	0,0066	●
H.1.2	42	0,5	0,0012	0,0018	0,0024	0,0030	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,0050	0,0053	●
H.1.3	30	0,5	0,0010	0,0015	0,0020	0,0025	0,0030	0,0032	0,0034	0,0036	0,0038	0,0040	0,0042	0,0044	●
H.1.4															
H.2.1	114	0,5	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	0,0066	●
H.3.1	42	0,5	0,0012	0,0018	0,0024	0,0030	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,0050	0,0053	●

Index	$T_x \leq 15{,}1–20{,}0 \times DC$		52 345 ..., 52 346 ..., 52 347 ..., 52 349 ..., 52 350 ..., 52 351 ...											Compressed air
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											
P.3.2	75	0,5	0,0015	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	●
P.3.3	75	0,5	0,0015	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	●
H.1.1	48	0,5	0,0015	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	●
H.1.2	28	0,5	0,0012	0,0012	0,0018	0,0024	0,003	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,0050	●
H.1.3	20	0,5	0,0010	0,0010	0,0015	0,0020	0,0025	0,0030	0,0032	0,0034	0,0036	0,0038	0,0040	0,0042	●
H.1.4															
H.2.1	75	0,5	0,0015	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	●
H.3.1	28	0,5	0,0012	0,0012	0,0018	0,0024	0,0030	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,0050	●

Index	$T_x \leq 20{,}1–30{,}0 \times DC$		52 345 ..., 52 346 ..., 52 347 ..., 52 349 ..., 52 350 ..., 52 351 ...											Compressed air
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											
P.3.2	57	0,5	0,0010	0,002	0,0020	0,0030	0,0030	0,0030	0,0040	0,0040	0,0040	0,005	0,0050	0,0050	●
P.3.3	57	0,5	0,0010	0,002	0,0020	0,0030	0,0030	0,0030	0,0040	0,0040	0,0040	0,005	0,0050	0,0050	●
H.1.1	36	0,5	0,0010	0,002	0,0020	0,0030	0,0030	0,0030	0,0040	0,0040	0,0040	0,005	0,0050	0,0050	●
H.1.2	21	0,5	0,0010	0,001	0,0020	0,0020	0,0020	0,0030	0,0030	0,0030	0,0030	0,004	0,0040	0,0040	●
H.1.3	15	0,5	0,0008	0,001	0,0013	0,0017	0,0019	0,0022	0,0025	0,0027	0,0029	0,003	0,0031	0,0032	●
H.1.4															
H.2.1	57	0,5	0,0010	0,002	0,0020	0,0030	0,0030	0,0030	0,0040	0,0040	0,0040	0,005	0,0050	0,0050	●
H.3.1	21	0,5	0,0010	0,001	0,0020	0,0020	0,0020	0,0030	0,0030	0,0030	0,0030	0,004	0,0040	0,0040	●

Cutting data standard values – BlueLine – Micro-ball-nosed end mill

Index	$T_X \leq 2,5 \times DC$		52 356 ..., 52 357 ..., 52 358 ..., 52 359 ..., 52 360 ...											
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											Compressed air
P.3.2	190	0,5	0,0015	0,0023	0,0030	0,0038	0,0045	0,0053	0,0060	0,0063	0,0066	0,0069	0,0072	0,0075	●
P.3.3	190	0,5	0,0015	0,0023	0,0030	0,0038	0,0045	0,0053	0,0060	0,0063	0,0066	0,0069	0,0072	0,0075	●
H.1.1	120	0,5	0,0015	0,0023	0,0030	0,0038	0,0045	0,0053	0,0060	0,0063	0,0066	0,0069	0,0072	0,0075	●
H.1.2	70	0,5	0,0012	0,0018	0,0024	0,0030	0,0036	0,0042	0,0048	0,0050	0,0053	0,0055	0,0058	0,0060	●
H.1.3	50	0,5	0,0010	0,0015	0,0020	0,0025	0,0030	0,0035	0,0040	0,0042	0,0044	0,0046	0,0048	0,0050	●
H.1.4															
H.2.1	190	0,5	0,0015	0,0023	0,0030	0,0038	0,0045	0,0053	0,0060	0,0063	0,0066	0,0069	0,0072	0,0075	●
H.3.1	70	0,5	0,0012	0,0018	0,0024	0,0030	0,0036	0,0042	0,0048	0,0050	0,0053	0,0055	0,0058	0,0060	●

Index	$T_X \leq 2,6–5,0 \times DC$		52 356 ..., 52 357 ..., 52 358 ..., 52 359 ..., 52 360 ...											
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											Compressed air
P.3.2	170	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
P.3.3	170	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
H.1.1	108	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
H.1.2	63	0,5	0,0008	0,0011	0,0014	0,0018	0,0019	0,0021	0,0023	0,0025	0,0027	0,0029	0,0032	0,0038	●
H.1.3	45	0,5	0,0007	0,0009	0,0012	0,0015	0,0017	0,0019	0,0021	0,0023	0,0025	0,0027	0,0029	0,0032	●
H.1.4															
H.2.1	170	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
H.3.1	63	0,5	0,0008	0,0011	0,0014	0,0018	0,0019	0,0021	0,0023	0,0025	0,0027	0,0029	0,0032	0,0038	●

Index	$T_X \leq 5,1–10,0 \times DC$		52 356 ..., 52 357 ..., 52 358 ..., 52 359 ..., 52 360 ...											
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											Compressed air
P.3.2	150	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036	0,0039	●
P.3.3	150	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036	0,0039	●
H.1.1	96	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	0,0039	●
H.1.2	56	0,5	0,0005	0,0007	0,0010	0,0012	0,0014	0,0017	0,0019	0,0022	0,0024	0,0026	0,0029	0,0031	●
H.1.3	40	0,5	0,0004	0,0006	0,0008	0,0010	0,0012	0,0014	0,0016	0,0018	0,0020	0,0022	0,0024	0,0026	●
H.1.4															
H.2.1	150	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036	0,0039	●
H.3.1	56	0,5	0,0005	0,0007	0,0010	0,0012	0,0014	0,0017	0,0019	0,0022	0,0024	0,0026	0,0029	0,0031	●

Index	$T_x \leq 10{,}1–15{,}0 \times DC$		52 356 ..., 52 357 ..., 52 358 ..., 52 359 ..., 52 360 ...											Compressed air
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0	
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											
P.3.2	114	0,5	0,0003	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036	●
P.3.3	114	0,5	0,0003	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036	●
H.1.1	72	0,5	0,0003	0,0006	0,0008	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036	●
H.1.2	42	0,5	0,0002	0,0005	0,0007	0,0010	0,0012	0,0014	0,0017	0,0019	0,0022	0,0022	0,0026	0,0029	●
H.1.3	30	0,5	0,0002	0,0004	0,0006	0,0008	0,0010	0,0012	0,0014	0,0016	0,0018	0,0020	0,0022	0,0024	●
H.1.4															
H.2.1	114	0,5	0,0003	0,0006	0,0008	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036	●
H.3.1	42	0,5	0,0002	0,0005	0,0007	0,0010	0,0012	0,0014	0,0017	0,0019	0,0022	0,0022	0,0026	0,0029	●

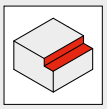
Index	$T_x \leq 15{,}1–20{,}0 \times DC$		52 356 ..., 52 357 ..., 52 358 ..., 52 359 ..., 52 360 ...											Compressed air
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0	
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											
P.3.2	114	0,5	0,0002	0,0004	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
P.3.3	114	0,5	0,0002	0,0004	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
H.1.1	72	0,5	0,0002	0,0004	0,0005	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
H.1.2	42	0,5	0,0001	0,0003	0,0004	0,0007	0,0009	0,0011	0,0014	0,0016	0,0019	0,0019	0,0023	0,0026	●
H.1.3	30	0,5	0,0001	0,0002	0,0003	0,0005	0,0007	0,0009	0,0011	0,0013	0,0015	0,0017	0,0019	0,0021	●
H.1.4															
H.2.1	114	0,5	0,0002	0,0004	0,0005	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
H.3.1	42	0,5	0,0001	0,0003	0,0004	0,0007	0,0009	0,0011	0,0014	0,0016	0,0019	0,0021	0,0023	0,0026	●

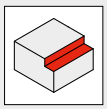
Cutting data standard values – BlueLine – End mill

Index	v_c (m/min) 52 140 ... 52 141 ...	v_c (m/min) 52 133 ... 52 134 ... 52 324 ...	$a_{p\,max.}$ x DC	52 133 ..., 52 134 ..., 52 140 ..., 52 141 ..., 52 324 ... Ø DC (mm) = 3	4	5	6	8	10	12	16	20	Compressed air
				a_e 0,05 x DC									
				f_z (mm)									
P.3.2	190	160	1,0	0,018	0,020	0,022	0,024	0,025	0,030	0,035	0,038	0,040	●
P.3.3	190	160	1,0	0,018	0,020	0,022	0,024	0,025	0,030	0,035	0,038	0,040	●
H.1.1	160	140	1,0	0,013	0,013	0,016	0,018	0,020	0,023	0,025	0,029	0,032	●
H.1.2	**140**	**130**	1,0	0,011	0,011	0,014	0,016	0,018	0,020	0,022	0,025	0,027	●
H.1.3	**100**	**90**	1,0	0,010	0,010	0,012	0,014	0,016	0,018	0,020	0,023	0,025	●
H.1.4													
H.2.1	**190**	**160**	1,0	0,018	0,020	0,022	0,024	0,025	0,030	0,035	0,038	0,040	●
H.3.1	**140**	**130**	1,0	0,011	0,011	0,014	0,016	0,018	0,020	0,022	0,025	0,027	●

Index	v_c (m/min)	$a_{p\,max.}$ x DC	52 135 ..., 52 136 ..., 52 325 ... Ø DC (mm) = 3	4	5	6	8	10	12	16	20	Compressed air
			a_e 0,05 x DC									
			f_z (mm)									
P.3.2	140	1,0	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
P.3.3	140	1,0	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.1.1	125	1,0	0,008	0,009	0,011	0,014	0,016	0,02	0,023	0,026	0,028	●
H.1.2	**115**	1,0	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●
H.1.3	**80**	1,0	0,005	0,006	0,007	0,01	0,012	0,015	0,017	0,019	0,02	●
H.1.4												
H.2.1	**140**	1,0	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.3.1	**115**	1,0	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●

Index	v_c (m/min)	$a_{p\,max.}$ x DC	52 344 ... Ø DC (mm) = 0,5			1,0–1,5			2,0–2,5			3,0–3,5			4,0			5,0		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)																	
P.3.2	**120**	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,020	0,014
P.3.3	**120**	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,020	0,014
H.1.1	**80**	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,020	0,014
H.1.2	**60**	0,5	0,004	0,004	0,003	0,006	0,005	0,004	0,009	0,007	0,005	0,013	0,010	0,007	0,017	0,013	0,010	0,022	0,016	0,011
H.1.3	**50**	0,5	0,004	0,003	0,002	0,005	0,004	0,003	0,007	0,006	0,004	0,011	0,008	0,006	0,014	0,011	0,008	0,018	0,013	0,009
H.1.4																				
H.2.1	**120**	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,020	0,014
H.3.1	**60**	0,5	0,004	0,004	0,003	0,006	0,005	0,004	0,009	0,007	0,005	0,013	0,010	0,007	0,017	0,013	0,010	0,022	0,016	0,011

Index	52 140 ... 52 141 ...	52 133 ... 52 134 ... 52 324 ...		52 133 ..., 52 134 ..., 52 140 ..., 52 141 ..., 52 324 ...									Compressed air
				Ø DC (mm) =									
				3	4	5	6	8	10	12	16	20	
				a_e 0,6–1,0 x DC									
	v_c (m/min)		$a_{p\,max.}$ x DC	f_z (mm)									
P.3.2	190	160	0,05	0,018	0,020	0,022	0,024	0,025	0,030	0,035	0,038	0,040	●
P.3.3	190	160	0,05	0,018	0,020	0,022	0,024	0,025	0,030	0,035	0,038	0,040	●
H.1.1	160	140	0,05	0,013	0,013	0,016	0,018	0,020	0,023	0,025	0,029	0,032	●
H.1.2	**140**	**130**	0,05	0,011	0,011	0,014	0,016	0,018	0,020	0,022	0,025	0,027	●
H.1.3	**100**	**90**	0,05	0,010	0,010	0,012	0,014	0,016	0,018	0,020	0,023	0,025	●
H.1.4													
H.2.1	**190**	**160**	0,05	0,018	0,020	0,022	0,024	0,025	0,030	0,035	0,038	0,040	●
H.3.1	**140**	**130**	0,05	0,011	0,011	0,014	0,016	0,018	0,020	0,022	0,025	0,027	●

Index		52 135 ..., 52 136 ..., 52 325 ...									Compressed air
		Ø DC (mm) =									
		3	4	5	6	8	10	12	16	20	
		a_e 0,6–1,0 x DC									
	v_c (m/min) $a_{p\,max.}$ x DC	f_z (mm)									
P.3.2	140 0,05	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
P.3.3	140 0,05	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.1.1	125 0,05	0,008	0,009	0,011	0,014	0,016	0,02	0,023	0,026	0,028	●
H.1.2	**115** 0,05	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●
H.1.3	**80** 0,05	0,005	0,006	0,007	0,01	0,012	0,015	0,017	0,019	0,02	●
H.1.4											
H.2.1	**140** 0,05	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.3.1	**115** 0,05	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●

Index	52 344 ...																		Compressed air
	Ø DC (mm) =																		
	6,0			8,0			10,0			12,0			16,0			20,0			
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	
	f_z (mm)																		
P.3.2	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,040	0,027	0,06	0,045	0,030	0,076	0,058	0,045	0,095	0,077	0,060	●
P.3.3	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,040	0,027	0,06	0,045	0,030	0,076	0,058	0,045	0,095	0,077	0,060	●
H.1.1	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,040	0,027	0,06	0,045	0,030	0,076	0,058	0,045	0,095	0,077	0,060	●
H.1.2	0,029	0,021	0,014	0,038	0,029	0,019	0,043	0,032	0,022	0,048	0,036	0,024	0,061	0,046	0,036	0,076	0,062	0,048	●
H.1.3	0,024	0,018	0,012	0,032	0,024	0,016	0,036	0,027	0,018	0,040	0,030	0,020	0,051	0,039	0,030	0,063	0,052	0,040	●
H.1.4																			
H.2.1	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,040	0,027	0,060	0,045	0,030	0,076	0,058	0,045	0,095	0,077	0,060	●
H.3.1	0,029	0,021	0,014	0,038	0,029	0,019	0,043	0,032	0,022	0,048	0,036	0,024	0,061	0,046	0,036	0,076	0,062	0,048	●

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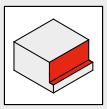
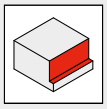
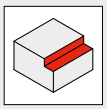
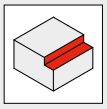
Cutting data standard values – BlueLine – End mill

Index	v_c (m/min)	$a_{p\,max.}$ x DC	52 348 ... Ø DC (mm) = 6		8		10		12		16		20		Compressed air
			a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	
			f_z (mm)												
P.3.2	120	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
P.3.3	120	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
H.1.1	100	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
H.1.2	90	2,0	0,021	0,017	0,024	0,019	0,027	0,022	0,030	0,025	0,035	0,030	0,041	0,036	●
H.1.3	60	2,0	0,014	0,011	0,016	0,013	0,018	0,015	0,021	0,018	0,025	0,022	0,030	0,027	●
H.1.4															
H.2.1	120	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
H.3.1	90	2,0	0,021	0,017	0,024	0,019	0,027	0,022	0,030	0,025	0,035	0,030	0,041	0,036	●

Index	 v_c (m/min)	$a_{p\,max.}$ x DC	52 353 ... Ø DC (mm) = 1	2	3	4	5	6	8	10	12	16	Compressed air
			a_e 0,05 x DC										
			f_z (mm)										
P.3.2	200	0,5	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135	●
P.3.3	200	0,5	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135	●
H.1.1	170	0,5	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135	●
H.1.2	150	0,5	0,006	0,012	0,024	0,036	0,048	0,060	0,072	0,084	0,096	0,108	●
H.1.3	110	0,5	0,005	0,010	0,020	0,030	0,040	0,050	0,060	0,070	0,080	0,090	●
H.1.4													
H.2.1	200	0,5	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135	●
H.3.1	150	0,5	0,006	0,012	0,024	0,036	0,048	0,060	0,072	0,084	0,096	0,108	●

Index	 v_c (m/min)	$a_{p\,max.}$ x DC	52 354 ... Ø DC (mm) = 1	2	3	4	5	6	8	10	12	16	Compressed air
			a_e 0,05 x DC										
			f_z (mm)										
P.3.2	200	0,5	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068	●
P.3.3	200	0,5	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068	●
H.1.1	170	0,5	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068	●
H.1.2	150	0,5	0,004	0,006	0,012	0,018	0,024	0,030	0,036	0,042	0,048	0,054	●
H.1.3	110	0,5	0,003	0,005	0,010	0,015	0,020	0,025	0,03	0,035	0,040	0,045	●
H.1.4													
H.2.1	200	0,5	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068	●
H.3.1	150	0,5	0,004	0,006	0,012	0,018	0,024	0,030	0,036	0,042	0,048	0,054	●

Index			52 353 ...										Compressed air
			Ø DC (mm) =										
			1	2	3	4	5	6	8	10	12	16	
			a_e 0,6–1,0 x DC										
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)										
P.3.2	200	0,05	0,008	0,015	0,030	0,045	0,06	0,075	0,090	0,105	0,120	0,135	●
P.3.3	200	0,05	0,008	0,015	0,030	0,045	0,06	0,075	0,090	0,105	0,120	0,135	●
H.1.1	170	0,05	0,008	0,015	0,030	0,045	0,06	0,075	0,090	0,105	0,120	0,135	●
H.1.2	150	0,05	0,006	0,012	0,024	0,036	0,048	0,060	0,072	0,084	0,096	0,108	●
H.1.3	110	0,05	0,005	0,010	0,020	0,030	0,040	0,050	0,060	0,070	0,080	0,090	●
H.1.4													
H.2.1	200	0,05	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135	●
H.3.1	150	0,05	0,006	0,012	0,024	0,036	0,048	0,060	0,072	0,084	0,096	0,108	●

Index			52 354 ...										Compressed air
			Ø DC (mm) =										
			1	2	3	4	5	6	8	10	12	16	
			a_e 0,6–1,0 x DC										
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)										
P.3.2	200	0,05	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068	●
P.3.3	200	0,05	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068	●
H.1.1	170	0,05	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068	●
H.1.2	150	0,05	0,004	0,006	0,012	0,018	0,024	0,030	0,036	0,042	0,048	0,054	●
H.1.3	110	0,05	0,003	0,005	0,010	0,015	0,020	0,025	0,030	0,035	0,040	0,045	●
H.1.4													
H.2.1	200	0,05	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068	●
H.3.1	150	0,05	0,004	0,006	0,012	0,018	0,024	0,030	0,036	0,042	0,048	0,054	●

Cutting data standard values – BlueLine – Ball-nosed end mill

Index			52 258 ..., 52 259 ...									
			Ø DC (mm) =									
			0,1–0,5	0,6–1,0	1,5–2,0	2,5	3,0	4,0	5,0	6,0	8,0	10,0
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.3.2	190	0,05	0,008	0,010	0,012	0,016	0,020	0,025	0,030	0,040	0,050	0,060
P.3.3	190	0,05	0,008	0,010	0,012	0,016	0,020	0,025	0,030	0,040	0,050	0,060
H.1.1	165	0,05	0,004	0,005	0,006	0,008	0,010	0,014	0,017	0,028	0,038	0,048
H.1.2	**145**	**0,05**	0,004	0,004	0,005	0,006	0,008	0,012	0,015	0,025	0,035	0,045
H.1.3	**105**	**0,05**	0,003	0,004	0,005	0,005	0,006	0,010	0,014	0,022	0,030	0,040
H.1.4												
H.2.1	**190**	**0,05**	0,008	0,010	0,012	0,016	0,020	0,025	0,030	0,040	0,050	0,060
H.3.1	**145**	**0,05**	0,004	0,004	0,005	0,006	0,008	0,012	0,015	0,025	0,035	0,045

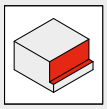
Index			52 256 ..., 52 257 ..., 52 302 ..., 52 303 ..., 52 404 ..., 52 405 ...									
			Ø DC (mm) =									
			0,1–0,5	0,6–1,0	1,1–1,5	1,6–2,0	2,5	3,0	4,0	5,0	6,0	7,0
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.3.2	200	0,05	0,010	0,012	0,015	0,019	0,025	0,030	0,033	0,036	0,040	0,040
P.3.3	200	0,05	0,010	0,012	0,015	0,019	0,025	0,030	0,033	0,036	0,040	0,040
H.1.1	170	0,05	0,005	0,006	0,006	0,008	0,011	0,015	0,020	0,024	0,027	0,035
H.1.2	**150**	0,05	0,005	0,006	0,006	0,008	0,010	0,013	0,018	0,022	0,025	0,032
H.1.3	**110**	0,05	0,004	0,005	0,005	0,007	0,009	0,013	0,016	0,021	0,025	0,030
H.1.4												
H.2.1	**200**	0,05	0,010	0,012	0,015	0,019	0,025	0,030	0,033	0,036	0,040	0,040
H.3.1	**150**	0,05	0,005	0,006	0,006	0,008	0,010	0,013	0,018	0,022	0,025	0,032

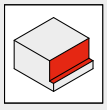
Index			52 355 ...											Compressed air
			Ø DC (mm) =											
			0,6–0,8	1,0	1,2–1,5	2,0	2,0	3,0	4,0	5,0	6,0	8,0	10,0	12,0	
			a_e 0,05 x DC												
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)												
P.3.2	**200**	0,05	0,006	0,008	0,010	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,120	●
P.3.3	**200**	0,05	0,006	0,008	0,010	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,120	●
H.1.1	**170**	0,05	0,006	0,008	0,010	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,105	●
H.1.2	**150**	0,05	0,004	0,006	0,008	0,012	0,024	0,036	0,048	0,060	0,072	0,084	0,096	0,100	●
H.1.3	**110**	0,05	0,004	0,005	0,007	0,010	0,020	0,030	0,040	0,050	0,060	0,070	0,080	0,090	●
H.1.4															
H.2.1	**200**	0,05	0,006	0,008	0,010	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,120	●
H.3.1	**150**	0,05	0,004	0,006	0,008	0,012	0,024	0,036	0,048	0,060	0,072	0,084	0,096	0,100	●

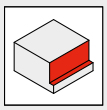
Index	52 258 ..., 52 259 ...			Compressed air
	Ø DC (mm) =			
	12,0	16,0	20,0	
	a_e 0,05 x DC			
	f_z (mm)			
P.3.2	0,070	0,090	0,10	●
P.3.3	0,070	0,090	0,10	●
H.1.1	0,058	0,078	0,09	●
H.1.2	0,055	0,075	0,08	●
H.1.3	0,050	0,070	0,07	●
H.1.4				
H.2.1	0,070	0,090	0,10	●
H.3.1	0,055	0,075	0,08	●

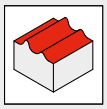
Index	52 258 ..., 52 259 ...							Compressed air
	Ø DC (mm) =							
	8,0	9,0	10,0	12,0	14,0	16,0	20,0	
	a_e 0,05 x DC							
	f_z (mm)							
P.3.2	0,050	0,06	0,07	0,08	0,09	0,100	0,120	●
P.3.3	0,050	0,06	0,07	0,08	0,09	0,100	0,120	●
H.1.1	0,042	0,048	0,058	0,068	0,078	0,088	0,105	●
H.1.2	0,039	0,045	0,055	0,065	0,075	0,085	0,100	●
H.1.3	0,035	0,040	0,050	0,060	0,070	0,080	0,090	●
H.1.4								
H.2.1	0,050	0,060	0,070	0,080	0,090	0,100	0,120	●
H.3.1	0,039	0,045	0,055	0,065	0,075	0,085	0,100	●

Cutting data standard values – BlueLine – Torus cutter

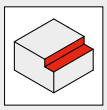
Index			52 304 ...									Compressed air
			Ø DC (mm) =									
			0,5–1,5	2,0–3,0	4,0	5,0	6,0	8,0	10,0	12,0	16,0	
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.3.2	190	1,0	0,012	0,028	0,055	0,055	0,065	0,075	0,090	0,100	0,120	●
P.3.3	190	1,0	0,012	0,028	0,055	0,055	0,065	0,075	0,090	0,100	0,120	●
H.1.1	160	1,0	0,007	0,023	0,040	0,040	0,055	0,070	0,082	0,090	0,110	●
H.1.2	140	1,0	0,006	0,020	0,038	0,038	0,052	0,065	0,080	0,085	0,105	●
H.1.3	100	1,0	0,005	0,018	0,035	0,035	0,050	0,060	0,075	0,080	0,100	●
H.1.4												
H.2.1	190	1,0	0,012	0,028	0,055	0,055	0,065	0,075	0,090	0,100	0,120	●
H.3.1	140	1,0	0,006	0,020	0,038	0,038	0,052	0,065	0,080	0,085	0,105	●

Index			52 305 ...						Compressed air
			Ø DC (mm) =						
			1,0–1,5	2,0	3,0	4,0	5,30	6,0	
			a_e 0,05 x DC						
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)						
P.3.2	190	1,0	0,010	0,025	0,025	0,050	0,050	0,060	●
P.3.3	190	1,0	0,010	0,025	0,025	0,050	0,050	0,060	●
H.1.1	160	1,0	0,005	0,020	0,020	0,035	0,035	0,050	●
H.1.2	140	1,0	0,004	0,017	0,017	0,033	0,033	0,053	●
H.1.3	100	1,0	0,003	0,015	0,015	0,030	0,030	0,005	●
H.1.4									
H.2.1	190	1,0	0,010	0,025	0,025	0,050	0,050	0,060	●
H.3.1	140	1,0	0,004	0,017	0,017	0,033	0,033	0,053	●

Index			52 361 ...									Compressed air
			Ø DC (mm) =									
			0,8–1,0	1,2–1,5	2,0	3,0	4,0	6,0	8,0	10,0	12,0	
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.3.2	200	0,5	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120	●
P.3.3	200	0,5	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120	●
H.1.1	170	0,5	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120	●
H.1.2	150	0,5	0,006	0,008	0,012	0,024	0,036	0,060	0,072	0,084	0,096	●
H.1.3	110	0,5	0,005	0,007	0,010	0,020	0,030	0,050	0,060	0,070	0,080	●
H.1.4												
H.2.1	200	0,5	0,008	0,010	0,015	0,03	0,045	0,075	0,090	0,105	0,120	●
H.3.1	150	0,5	0,006	0,008	0,012	0,024	0,036	0,060	0,072	0,084	0,096	●

Index			52 304 ...									Compressed air
			Ø DC (mm) =									
			0,5–1,5	2,0–3,0	4,0	5,0	6,0	8,0	10,0	12,0	16,0	
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.3.2	190	0,05	0,016	0,032	0,060	0,060	0,080	0,090	0,100	0,120	0,140	●
P.3.3	190	0,05	0,016	0,032	0,060	0,060	0,080	0,090	0,100	0,120	0,140	●
H.1.1	160	0,05	0,011	0,028	0,050	0,050	0,070	0,080	0,090	0,100	0,130	●
H.1.2	140	0,05	0,010	0,025	0,044	0,044	0,070	0,075	0,088	0,085	0,125	●
H.1.3	100	0,05	0,009	0,021	0,040	0,040	0,065	0,070	0,085	0,080	0,120	●
H.1.4												
H.2.1	190	0,05	0,016	0,032	0,060	0,060	0,080	0,090	0,100	0,120	0,140	●
H.3.1	140	0,05	0,010	0,025	0,044	0,044	0,070	0,075	0,088	0,085	0,125	●

Index			52 305 ...						Compressed air
			Ø DC (mm) =						
			1,0–1,5	2,0	3,0	4,0	5,30	6,0	
			a_e 0,05 x DC						
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)						
P.3.2	190	0,05	0,014	0,030	0,030	0,055	0,055	0,070	●
P.3.3	190	0,05	0,014	0,030	0,030	0,055	0,055	0,070	●
H.1.1	160	0,05	0,009	0,025	0,025	0,045	0,045	0,060	●
H.1.2	140	0,05	0,008	0,022	0,022	0,040	0,040	0,058	●
H.1.3	100	0,05	0,007	0,018	0,018	0,035	0,035	0,050	●
H.1.4									
H.2.1	190	0,05	0,014	0,030	0,030	0,055	0,055	0,070	●
H.3.1	140	0,05	0,008	0,022	0,022	0,040	0,040	0,058	●

Index			52 361 ...									Compressed air
			Ø DC (mm) =									
			0,8–1,0	1,2–1,5	2,0	3,0	4,0	6,0	8,0	10,0	12,0	
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.3.2	200	0,05	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120	●
P.3.3	200	0,05	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120	●
H.1.1	170	0,05	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120	●
H.1.2	150	0,05	0,006	0,008	0,012	0,024	0,036	0,060	0,072	0,084	0,096	●
H.1.3	110	0,05	0,005	0,007	0,010	0,020	0,030	0,050	0,060	0,070	0,080	●
H.1.4												
H.2.1	200	0,05	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120	●
H.3.1	150	0,05	0,006	0,008	0,012	0,024	0,036	0,060	0,072	0,084	0,096	●

Cutting data standard values – Micro cutter – 2.2xDC

Index	52 802 ..., 52 804 ..., 52 806 ...																	
	Ø DC (mm) = 0,2–0,4						Ø DC (mm) = 0,5–0,7						Ø DC (mm) = 0,8–0,9					
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC
	$a_{p\,max.}$	0,02	0,02	0,02	0,01	0,01	$a_{p\,max.}$	0,1	0,1	0,1	0,1	0,05	$a_{p\,max.}$	0,2	0,2	0,2	0,2	0,12
	$n_{min.}$	30.000					$n_{min.}$	12.000					$n_{min.}$	8.000				
	n	v_f (mm/min)					n	v_f (mm/min)					n	v_f (mm/min)				
P.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.1.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.1.3	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.1.4	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.1.5	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.2.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.2.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.2.3	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.2.4	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.3.1	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.3.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.3.3	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.4.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.4.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
M.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
M.2.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
M.3.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.1.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.2.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.2.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.3.1	50.000	141	123	106	88	71	50.000	175	152	131	109	88	32.000	285	248	213	176	142
K.3.2	50.000	141	123	106	88	71	50.000	175	152	131	109	88	32.000	285	248	213	176	142
N.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
N.1.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	44.000	485	422	364	301	242
N.3.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
N.3.3	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
N.4.1	50.000	212	185	159	132	106	50.000	250	218	188	155	125	50.000	531	462	398	329	266
S.1.1	50.000	46	40	35	29	23	30.000	55	48	41	34	27	19.000	69	60	51	43	34
S.1.2	50.000	46	40	35	29	23	30.000	55	48	41	34	27	19.000	69	60	51	43	34
S.2.1	50.000	72	62	54	44	36	50.000	89	77	66	55	44	25.000	91	79	68	56	45
S.2.2	50.000	46	40	35	29	23	30.000	55	48	41	34	27	19.000	69	60	51	43	34
S.2.3	50.000	54	47	41	34	27	30000	66	57	49	41	33	12.000	78	68	59	49	39
S.3.1	50.000	114	99	85	71	57	50.000	164	143	123	102	82	44.000	114	99	85	71	57
S.3.2	50.000	114	99	85	71	57	50.000	164	143	123	102	82	44.000	164	143	123	102	82
S.3.3	50.000	70	61	53	43	35	50.000	85	74	64	53	42	38.000	101	88	76	63	51
H.1.1	50.000	219	191	164	136	110	50.000	232	202	174	144	116	50.000	388	338	291	241	194
H.1.2	50.000	201	175	151	125	101	50.000	285	248	213	176	142	38.000	336	292	252	208	168
H.1.3	50.000	114	99	85	71	57	50.000	134	117	101	83	67	25.000	156	136	117	97	78
H.1.4	50.000	107	93	80	67	54	50.000	126	110	95	78	63	25.000	141	123	106	88	71
H.2.1	50.000	219	191	164	136	110	50.000	232	202	174	144	116	50.000	388	338	291	241	194
H.3.1	50.000	201	175	151	125	101	50.000	285	248	213	176	142	38.000	336	292	252	208	168
O.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
O.1.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
O.2.1	50.000	212	185	159	132	106	50.000	200	174	150	124	100	38.000	316	275	237	196	158
O.2.2	50.000	212	185	159	132	106	50.000	200	174	150	124	100	38.000	316	275	237	196	158
O.3.1																		

Index	52 802 ..., 52 804 ..., 52 806 ...												● 1st choice ○ suitable		
	Ø DC (mm) = 1,0–1,4						Ø DC (mm) = 1,5–1,7						Emulsion	Compressed air	MMS
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6 –1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC			
	$a_{p\ max.}$	0,3	0,3	0,3	0,3	0,2	$a_{p\ max.}$	0,45	0,45	0,45	0,45	0,3			
	$n_{min.}$	6.500					$n_{min.}$	6.500							
	n	v_f (mm/min)					n	v_f (mm/min)							
P.1.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	●	○	○
P.1.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	●	○	○
P.1.3	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	●	○	○
P.1.4	50.000	671	584	503	416	335	33.000	1039	904	779	644	520	●	○	○
P.1.5	50.000	671	584	503	416	335	33.000	1039	904	779	644	520	●	○	○
P.2.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
P.2.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
P.2.3	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
P.2.4	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
P.3.1	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
P.3.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
P.3.3	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
P.4.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
P.4.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
M.1.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	●		○
M.2.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	●		○
M.3.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	●		○
K.1.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	○	●	
K.1.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	○	●	
K.2.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	○	●	
K.2.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	○	●	
K.3.1	50.000	389	338	292	241	194	21.000	548	477	411	340	274		●	
K.3.2	25000	389	338	292	241	194	21.000	548	477	411	340	274		●	
N.1.1	50.000	930	809	697	576	465	50.000	1500	1305	1125	930	750	●		○
N.1.2	50.000	930	809	697	576	465	50.000	1500	1305	1125	930	750	●		○
N.2.1															
N.2.2															
N.2.3															
N.3.1	44.000	775	674	581	480	387	29.000	1160	1009	870	719	580	●		○
N.3.2	50.000	930	809	697	576	465	38.000	1400	1218	1050	868	700	●		○
N.3.3	50.000	930	809	697	576	465	38.000	1400	1218	1050	868	700	●		○
N.4.1	50.000	849	738	636	526	424	38.000	1388	1207	1041	860	694	●		○
S.1.1	15.000	99	86	74	61	49	12.000	170	148	127	105	85	●		○
S.1.2	15.000	99	86	74	61	49	12.000	170	148	127	105	85	●		○
S.2.1	25.000	152	132	114	94	76	16.000	294	256	220	182	147	●		○
S.2.2	15.000	99	86	74	61	49	12.000	170	148	127	105	85	●		○
S.2.3	12.000	131	114	99	82	66	8.000	255	221	191	158	127	●		○
S.3.1	44.000	170	148	127	105	85	29.000	329	286	246	204	164	●		○
S.3.2	44.000	247	215	186	153	124	29.000	365	318	274	226	183	●		○
S.3.3	38.000	170	148	127	105	85	25.000	329	286	246	204	164	●		○
H.1.1	50.000	620	539	465	384	310	33.000	850	740	638	527	425		●	
H.1.2	38.000	537	467	402	333	268	25.000	779	678	585	483	390		●	
H.1.3	25.000	235	204	176	146	117	16.000	346	301	260	215	173		●	
H.1.4	25.000	221	193	166	137	111	16.000	327	284	245	202	163		●	
H.2.1	50.000	620	539	465	384	310	33.000	850	740	638	527	425		●	
H.3.1	38.000	537	467	402	333	268	25.000	779	678	585	483	390		●	
O.1.1	50.000	930	809	697	576	465	38.000	1520	1322	1140	942	760	●	○	○
O.1.2	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	●	○	○
O.2.1	38.000	495	431	371	307	247	25.000	685	596	513	424	342	●	○	○
O.2.2	38.000	495	431	371	307	247	25.000	685	596	513	424	342	●	○	○
O.3.1															

Cutting data standard values – Micro cutter – 2.2xDC

Index	52 802 ..., 52 804 ..., 52 806 ...												● 1st choice ○ suitable		
	Ø DC (mm) = 1,8–1,9						Ø DC (mm) = 2,0						Emulsion	Compressed air	MMS
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC			
	$a_{p\,max.}$	0,54	0,54	0,54	0,54	0,36	$a_{p\,max.}$	0,6	0,6	0,6	0,6	0,4			
	$n_{min.}$	5.500					$n_{min.}$	5.000							
	n	v_f (mm/min)					n	v_f (mm/min)							
P.1.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	●	○	○
P.1.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	●	○	○
P.1.3	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	●	○	○
P.1.4	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	●	○	○
P.1.5	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	●	○	○
P.2.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
P.2.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
P.2.3	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
P.2.4	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
P.3.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
P.3.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
P.3.3	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
P.4.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
P.4.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
M.1.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	●		○
M.2.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	●		○
M.3.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	●		○
K.1.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	○	●	
K.1.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	○	●	
K.2.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	○	●	
K.2.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	○	●	
K.3.1	18.000	630	548	473	391	315	12.000	750	650	550	450	350		●	
K.3.2	18.000	630	548	473	391	315	12.000	750	650	550	450	350		●	
N.1.1	44.000	1800	1566	1350	1116	900	25.000	1500	1300	1125	930	750	●		○
N.1.2	44.000	1800	1566	1350	1116	900	25.000	1500	1300	1125	930	750	●		○
N.2.1															
N.2.2															
N.2.3															
N.3.1	25.000	1250	1088	938	775	625	19.000	1140	990	855	700	570	●		○
N.3.2	32.000	1520	1322	1140	942	760	25.000	1500	1300	1125	930	750	●		○
N.3.3	32.000	1520	1322	1140	942	760	25.000	1500	1300	1125	930	750	●		○
N.4.1	33.000	1560	1357	1170	967	780	25.000	1500	1300	1125	930	750	●		○
S.1.1	10.000	280	244	210	174	140	7.500	300	260	230	200	160	●		○
S.1.2	10.000	280	244	210	174	140	7.500	300	260	230	200	160	●		○
S.2.1	14.000	420	365	315	260	210	12.500	500	400	350	300	250	●		○
S.2.2	10.000	280	244	210	174	140	7.500	300	260	230	200	160	●		○
S.2.3	7.000	370	322	278	229	185	6.000	300	260	230	200	160	●		○
S.3.1	25.000	400	348	300	248	200	25.000	1500	1300	1125	930	750	●		○
S.3.2	25.000	480	418	360	298	240	25.000	1500	1300	1125	930	750	●		○
S.3.3	22.000	380	331	285	236	190	25.000	1500	1300	1125	930	750	●		○
H.1.1	29.000	1200	1044	900	744	600	25.000	1500	1300	1125	930	750		●	
H.1.2	22.000	1000	870	750	620	500	19.000	1140	990	855	700	570		●	
H.1.3	14.000	420	365	315	260	210	19.000	1140	990	855	700	570		●	
H.1.4	14.000	420	365	315	260	210	19.000	1140	990	855	700	570		●	
H.2.1	29.000	1200	1044	900	744	600	25.000	1500	1300	1125	930	750		●	
H.3.1	22.000	1000	870	750	620	500	19.000	1140	990	855	700	570		●	
O.1.1	33.000	1560	1357	1170	967	780	19.000	1140	990	855	700	570	●	○	○
O.1.2	28.000	1400	1218	1050	868	700	19.000	1140	990	855	700	570	●	○	○
O.2.1	22.000	800	696	600	496	400	12.000	720	630	540	450	360	●	○	○
O.2.2	22.000	800	696	600	496	400	12.000	720	630	540	450	360	●	○	○
O.3.1															

Cutting data standard values – Micro cutter – 5xDC

Index	52 802 ..., 52 804 ..., 52 806 ...																● 1st choice ○ suitable		
	Ø DC (mm) = 0,2–0,4 mm					Ø DC (mm) = 0,5–0,7 mm					Ø DC (mm) = 0,8–0,9 mm								
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	Emulsion	Compressed air	MMS
	$a_{p\,max.}$	0,012				$a_{p\,max.}$	0,06				$a_{p\,max.}$	0,12				0,064			
	$n_{min.}$	30.000				$n_{min.}$	12.000				$n_{min.}$	8.000							
	n	v_f (mm/min)				n	v_f (mm/min)				n	v_f (mm/min)							
P.1.1	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242	●	○	○
P.1.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242	●	○	○
P.1.3	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242	●	○	○
P.1.4	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165	●	○	○
P.1.5	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165	●	○	○
P.2.1	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.2.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.2.3	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.2.4	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.3.1	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.3.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.3.3	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.4.1	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.4.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
M.1.1	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173	●		○
M.2.1	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173	●		○
M.3.1	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173	●		○
K.1.1	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.1.2	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.2.1	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.2.2	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.3.1	50.000	141	123	106	88	50.000	175	152	131	109	25.000	240	209	180	149	120		●	
K.3.2	50.000	141	123	106	88	50.000	175	152	131	109	25.000	240	209	180	149	120		●	
N.1.1	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.1.2	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1	50.000	232	202	174	144	50.000	274	238	205	170	38.000	485	422	364	301	242	●		○
N.3.2	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.3.3	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.4.1	50.000	212	185	159	132	50.000	250	218	188	155	50.000	506	440	379	314	253	●		○
S.1.1	50.000	55	48	41	32	31.000	58	51	44	36	15.000	98	85	73	61	49	●		○
S.1.2	50.000	55	48	41	32	31.000	58	51	44	36	15.000	98	85	73	61	49	●		○
S.2.1	50.000	63	54	47	39	44.000	76	66	57	47	22.000	91	79	68	56	45	●		○
S.2.2	50.000	55	47	40	32	31.000	58	51	44	36	15.000	98	85	73	61	49	●		○
S.2.3	50.000	46	40	35	29	25.000	55	48	41	34	12.000	78	68	59	49	39	●		○
S.3.1	50.000	60	61	48	41	50.000	71	62	53	44	38.000	114	99	85	71	57	●		○
S.3.2	50.000	60	61	48	41	50.000	71	62	53	44	38.000	126	110	95	78	63	●		○
S.3.3	50.000	60	52	45	37	50.000	71	62	49	39	31.000	89	77	66	55	44	●		○
H.1.1	50.000	95	83	71	59	50.000	134	117	101	83	31.000	180	157	135	112	90		●	
H.1.2	50.000	95	83	71	59	44.000	134	117	101	83	22.000	180	157	135	112	90		●	
H.1.3	50.000	89	78	67	55	44.000	126	110	95	78	22.000	170	148	127	105	85		●	
H.1.4																			
H.2.1	50.000	155	135	116	96	50.000	164	143	123	102	44.000	346	301	260	215	173		●	
H.3.1	50.000	95	83	71	59	50.000	134	117	101	83	31.000	180	157	135	112	90		●	
O.1.1	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●	○	○
O.1.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	554	482	416	344	277	●	○	○
O.2.1	50.000	141	123	106	88	50.000	200	174	150	124	31.000	316	275	237	196	158	●	○	○
O.2.2	50.000	141	123	106	88	50.000	200	174	150	124	31.000	316	275	237	196	158	●	○	○
O.3.1																			

a_e= 0.6–1.0 x DC: If values are missing, only trochoidal slot milling and profiling are permitted. Otherwise, there is the risk of tool breakage.

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Cutting data standard values – Micro cutter – 5xDC

Index	52 802 ..., 52 804 ..., 52 806 ...																	
	Ø DC (mm) = 1,0–1,4						Ø DC (mm) = 1,5–1,7						Ø DC (mm) = 1,8–1,9					
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC
	$a_{p\,max.}$	0,3				0,2	$a_{p\,max.}$	0,3				0,2	$a_{p\,max.}$	0,54				0,36
	$n_{min.}$	6.500					$n_{min.}$	6.500					$n_{min.}$	5.500				
	n	v_f (mm/min)					n	v_f (mm/min)					n	v_f (mm/min)				
P.1.1	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.1.2	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.1.3	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.1.4	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.1.5	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.2.1	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.2.2	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.2.3	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.2.4	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.3.1	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.3.2	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.3.3	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.4.1	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.4.2	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
M.1.1	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
M.2.1	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
M.3.1	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
K.1.1	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
K.1.2	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
K.2.1	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
K.2.2	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
K.3.1	25.000	297	258	223	184	148	16.000	411	357	308	255	205	14.000	480	418	360	298	240
K.3.2	25.000	297	258	223	184	148	16.000	411	357	308	255	205	14.000	480	418	360	298	240
N.1.1	50.000	775	674	581	480	387	42.000	1200	1044	900	744	600	36.000	1500	1305	1125	930	750
N.1.2	50.000	775	674	581	480	387	42.000	1200	1044	900	744	600	36.000	1500	1305	1125	930	750
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	38.000	697	607	523	432	349	25.000	1000	870	750	620	500	22.000	1100	957	825	682	550
N.3.2	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	28.000	1400	1218	1050	868	700
N.3.3	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	28.000	1400	1218	1050	868	700
N.4.1	50.000	849	738	636	526	424	33.000	1205	1048	904	747	602	28.000	1400	1218	1050	868	700
S.1.1	15.000	120	105	90	75	60	10.000	184	160	138	114	92	8.000	280	244	210	174	140
S.1.2	15.000	120	105	90	75	60	10.000	184	160	138	114	92	8.000	280	244	210	174	140
S.2.1	22.000	114	99	85	71	57	14.000	196	170	147	121	98	12.000	300	261	225	186	150
S.2.2	15.000	120	105	90	75	60	10.000	184	160	138	114	92	8.000	280	244	210	174	140
S.2.3	12.000	131	114	99	82	66	8.000	170	148	127	105	85	7.000	240	209	180	149	120
S.3.1	38.000	156	135	117	96	78	25.000	274	238	205	170	137	22.000	380	331	285	236	190
S.3.2	38.000	212	185	159	132	106	25.000	365	318	274	226	183	22.000	450	392	338	279	225
S.3.3	31.000	127	111	95	79	64	21.000	201	175	151	125	100	18.000	300	261	225	186	150
H.1.1	31.000	201	175	151	125	101	21.000	346	301	260	215	173	16.000	500	435	375	310	250
H.1.2	22.000	235	204	176	146	117	14.000	346	301	260	215	173	12.000	450	392	338	279	225
H.1.3	22.000	221	193	166	137	111	14.000	327	284	245	202	163	12.000	450	392	338	279	225
H.1.4																		
H.2.1	44.000	426	371	320	264	213	29.000	600	522	450	372	300	25.000	800	696	600	496	400
H.3.1	31.000	201	175	151	125	101	21.000	346	301	260	215	173	16.000	500	435	375	310	250
O.1.1	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	28.000	1400	1218	1050	868	700
O.1.2	44.000	813	708	610	504	407	29.000	1160	1009	870	719	580	25.000	1200	1044	900	744	600
O.2.1	31.000	438	381	329	272	219	21.000	575	500	431	357	288	18.000	650	566	488	403	325
O.2.2	31.000	438	381	329	272	219	21.000	575	500	431	357	288	18.000	650	566	488	403	325
O.3.1																		

Index	52 802 ..., 52 804 ..., 52 806 ...						● 1st choice ○ suitable		
	Ø DC (mm) = 2,0								
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC			
	$a_{p\,max.}$	0,6				0,4			
	$n_{min.}$	5.000							
	n	v_f (mm/min)					Emulsion	Compressed air	MMS
P.1.1	22.000	1320	1148	990	818	660	●	○	○
P.1.2	22.000	1320	1148	990	818	660	●	○	○
P.1.3	22.000	1320	1148	990	818	660	●	○	○
P.1.4	15.000	900	783	675	558	450	●	○	○
P.1.5	15.000	900	783	675	558	450	●	○	○
P.2.1	22.000	1320	1148	990	818	660		●	○
P.2.2	22.000	1320	1148	990	818	660		●	○
P.2.3	15.000	900	783	675	558	450		●	○
P.2.4	15.000	900	783	675	558	450		●	○
P.3.1	15.000	900	783	675	558	450		●	○
P.3.2	22.000	1320	1148	990	818	660		●	○
P.3.3	15.000	900	783	675	558	450		●	○
P.4.1	22.000	1320	1148	990	818	660		●	○
P.4.2	22.000	1320	1148	990	818	660		●	○
M.1.1	15.000	900	783	675	558	450	●		○
M.2.1	15.000	900	783	675	558	450	●		○
M.3.1	15.000	900	783	675	558	450	●		○
K.1.1	25.000	1500	1305	1125	930	750	○	●	
K.1.2	25.000	1500	1305	1125	930	750	○	●	
K.2.1	25.000	1500	1305	1125	930	750	○	●	
K.2.2	25.000	1500	1305	1125	930	750	○	●	
K.3.1	12.000	520	452	390	322	260		●	
K.3.2	12.000	520	452	390	322	260		●	
N.1.1	31.000	1860	1618	1395	1153	930	●		○
N.1.2	31.000	1860	1618	1395	1153	930	●		○
N.2.1									
N.2.2									
N.2.3									
N.3.1	19.000	1140	992	855	707	570	●		○
N.3.2	25.000	1500	1305	1125	930	750	●		○
N.3.3	25.000	1500	1305	1125	930	750	●		○
N.4.1	25.000	1500	1305	1125	930	750	●		○
S.1.1	7.000	300	261	225	186	150	●		○
S.1.2	7.000	300	261	225	186	150	●		○
S.2.1	11.000	400	348	300	248	200	●		○
S.2.2	7.000	300	261	225	186	150	●		○
S.2.3	6.000	260	226	195	161	130	●		○
S.3.1	19.000	420	365	315	260	210	●		○
S.3.2	19.000	500	435	375	310	250	●		○
S.3.3	15.000	400	348	300	248	200	●		○
H.1.1	15.000	500	435	375	310	250		●	
H.1.2	11.000	480	418	360	298	240		●	
H.1.3	11.000	480	418	360	298	240		●	
H.1.4									
H.2.1	22.000	1000	870	750	620	500		●	
H.3.1	15.000	500	435	375	310	250		●	
O.1.1	25.000	1500	1305	1125	930	750	●	○	○
O.1.2	22.000	1320	1148	990	818	660	●	○	○
O.2.1	15.000	660	574	495	409	330	●	○	○
O.2.2	15.000	660	574	495	409	330	●	○	○
O.3.1									

Cutting data standard values – Micro cutter – 10xDC

Index	52 802 ..., 52 804 ..., 52 806 ...																	
		Ø DC (mm) = 0,2–0,4				Ø DC (mm) = 0,5–0,7					Ø DC (mm) = 0,8–0,9				Ø DC (mm) = 1,0–1,4			
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC
	$a_{p\,max.}$	0,006	0,006	0,006	0,006	0,015	0,015	0,015	0,015	$a_{p\,max.}$	0,024	0,024	0,024	0,024	0,03	0,03	0,03	0,03
	$n_{min.}$	30.000				12.000				$n_{min.}$	8.000				6.500			
	n	v_f (mm/min)								n	v_f (mm/min)							
P.1.1	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.1.2	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.1.3	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.1.4	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
P.1.5	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
P.2.1	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.2.2	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.2.3	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
P.2.4	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
P.3.1	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
P.3.2	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.3.3	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
P.4.1	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.4.2	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
M.1.1	50.000	155	135	116	96	219	191	164	136	25.000	312	271	234	193	387	337	290	240
M.2.1	50.000	155	135	116	96	219	191	164	136	25.000	312	271	234	193	387	337	290	240
M.3.1	50.000	155	135	116	96	219	191	164	136	25.000	312	271	234	193	387	337	290	240
K.1.1	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
K.1.2	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
K.2.1	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
K.2.2	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
K.3.1	50.000	141	123	106	88	150	131	113	93	19.000	215	187	161	133	269	234	202	167
K.3.2	50.000	141	123	106	88	150	131	113	93	19.000	215	187	161	133	269	234	202	167
N.1.1	50.000	232	202	174	144	438	381	329	272	50.000	693	603	520	430	930	809	697	576
N.1.2	50.000	232	202	174	144	438	381	329	272	50.000	693	603	520	430	930	809	697	576
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	50.000	232	202	174	144	274	238	205	170	31.000	402	350	301	249	480	418	360	298
N.3.2	50.000	232	202	174	144	274	238	205	170	44.000	416	362	312	258	542	472	407	336
N.3.3	50.000	232	202	174	144	274	238	205	170	44.000	416	362	312	258	542	472	407	336
N.4.1	50.000	212	185	159	132	300	261	225	186	44.000	506	440	379	314	742	646	557	460
S.1.1	50.000	46	40	35	29	55	48	41	34	12.000	69	60	51	43	88	76	66	54
S.1.2	50.000	46	40	35	29	55	48	41	34	12.000	69	60	51	43	88	76	66	54
S.2.1	50.000	54	47	40	33	63	55	47	39	19.000	102	89	76	63	126	110	95	78
S.2.2	50.000	46	40	35	29	55	48	41	34	12.000	69	60	51	43	88	76	66	54
S.2.3	50.000	46	40	35	29	55	48	41	34	12.000	59	51	44	36	82	71	62	51
S.3.1	50.000	60	52	45	37	71	62	53	44	31.000	101	88	76	63	141	123	106	88
S.3.2	50.000	60	52	45	37	71	62	53	44	31.000	101	88	76	63	177	154	133	110
S.3.3	50.000	60	52	45	37	71	62	53	44	25.000	89	77	66	55	141	123	106	88
H.1.1	50.000	47	41	36	29	67	58	50	42	25.000	90	78	68	56	101	88	75	62
H.1.2	50.000	47	41	36	29	67	58	50	42	19.000	90	78	68	56	101	88	75	62
H.1.3	50.000	45	39	34	28	63	55	47	39	19.000	85	74	64	53	95	83	71	59
H.1.4																		
H.2.1	50.000	77	67	58	48	82	71	62	51	38.000	173	151	130	107	194	168	145	120
H.3.1	50.000	47	41	36	29	67	58	50	42	25.000	90	78	68	56	101	88	75	62
O.1.1	50.000	232	202	174	144	329	286	246	204	44.000	554	482	416	344	813	708	610	504
O.1.2	50.000	232	202	174	144	329	286	246	204	38.000	554	482	416	344	705	613	529	437
O.2.1	50.000	141	123	106	88	200	174	150	124	25.000	285	248	213	176	339	295	255	210
O.2.2	50.000	141	123	106	88	200	174	150	124	25.000	285	248	213	176	339	295	255	210
O.3.1																		

a_e= 0,6–1,0 x DC: Missing values only trochodial slotting and milling is recommended. Otherwise there is the risk of tool breakage.

Index	52 802 ..., 52 804 ..., 52 806 ...															● 1st choice ○ suitable		
	Ø DC (mm) = 1,5–1,7					Ø DC (mm) = 1,8–1,9					Ø DC (mm) = 2,0							
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC			
	$a_{p\,max.}$	0,06	0,06	0,06	0,06	$a_{p\,max.}$	0,072	0,072	0,072	0,072	$a_{p\,max.}$	0,08	0,08	0,08	0,08			
	$n_{min.}$	6.500				$n_{min.}$	5.500				$n_{min.}$	5.000						
	n	v_f (mm/min)				n	v_f (mm/min)				n	v_f (mm/min)				Emulsion	Compressed air	MMS
P.1.1	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707	●	○	○
P.1.2	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707	●	○	○
P.1.3	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707	●	○	○
P.1.4	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446	●	○	○
P.1.5	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446	●	○	○
P.2.1	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
P.2.2	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
P.2.3	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
P.2.4	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
P.3.1	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
P.3.2	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
P.3.3	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
P.4.1	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
P.4.2	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
M.1.1	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446	●		○
M.2.1	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446	●		○
M.3.1	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446	●		○
K.1.1	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818	○	●	
K.1.2	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818	○	●	
K.2.1	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818	○	●	
K.2.2	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818	○	●	
K.3.1	12.000	329	286	246	204	10.000	380	331	285	236	9.000	390	339	293	242		●	
K.3.2	12.000	329	286	246	204	10.000	380	331	285	236	9.000	390	339	293	242		●	
N.1.1	38.000	1520	1322	1140	942	33.000	1600	1392	1200	992	28.000	1680	1462	1260	1042	●		○
N.1.2	38.000	1520	1322	1140	942	33.000	1600	1392	1200	992	28.000	1680	1462	1260	1042	●		○
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	21.000	800	696	600	496	18.000	850	740	638	527	15.000	900	783	675	558	●		○
N.3.2	29.000	900	783	675	558	25.000	1000	870	750	620	22.000	1140	992	855	707	●		○
N.3.3	29.000	900	783	675	558	25.000	1000	870	750	620	22.000	1140	992	855	707	●		○
N.4.1	29.000	1059	921	794	657	25.000	1200	1044	900	744	22.000	1320	1148	990	818	●		○
S.1.1	8.000	127	111	95	79	7.000	220	191	165	136	6.000	250	218	188	155	●		○
S.1.2	8.000	127	111	95	79	7.000	220	191	165	136	6.000	250	218	188	155	●		○
S.2.1	12.000	204	178	153	127	10.000	300	261	225	186	9.000	350	305	263	217	●		○
S.2.2	8.000	127	111	95	79	7.000	220	191	165	136	6.000	250	218	188	155	●		○
S.2.3	8.000	106	92	80	66	7.000	200	174	150	124	6.000	220	191	165	136	●		○
S.3.1	21.000	228	199	171	141	18.000	300	261	225	186	15.000	380	331	285	236	●		○
S.3.2	21.000	274	238	205	170	18.000	400	348	300	248	15.000	450	392	338	279	●		○
S.3.3	16.000	237	206	178	147	14.000	300	261	225	186	12.000	380	331	285	236	●		○
H.1.1	16.000	173	151	130	107	14.000	200	174	150	124	12.000	240	209	180	149		●	
H.1.2	12.000	173	151	130	107	10.000	200	174	150	124	9.000	240	209	180	149		●	
H.1.3	12.000	163	142	122	101	10.000	200	174	150	124	9.000	240	209	180	149		●	
H.1.4																		
H.2.1	25.000	300	261	225	186	21.000	400	348	300	248	19.000	500	435	375	310		●	
H.3.1	16.000	173	151	130	107	14.000	200	174	150	124	12.000	240	209	180	149		●	
O.1.1	29.000	1160	1009	870	719	25.000	1200	1044	900	744	22.000	1320	1148	990	818	●	○	○
O.1.2	25.000	1000	870	750	620	18.000	1000	870	750	620	19.000	1140	992	855	707	●	○	○
O.2.1	16.000	438	381	329	272	14.000	500	435	375	310	12.000	520	452	390	322	●	○	○
O.2.2	16.000	438	381	329	272	14.000	500	435	375	310	12.000	520	452	390	322	●	○	○
O.3.1																		

Cutting data standard values – MultiLock – Radius milling cutter

Index	53 803 ..., 53 804 ...						● 1st choice ○ suitable		
	CTC5240	CTPX225	Ø DC (mm) = 12	16	20	25	Emulsion	Compressed air	MMS
	v_c (m/min)		a_e / a_p= 0,05 x DC f_z (mm)						
P.1.1		180	0,12	0,15	0,18	0,20	●	○	○
P.1.2		160	0,13	0,16	0,19	0,21	●	○	○
P.1.3		160	0,13	0,16	0,19	0,21	●	○	○
P.1.4		140	0,10	0,13	0,16	0,18	●	○	○
P.1.5		140	0,10	0,13	0,16	0,18	●	○	○
P.2.1		150	0,10	0,13	0,16	0,18	●	○	○
P.2.2		150	0,10	0,13	0,16	0,18	●	○	○
P.2.3		90	0,09	0,10	0,13	0,14	●	○	○
P.2.4		90	0,09	0,10	0,13	0,14	●	○	○
P.3.1		80	0,07	0,09	0,11	0,12	●	○	○
P.3.2		80	0,07	0,09	0,11	0,12	●	○	○
P.3.3		80	0,07	0,09	0,11	0,12	●	○	○
P.4.1		60	0,09	0,10	0,13	0,14	●		○
P.4.2		50	0,09	0,10	0,13	0,14	●		○
M.1.1		50	0,07	0,09	0,11	0,12	●		○
M.2.1		40	0,06	0,08	0,10	0,11	●		○
M.3.1		50	0,07	0,09	0,11	0,12	●		○
K.1.1		150	0,13	0,17	0,21	0,23	●	○	○
K.1.2		120	0,12	0,15	0,18	0,20	●	○	○
K.2.1		140	0,13	0,16	0,19	0,21	●	○	○
K.2.2		120	0,10	0,13	0,16	0,18	●	○	○
K.3.1		120	0,13	0,16	0,19	0,21	●	○	○
K.3.2		100	0,12	0,15	0,18	0,20	●	○	○
N.1.1		500	0,20	0,25	0,30	0,33	●		○
N.1.2		450	0,20	0,25	0,30	0,33	●		○
N.2.1									
N.2.2		380	0,19	0,24	0,28	0,31	●		○
N.2.3		150	0,16	0,20	0,24	0,26	●		○
N.3.1		220	0,13	0,17	0,21	0,23	●		○
N.3.2		190	0,13	0,17	0,21	0,23	●		○
N.3.3		250	0,13	0,16	0,19	0,21	●		○
N.4.1									
S.1.1	60		0,08	0,11	0,16	0,17	●		
S.1.2									
S.2.1	60		0,08	0,11	0,16	0,17	●		
S.2.2	60		0,08	0,11	0,16	0,17	●		
S.2.3									
S.3.1	140		0,11	0,16	0,21	0,22	●		
S.3.2	100		0,08	0,11	0,16	0,17	●		
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data standard values – MultiLock – Torus cutter

Index	CTC5240	CTPX225	53 805 ..., 53 806 ...								● 1st choice ○ suitable		
			Ø DC (mm) =										
			12		16		20		25				
			a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC	a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC	a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC	a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC			
			$a_{p\,max.}$ (mm) =										
			3,0		4,5		6,0		8,0				
	v_c (m/min)		f_z (mm)								Emulsion	Compressed air	MMS
P.1.1		180	0,08	0,05	0,11	0,07	0,14	0,08	0,15	0,08	●	○	○
P.1.2		160	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
P.1.3		160	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
P.1.4		140	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.1.5		140	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.2.1		150	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.2.2		150	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.2.3		90	0,06	0,03	0,08	0,05	0,10	0,06	0,11	0,06	●	○	○
P.2.4		90	0,06	0,03	0,08	0,05	0,10	0,06	0,11	0,06	●	○	○
P.3.1		80	0,05	0,03	0,07	0,04	0,09	0,06	0,10	0,06	●	○	○
P.3.2		80	0,05	0,03	0,07	0,04	0,09	0,06	0,10	0,06	●	○	○
P.3.3		80	0,05	0,03	0,07	0,04	0,09	0,06	0,10	0,06	●	○	○
P.4.1		60	0,06	0,05	0,08	0,07	0,10	0,09	0,11	0,09	●		○
P.4.2		50	0,06	0,05	0,08	0,07	0,10	0,09	0,11	0,09	●		○
M.1.1		50	0,05	0,04	0,07	0,06	0,09	0,08	0,10	0,08	●		○
M.2.1		40	0,04	0,03	0,06	0,05	0,08	0,07	0,09	0,07	●		○
M.3.1		50	0,05	0,04	0,07	0,06	0,09	0,08	0,10	0,08	●		○
K.1.1		150	0,09	0,06	0,13	0,08	0,16	0,10	0,18	0,10	●	○	○
K.1.2		120	0,08	0,05	0,11	0,07	0,14	0,08	0,15	0,08	●	○	○
K.2.1		140	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
K.2.2		120	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
K.3.1		120	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
K.3.2		100	0,08	0,05	0,11	0,07	0,14	0,08	0,15	0,08	●	○	○
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1													
N.3.2		220	0,09	0,06	0,13	0,08	0,16	0,10	0,18	0,10	●		○
N.3.3													
N.4.1													
S.1.1	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.1.2	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.2.1	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.2.2	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.2.3	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.3.1	140		0,10	0,05	0,15	0,08	0,2	0,11	0,22	0,13	●		
S.3.2	100		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

Plunging angle for ramping milling = 1.9°
Plunging angle for helical milling = 1.5°
Bore diameter with helical milling = D_{min} 1.7xDC / D_{max} 1.95xDC
With ramping and helical milling, multiply the f_z by 0.5

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Cutting data standard values – MultiLock – HFC milling cutter

Index	CTC5240	CTPX225	53 801 ..., 53 802 ...												● 1st choice ○ suitable		
			Ø DC (mm) =														
			12			16			20			25					
			a_e x DC =														
			0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0			
			$a_{p\,max.}$ (mm) =														
			0,5			0,8			0,8			0,8					
	v_c (m/min)		f_z (mm)												Emulsion	Compressed air	MMS
P.1.1		200	0,45	0,36	0,26	0,63	0,47	0,30	0,81	0,60	0,38	0,89	0,63	0,38	●	○	○
P.1.2		180	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
P.1.3		180	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
P.1.4		150	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.1.5		150	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.2.1		170	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.2.2		170	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.2.3		100	0,33	0,26	0,20	0,46	0,34	0,22	0,59	0,44	0,28	0,65	0,47	0,28	●	○	○
P.2.4		100	0,33	0,26	0,20	0,46	0,34	0,22	0,59	0,44	0,28	0,65	0,47	0,28	●	○	○
P.3.1		90	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,25	0,57	0,41	0,25	●	○	○
P.3.2		90	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,25	0,57	0,41	0,25	●	○	○
P.3.3		90	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,25	0,57	0,41	0,25	●	○	○
P.4.1		70	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●		○
P.4.2		60	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●		○
M.1.1		55	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,24	0,57	0,40	0,24	●		○
M.2.1		40	0,25	0,20	0,15	0,35	0,26	0,17	0,44	0,33	0,21	0,49	0,35	0,21	●		○
M.3.1		60	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,24	0,57	0,40	0,24	●		○
K.1.1		170	0,53	0,42	0,32	0,74	0,55	0,35	0,96	0,71	0,45	1,06	0,75	0,45	●	○	○
K.1.2		130	0,45	0,36	0,26	0,63	0,47	0,3	0,81	0,59	0,38	0,89	0,63	0,38	●	○	○
K.2.1		150	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
K.2.2		130	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
K.3.1		130	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
K.3.2		110	0,45	0,36	0,26	0,63	0,47	0,30	0,81	0,59	0,38	0,89	0,63	0,38	●	○	○
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1	60		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.1.2	60		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.2.1	60		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.2.2	60		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.2.3	60		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.3.1	140		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.3.2	100		0,25	0,19	0,14	0,26	0,19	0,12	0,28	0,22	0,17	0,29	0,24	0,18	●		
S.3.3	140		0,18	0,15	0,11	0,20	0,15	0,11	0,22	0,18	0,14	0,23	0,20	0,16	●		
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

Plunging angle for ramping and helical milling = 1.9°
Bore diameter with helical milling = D_{min} 1.6xDC / D_{max} 1.95xDC
With ramping and helical milling, multiply the f_z by 0.5

Cutting data standard values – MultiLock – Deburring cutter

Index	CTPX225	53800 ...		● 1st choice ○ suitable		
		Ø DC (mm) =				
		12	16			
		a_e x DC =				
		0,1–0,2	0,1–0,3			
		$a_{p\,max.}$ (mm) =				
		4	6			
	v_c (m/min)	f_z (mm)		Emulsion	Compressed air	MMS
P.1.1	200	0,09	0,12	●	○	○
P.1.2	180	0,10	0,13	●	○	○
P.1.3	180	0,10	0,13	●	○	○
P.1.4	150	0,08	0,11	●	○	○
P.1.5	150	0,08	0,11	●	○	○
P.2.1	170	0,08	0,11	●	○	○
P.2.2	170	0,08	0,11	●	○	○
P.2.3	100	0,07	0,09	●	○	○
P.2.4	100	0,07	0,09	●	○	○
P.3.1	90	0,06	0,08	●	○	○
P.3.2	90	0,06	0,08	●	○	○
P.3.3	90	0,06	0,08	●	○	○
P.4.1	70	0,07	0,09	●		○
P.4.2	60	0,07	0,09	●		○
M.1.1	60	0,06	0,08	●		○
M.2.1	40	0,05	0,07	●		○
M.3.1	60	0,06	0,08	●		○
K.1.1	170	0,11	0,14	●	○	○
K.1.2	130	0,09	0,12	●	○	○
K.2.1	150	0,10	0,13	●	○	○
K.2.2	130	0,08	0,11	●	○	○
K.3.1	130	0,10	0,13	●	○	○
K.3.2	110	0,09	0,12	●	○	○
N.1.1	550	0,16	0,21	●		
N.1.2	500	0,16	0,21	●		
N.2.1						
N.2.2	420	0,15	0,20	●		
N.2.3	170	0,13	0,17	●		
N.3.1	240	0,11	0,14	●		
N.3.2	210	0,11	0,14	●		
N.3.3	280	0,10	0,13	●		
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Cutting data standard values – MultiChange – PCR-UNI

Index	52 871 ...													
	Correction factor f_z and v_c Tool holder				Feedrates for extra short and short holder									
					Ø DC (mm) =					Ø DC (mm) =				
					10,0	12,0	16,0	20,0		10,0	12,0	16,0	20,0	
					a_e 0,25xDC					a_e 1xDC				
Index	Medium-length version	Type long	Type extra long	$a_{p\,max.}$	v_c (m/min)	f_z (mm)				v_c (m/min)	f_z (mm)			
P.1.1	**0,9**	**0,7***	**0,6***	0,56	**490**	0,057	0,065	0,080	0,091	**240**	0,028	0,033	0,040	0,046
P.1.2	**0,9**	**0,7***	**0,6***	0,56	**470**	0,054	0,062	0,076	0,087	**230**	0,027	0,031	0,038	0,044
P.1.3	**0,9**	**0,7***	**0,6***	0,56	**445**	0,052	0,059	0,073	0,083	**220**	0,026	0,030	0,036	0,041
P.1.4	**0,9**	**0,7***	**0,6***	0,56	**425**	0,049	0,056	0,069	0,079	**205**	0,025	0,028	0,034	0,039
P.1.5	**0,9**	**0,7***	**0,6***	0,56	**400**	0,047	0,053	0,065	0,075	**195**	0,023	0,027	0,033	0,037
P.2.1	**0,9**	**0,7***	**0,6***	0,56	**445**	0,057	0,065	0,080	0,091	**220**	0,028	0,033	0,040	0,046
P.2.2	**0,9**	**0,7***	**0,6***	0,56	**405**	0,052	0,059	0,073	0,083	**200**	0,026	0,030	0,036	0,041
P.2.3	**0,9**	**0,7***	**0,6***	0,56	**365**	0,047	0,053	0,065	0,075	**180**	0,023	0,027	0,033	0,037
P.2.4	**0,9**	**0,7***	**0,6***	0,56	**285**	0,043	0,050	0,060	0,069	**140**	0,022	0,025	0,030	0,035
P.3.1	**0,9**	**0,7***	**0,6***	0,56	**265**	0,050	0,057	0,070	0,080	**130**	0,025	0,029	0,035	0,040
P.3.2	**0,9**	**0,7***	**0,6***	0,56	**245**	0,047	0,054	0,067	0,076	**120**	0,024	0,027	0,033	0,038
P.3.3	**0,9**	**0,7***	**0,6***	0,56	**225**	0,045	0,051	0,063	0,072	**110**	0,022	0,026	0,031	0,036
P.4.1	**0,9**	**0,7***	**0,6***	0,56	**180**	0,034	0,040	0,048	0,055	**90**	0,017	0,020	0,024	0,028
P.4.2	**0,9**	**0,7***	**0,6***	0,56	**180**	0,034	0,040	0,048	0,055	**90**	0,017	0,020	0,024	0,028
M.1.1	0,9	0,7*	0,6*	0,56	120	0,030	0,035	0,042	0,048	60	0,015	0,017	0,021	0,024
M.2.1	0,9	0,7*	0,6*	0,56	115	0,025	0,029	0,035	0,040	55	0,012	0,014	0,018	0,020
M.3.1	0,9	0,7*	0,6*	0,56	120	0,026	0,030	0,036	0,041	60	0,013	0,015	0,018	0,021
K.1.1	**0,9**	**0,7***	**0,6***	0,56	**485**	0,086	0,099	0,121	0,138	**240**	0,043	0,050	0,060	0,069
K.1.2	**0,9**	**0,7***	**0,6***	0,56	**365**	0,060	0,069	0,085	0,097	**180**	0,030	0,035	0,042	0,048
K.2.1	**0,9**	**0,7***	**0,6***	0,56	**445**	0,073	0,084	0,103	0,118	**220**	0,037	0,042	0,051	0,059
K.2.2	**0,9**	**0,7***	**0,6***	0,56	**365**	0,060	0,069	0,085	0,097	**180**	0,030	0,035	0,042	0,048
K.3.1	**0,9**	**0,7***	**0,6***	0,56	**325**	0,060	0,069	0,085	0,097	**160**	0,030	0,035	0,042	0,048
K.3.2	**0,9**	**0,7***	**0,6***	0,56	**305**	0,052	0,059	0,073	0,083	**150**	0,026	0,030	0,036	0,041

* = Trimming and trochoidal slot milling

Cutting data standard values – MultiChange – PCR-ALU

Index	52 872 ...													
	Correction factor f_z and v_c Tool holder				Feedrates for extra short and short holder									
					Ø DC (mm) =					Ø DC (mm) =				
					10,0	12,0	16,0	20,0		10,0	12,0	16,0	20,0	
					a_e 0,25xDC					a_e 1xDC				
Index	Medium-length version	Type long	Type extra long	$a_{p\,max.}$	v_c (m/min)	f_z (mm)				v_c (m/min)	f_z (mm)			
N.1.1	**0,9**	**0,7***	**0,6***	0,56	**1035**	0,169	0,194	0,237	0,271	**675**	0,084	0,097	0,119	0,136
N.1.2	**0,9**	**0,7***	**0,6***	0,56	**945**	0,154	0,177	0,216	0,247	**610**	0,077	0,088	0,108	0,123
N.2.1	**0,9**	**0,7***	**0,6***	0,56	**625**	0,161	0,185	0,226	0,259	**405**	0,081	0,093	0,113	0,129
N.2.2	**0,9**	**0,7***	**0,6***	0,56	**500**	0,169	0,194	0,237	0,271	**325**	0,084	0,097	0,119	0,136
N.2.3	**0,9**	**0,7***	**0,6***	0,56	**360**	0,184	0,212	0,259	0,296	**235**	0,092	0,106	0,129	0,148
N.3.1	**0,9**	**0,7***	**0,6***	0,56	**450**	0,077	0,088	0,108	0,123	**295**	0,038	0,044	0,054	0,062
N.3.2	**0,9**	**0,7***	**0,6***	0,56	**270**	0,123	0,141	0,173	0,197	**175**	0,061	0,071	0,086	0,099
N.3.3	**0,9**	**0,7***	**0,6***	0,56	**360**	0,123	0,141	0,173	0,197	**235**	0,061	0,071	0,086	0,099
N.4.1														

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Index	52 871 ... Ramping Max. angle	Drilling f_z factor	Helical milling $\alpha_{R\,max.}$**	Max. plunging angle $D_{min.}$ 1,5 x DC	Max. plunging angle $D_{max.}$ 1,8 x DC	● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1	45°	0,9	0,56xDC	20°	13°	○	●	○
P.1.2	45°	0,9	0,56xDC	20°	13°	○	●	○
P.1.3	45°	0,9	0,56xDC	20°	13°	○	●	○
P.1.4	45°	0,9	0,56xDC	20°	13°	○	●	○
P.1.5	45°	0,9	0,56xDC	20°	13°	○	●	○
P.2.1	45°	0,8	0,56xDC	20°	13°	○	●	○
P.2.2	45°	0,8	0,56xDC	20°	13°	○	●	○
P.2.3	45°	0,8	0,56xDC	20°	13°	○	●	○
P.2.4	45°	0,7	0,56xDC	20°	13°	○	●	○
P.3.1	30°	0,8	0,56xDC	20°	13°	●		○
P.3.2	30°	0,7	0,56xDC	20°	13°	●		○
P.3.3	30°	0,7	0,56xDC	20°	13°	●		○
P.4.1	15°		0,56xDC	20°	13°	●		○
P.4.2	15°		0,56xDC	20°	13°	●		○
M.1.1	15°		0,4xDC	14°	9°	●		
M.2.1	15°		0,4xDC	14°	9°	●		
M.3.1	15°		0,4xDC	14°	9°	●		
K.1.1	45°	0,8	0,56xDC	20	13		●	
K.1.2	45°	0,8	0,56xDC	20	13		●	
K.2.1	45°	0,8	0,56xDC	20	13		●	
K.2.2	45°	0,8	0,56xDC	20	13		●	
K.3.1	45°	0,8	0,56xDC	20	13		●	
K.3.2	45°	0,8	0,56xDC	20	13		●	

Index	52 872 ... Ramping Max. angle	Drilling f_z factor	Helical milling $\alpha_{R\,max.}$**	Max. plunging angle $D_{min.}$ 1,5 x DC	Max. plunging angle $D_{max.}$ 1,8 x DC	● 1st choice ○ suitable Emulsion	Compressed air	MMS
N.1.1	45°	0,9	0,56xDC	20°	13°	●		○
N.1.2	45°	0,9	0,56xDC	20°	13°	●		○
N.2.1	45°	0,9	0,56xDC	20°	13°	●		○
N.2.2	45°	0,9	0,56xDC	20°	13°	●		○
N.2.3	45°	0,9	0,56xDC	20°	13°	●		○
N.3.1	45°	0,9	0,56xDC	20°	13°	●		○
N.3.2	45°	0,9	0,56xDC	20°	13°	●		○
N.3.3	45°	0,9	0,56xDC	20°	13°	●		○
N.4.1								

** Width of cut per helical revolution

14

Cutting data standard values – MultiChange – Shoulder milling heads

Index	52 860 ..., 52 861 ...																		● 1st choice ○ suitable		
	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c (m/min)	Feedrates for extra short and short holder														Emulsion	Compressed air	MMS
					Ø DC (mm) =																
					8			10			12			16			20				
					$a_{p\,max.}$ =																
					5,2	4,4	3,6	6,5	5,5	4,5	7,8	6,6	5,4	10,4	8,8	7,2	13	11	9		
					a_e x DC =																
					0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0		
					f_z (mm)																
P.1.1	0,9	0,7*	0,6*	175	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	0,09	0,07	0,05	○	●	○
P.1.2	0,9	0,7*	0,6*	165	0,05	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,03	0,08	0,06	0,04	0,09	0,07	0,04	○	●	○
P.1.3	0,9	0,7*	0,6*	160	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04	○	●	○
P.1.4	0,9	0,7*	0,6*	150	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	○	●	○
P.1.5	0,9	0,7*	0,6*	145	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	○	●	○
P.2.1	0,9	0,7*	0,6*	160	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	0,09	0,07	0,05	○	●	○
P.2.2	0,9	0,7*	0,6*	145	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04	○	●	○
P.2.3	0,9	0,7*	0,6*	130	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	○	●	○
P.2.4	0,9	0,7*	0,6*	100	0,04	0,03	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	○	●	○
P.3.1	0,9	0,7*	0,6*	95	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04	●		○
P.3.2	0,9	0,7*	0,6*	85	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	●		○
P.3.3	0,9	0,7*	0,6*	80	0,04	0,03	0,02	0,05	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	●		○
P.4.1	0,9	0,7*	0,6*	65	0,03	0,02	0,01	0,03	0,03	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	●		○
P.4.2	0,9	0,7*	0,6*	65	0,03	0,02	0,01	0,03	0,03	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	●		○
M.1.1																						
M.2.1																						
M.3.1																						
K.1.1	0,9	0,7*	0,6*	175	0,07	0,05	0,04	0,09	0,07	0,04	0,10	0,07	0,05	0,12	0,09	0,06	0,14	0,10	0,07		●	
K.1.2	0,9	0,7*	0,6*	130	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	0,09	0,06	0,04	0,10	0,07	0,05		●	
K.2.1	0,9	0,7*	0,6*	160	0,06	0,05	0,03	0,07	0,06	0,04	0,09	0,06	0,04	0,10	0,08	0,05	0,12	0,09	0,06		●	
K.2.2	0,9	0,7*	0,6*	130	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	0,09	0,06	0,04	0,10	0,07	0,05		●	
K.3.1	0,9	0,7*	0,6*	115	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	0,09	0,06	0,04	0,10	0,07	0,05		●	
K.3.2	0,9	0,7*	0,6*	110	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04		●	
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H.3.1																						
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Rough-finishing milling heads

Index	52 862 ...														● 1st choice ○ suitable		
	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c (m/min)	Feedrates for extra short and short holder Ø DC (mm) = 8 $a_{p\,max.}$ = 7,5 a_e x DC = 0,1–0,2 f_z (mm)		Ø DC (mm) = 10 $a_{p\,max.}$ = 9,4 a_e x DC = 0,1–0,2 f_z (mm)		Ø DC (mm) = 12 $a_{p\,max.}$ = 11,3 a_e x DC = 0,1–0,2 f_z (mm)		Ø DC (mm) = 16 $a_{p\,max.}$ = 15,0 a_e x DC = 0,1–0,2 f_z (mm)		Ø DC (mm) = 20 $a_{p\,max.}$ = 18,8 a_e x DC = 0,1–0,2 f_z (mm)		Emulsion	Compressed air	MMS
					0,1–0,2	0,3–0,4	0,1–0,2	0,3–0,4	0,1–0,2	0,3–0,4	0,1–0,2	0,3–0,4	0,1–0,2	0,3–0,4			
P.1.1	0,9	0,7*	0,6*	225	0,04	0,03	0,05	0,04	0,06	0,04	0,08	0,05	0,09	0,06	○	●	○
P.1.2	0,9	0,7*	0,6*	215	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	0,08	0,06	○	●	○
P.1.3	0,9	0,7*	0,6*	205	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	○	●	○
P.1.4	0,9	0,7*	0,6*	195	0,04	0,03	0,05	0,03	0,05	0,04	0,06	0,05	0,07	0,05	○	●	○
P.1.5	0,9	0,7*	0,6*	185	0,04	0,03	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	○	●	○
P.2.1	0,9	0,7*	0,6*	205	0,04	0,03	0,05	0,04	0,06	0,04	0,08	0,05	0,09	0,06	○	●	○
P.2.2	0,9	0,7*	0,6*	185	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	○	●	○
P.2.3	0,9	0,7*	0,6*	170	0,04	0,03	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	○	●	○
P.2.4	0,9	0,7*	0,6*	130	0,03	0,02	0,04	0,03	0,05	0,03	0,06	0,04	0,06	0,05	○	●	○
P.3.1	0,9	0,7*	0,6*	120	0,04	0,03	0,05	0,03	0,05	0,04	0,07	0,05	0,08	0,05	●		○
P.3.2	0,9	0,7*	0,6*	110	0,04	0,03	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	●		○
P.3.3	0,9	0,7*	0,6*	105	0,04	0,02	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	●		○
P.4.1	0,9	0,7*	0,6*	85	0,03	0,02	0,03	0,02	0,04	0,03	0,05	0,03	0,05	0,04	●		○
P.4.2	0,9	0,7*	0,6*	85	0,03	0,02	0,03	0,02	0,04	0,03	0,05	0,03	0,05	0,04	●		○
M.1.1	0,9	0,7*	0,6*	55	0,02	0,02	0,03	0,02	0,03	0,02	0,04	0,03	0,05	0,03	●		
M.2.1	0,9	0,7*	0,6*	50	0,02	0,01	0,02	0,02	0,03	0,02	0,03	0,02	0,04	0,03	●		
M.3.1	0,9	0,7*	0,6*	55	0,02	0,01	0,02	0,02	0,03	0,02	0,03	0,02	0,04	0,03	●		
K.1.1	0,9	0,7*	0,6*	225	0,07	0,05	0,08	0,06	0,09	0,07	0,11	0,08	0,13	0,09		●	
K.1.2	0,9	0,7*	0,6*	170	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,09	0,06		●	
K.2.1	0,9	0,7*	0,6*	205	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,11	0,08		●	
K.2.2	0,9	0,7*	0,6*	170	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,09	0,06		●	
K.3.1	0,9	0,7*	0,6*	150	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,09	0,06		●	
K.3.2	0,9	0,7*	0,6*	140	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06		●	
N.1.1	0,9	0,7*	0,6*	785	0,08	0,05	0,09	0,06	0,10	0,07	0,13	0,09	0,15	0,10	●		○
N.1.2	0,9	0,7*	0,6*	715	0,07	0,05	0,08	0,06	0,09	0,07	0,12	0,08	0,13	0,09	●		○
N.2.1	0,9	0,7*	0,6*	475	0,07	0,05	0,09	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		○
N.2.2	0,9	0,7*	0,6*	380	0,08	0,05	0,09	0,06	0,10	0,07	0,13	0,09	0,15	0,10	●		○
N.2.3	0,9	0,7*	0,6*	275	0,08	0,06	0,10	0,07	0,11	0,08	0,14	0,10	0,16	0,11	●		○
N.3.1	0,9	0,7*	0,6*	340	0,03	0,02	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	●		○
N.3.2	0,9	0,7*	0,6*	205	0,06	0,04	0,07	0,05	0,08	0,05	0,09	0,07	0,11	0,07	●		○
N.3.3	0,9	0,7*	0,6*	275	0,06	0,04	0,07	0,05	0,08	0,05	0,09	0,07	0,11	0,07	●		○
N.4.1																	
S.1.1																	
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O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

14

Cutting data standard values – MultiChange – HFC milling heads

Index	52 864 ...																					● 1st choice ○ suitable		
	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c (m/min)	$a_{p\,max.}$ x DCX	Feedrates for extra short and short holder																Emulsion	Compressed air	MMS
						Ø DCX (mm) =																		
						8			10			12			16			20					
						a_e x DCX =																		
						0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0				
						f_z (mm)																		
P.1.1	0,9	0,7*	0,6*	175	0,05	0,44	0,31	0,20	0,53	0,37	0,24	0,61	0,43	0,27	0,74	0,52	0,33	0,85	0,60	0,38		○	●	○
P.1.2	0,9	0,7*	0,6*	165	0,05	0,42	0,30	0,19	0,50	0,36	0,22	0,58	0,41	0,26	0,71	0,50	0,32	0,81	0,57	0,36		○	●	○
P.1.3	0,9	0,7*	0,6*	160	0,05	0,40	0,28	0,18	0,48	0,34	0,21	0,55	0,39	0,25	0,67	0,48	0,30	0,77	0,54	0,34		○	●	○
P.1.4	0,9	0,7*	0,6*	150	0,05	0,38	0,27	0,17	0,45	0,32	0,20	0,52	0,37	0,23	0,64	0,45	0,29	0,73	0,52	0,33		○	●	○
P.1.5	0,9	0,7*	0,6*	145	0,05	0,36	0,25	0,16	0,43	0,30	0,19	0,50	0,35	0,22	0,60	0,43	0,27	0,69	0,49	0,31		○	●	○
P.2.1	0,9	0,7*	0,6*	160	0,05	0,44	0,31	0,20	0,53	0,37	0,24	0,61	0,43	0,27	0,74	0,52	0,33	0,85	0,60	0,38		○	●	○
P.2.2	0,9	0,7*	0,6*	145	0,05	0,40	0,28	0,18	0,48	0,34	0,21	0,55	0,39	0,25	0,67	0,48	0,30	0,77	0,54	0,34		○	●	○
P.2.3	0,9	0,7*	0,6*	130	0,05	0,36	0,25	0,16	0,43	0,30	0,19	0,50	0,35	0,22	0,60	0,43	0,27	0,69	0,49	0,31		○	●	○
P.2.4	0,9	0,7*	0,6*	100	0,05	0,33	0,24	0,15	0,40	0,28	0,18	0,46	0,32	0,21	0,56	0,40	0,25	0,64	0,45	0,29		○	●	○
P.3.1	0,9	0,7*	0,6*	95	0,05	0,39	0,27	0,17	0,46	0,33	0,21	0,53	0,38	0,24	0,65	0,46	0,29	0,74	0,53	0,33		●		○
P.3.2	0,9	0,7*	0,6*	85	0,05	0,37	0,26	0,16	0,44	0,31	0,20	0,50	0,36	0,23	0,62	0,44	0,28	0,70	0,50	0,32		●		○
P.3.3	0,9	0,7*	0,6*	80	0,05	0,35	0,24	0,15	0,41	0,29	0,19	0,48	0,34	0,21	0,58	0,41	0,26	0,67	0,47	0,30		●		○
P.4.1	0,9	0,7*	0,6*	65	0,05	0,27	0,19	0,12	0,32	0,23	0,14	0,37	0,26	0,16	0,45	0,32	0,20	0,51	0,36	0,23		●		○
P.4.2	0,9	0,7*	0,6*	65	0,05	0,27	0,19	0,12	0,32	0,23	0,14	0,37	0,26	0,16	0,45	0,32	0,20	0,51	0,36	0,23		●		○
M.1.1	0,9	0,7*	0,6*	45	0,05	0,23	0,16	0,10	0,28	0,20	0,12	0,32	0,23	0,14	0,39	0,28	0,18	0,45	0,32	0,20		●		
M.2.1	0,9	0,7*	0,6*	40	0,05	0,19	0,14	0,09	0,23	0,16	0,10	0,27	0,19	0,12	0,32	0,23	0,15	0,37	0,26	0,17		●		
M.3.1	0,9	0,7*	0,6*	45	0,05	0,20	0,14	0,09	0,24	0,17	0,11	0,28	0,19	0,12	0,34	0,24	0,15	0,38	0,27	0,17		●		
K.1.1	0,9	0,7*	0,6*	175	0,05	0,67	0,47	0,30	0,80	0,56	0,36	0,92	0,65	0,41	1,12	0,79	0,50	1,28	0,91	0,57			●	
K.1.2	0,9	0,7*	0,6*	130	0,05	0,47	0,33	0,21	0,56	0,39	0,25	0,64	0,45	0,29	0,78	0,55	0,35	0,90	0,63	0,40			●	
K.2.1	0,9	0,7*	0,6*	160	0,05	0,57	0,40	0,25	0,68	0,48	0,30	0,78	0,55	0,35	0,95	0,67	0,43	1,09	0,77	0,49			●	
K.2.2	0,9	0,7*	0,6*	130	0,05	0,47	0,33	0,21	0,56	0,39	0,25	0,64	0,45	0,29	0,78	0,55	0,35	0,90	0,63	0,40			●	
K.3.1	0,9	0,7*	0,6*	115	0,05	0,47	0,33	0,21	0,56	0,39	0,25	0,64	0,45	0,29	0,78	0,55	0,35	0,90	0,63	0,40			●	
K.3.2	0,9	0,7*	0,6*	110	0,05	0,40	0,28	0,18	0,48	0,34	0,21	0,55	0,39	0,25	0,67	0,48	0,30	0,77	0,54	0,34			●	
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* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Finishing milling heads

Index	52 863 ...									● 1st choice ○ suitable		
	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c (m/min)	Feedrates for extra short and short holder Ø DC (mm) = 8 $a_{p\,max.}$ = 7,5 a_e x DC = 0,1–0,2 f_z (mm)	Ø DC (mm) = 10 $a_{p\,max.}$ = 9,4 a_e x DC = 0,1–0,2 f_z (mm)	Ø DC (mm) = 12 $a_{p\,max.}$ = 11,3 a_e x DC = 0,1–0,2 f_z (mm)	Ø DC (mm) = 16 $a_{p\,max.}$ = 15,0 a_e x DC = 0,1–0,2 f_z (mm)	Ø DC (mm) = 20 $a_{p\,max.}$ = 18,8 a_e x DC = 0,1–0,2 f_z (mm)	Emulsion	Compressed air	MMS
P.1.1	0,9	0,7*	0,6*	405	0,04	0,05	0,06	0,08	0,09	○	●	○
P.1.2	0,9	0,7*	0,6*	385	0,04	0,05	0,06	0,07	0,08	○	●	○
P.1.3	0,9	0,7*	0,6*	365	0,04	0,05	0,06	0,07	0,08	○	●	○
P.1.4	0,9	0,7*	0,6*	350	0,04	0,05	0,05	0,06	0,07	○	●	○
P.1.5	0,9	0,7*	0,6*	330	0,04	0,04	0,05	0,06	0,07	○	●	○
P.2.1	0,9	0,7*	0,6*	365	0,04	0,05	0,06	0,08	0,09	○	●	○
P.2.2	0,9	0,7*	0,6*	335	0,04	0,05	0,06	0,07	0,08	○	●	○
P.2.3	0,9	0,7*	0,6*	300	0,04	0,04	0,05	0,06	0,07	○	●	○
P.2.4	0,9	0,7*	0,6*	235	0,03	0,04	0,05	0,06	0,06	○	●	○
P.3.1	0,9	0,7*	0,6*	215	0,04	0,05	0,05	0,07	0,08	●		○
P.3.2	0,9	0,7*	0,6*	200	0,04	0,04	0,05	0,06	0,07	●		○
P.3.3	0,9	0,7*	0,6*	185	0,04	0,04	0,05	0,06	0,07	●		○
P.4.1	0,9	0,7*	0,6*	150	0,03	0,03	0,04	0,05	0,05	●		○
P.4.2	0,9	0,7*	0,6*	150	0,03	0,03	0,04	0,05	0,05	●		○
M.1.1	0,9	0,7*	0,6*	100	0,02	0,03	0,03	0,04	0,05	●		
M.2.1	0,9	0,7*	0,6*	95	0,02	0,02	0,03	0,03	0,04	●		
M.3.1	0,9	0,7*	0,6*	100	0,02	0,02	0,03	0,03	0,04	●		
K.1.1	0,9	0,7*	0,6*	400	0,07	0,08	0,09	0,11	0,13		●	
K.1.2	0,9	0,7*	0,6*	300	0,05	0,06	0,07	0,08	0,09		●	
K.2.1	0,9	0,7*	0,6*	365	0,06	0,07	0,08	0,10	0,11		●	
K.2.2	0,9	0,7*	0,6*	300	0,05	0,06	0,07	0,08	0,09		●	
K.3.1	0,9	0,7*	0,6*	265	0,05	0,06	0,07	0,08	0,09		●	
K.3.2	0,9	0,7*	0,6*	250	0,04	0,05	0,06	0,07	0,08		●	
N.1.1												
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O.2.2												
O.3.1												

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

14

Cutting data standard values – MultiChange – Radius torus cutters

Index	52 865 ..., 52 866 ...																		● 1st choice ○ suitable		
	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c (m/min)	Feedrates for extra short and short holder														Emulsion	Compressed air	MMS
					Ø DC (mm) =																
					8			10			12			16			20				
					$a_{p\,max.}$ =																
					4,8	1,6	0,8	5,6	2,0	1,0	6,8	2,4	1,2	9,0	3,2	1,6	11,3	4,0	2,0		
					a_e x DC =																
					0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0		
					f_z (mm)																
P.1.1	0,9	0,7*	0,6*	110	0,027	0,025	0,018	0,032	0,030	0,022	0,037	0,034	0,025	0,045	0,042	0,031	0,051	0,048	0,035	○	●	○
P.1.2	0,9	0,7*	0,6*	105	0,025	0,024	0,017	0,030	0,028	0,021	0,035	0,032	0,024	0,043	0,040	0,029	0,049	0,045	0,033	○	●	○
P.1.3	0,9	0,7*	0,6*	100	0,024	0,022	0,017	0,029	0,027	0,020	0,033	0,031	0,023	0,041	0,038	0,028	0,046	0,043	0,032	○	●	○
P.1.4	0,9	0,7*	0,6*	95	0,023	0,021	0,016	0,027	0,026	0,019	0,032	0,029	0,022	0,039	0,036	0,026	0,044	0,041	0,030	○	●	○
P.1.5	0,9	0,7*	0,6*	90	0,022	0,020	0,015	0,026	0,024	0,018	0,030	0,028	0,020	0,037	0,034	0,025	0,042	0,039	0,029	○	●	○
P.2.1	0,9	0,7*	0,6*	100	0,027	0,025	0,018	0,032	0,030	0,022	0,037	0,034	0,025	0,045	0,042	0,031	0,051	0,048	0,035	○	●	○
P.2.2	0,9	0,7*	0,6*	90	0,024	0,022	0,017	0,029	0,027	0,020	0,033	0,031	0,023	0,041	0,038	0,028	0,046	0,043	0,032	○	●	○
P.2.3	0,9	0,7*	0,6*	80	0,022	0,020	0,015	0,026	0,024	0,018	0,030	0,028	0,020	0,037	0,034	0,025	0,042	0,039	0,029	○	●	○
P.2.4	0,9	0,7*	0,6*	65	0,020	0,019	0,014	0,024	0,022	0,016	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,026	○	●	○
P.3.1	0,9	0,7*	0,6*	60	0,023	0,022	0,016	0,028	0,026	0,019	0,032	0,030	0,022	0,039	0,037	0,027	0,045	0,042	0,031	●		○
P.3.2	0,9	0,7*	0,6*	55	0,022	0,021	0,015	0,026	0,025	0,018	0,030	0,028	0,021	0,037	0,035	0,025	0,043	0,040	0,029	●		○
P.3.3	0,9	0,7*	0,6*	50	0,021	0,019	0,014	0,025	0,023	0,017	0,029	0,027	0,020	0,035	0,033	0,024	0,040	0,037	0,028	●		○
P.4.1	0,9	0,7*	0,6*	40	0,016	0,015	0,011	0,019	0,018	0,013	0,022	0,021	0,015	0,027	0,025	0,019	0,031	0,029	0,021	●		○
P.4.2	0,9	0,7*	0,6*	40	0,016	0,015	0,011	0,019	0,018	0,013	0,022	0,021	0,015	0,027	0,025	0,019	0,031	0,029	0,021	●		○
M.1.1	0,9	0,7*	0,6*	27	0,014	0,013	0,010	0,017	0,016	0,012	0,019	0,018	0,013	0,024	0,022	0,016	0,027	0,025	0,019	●		
M.2.1	0,9	0,7*	0,6*	25	0,012	0,011	0,008	0,014	0,013	0,010	0,016	0,015	0,011	0,020	0,018	0,013	0,022	0,021	0,015	●		
M.3.1	0,9	0,7*	0,6*	27	0,012	0,011	0,008	0,014	0,013	0,010	0,017	0,015	0,011	0,020	0,019	0,014	0,023	0,022	0,016	●		
K.1.1	0,9	0,7*	0,6*	110	0,040	0,037	0,028	0,048	0,045	0,033	0,055	0,052	0,038	0,068	0,063	0,046	0,077	0,072	0,053		●	
K.1.2	0,9	0,7*	0,6*	80	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,027	0,047	0,044	0,032	0,054	0,050	0,037		●	
K.2.1	0,9	0,7*	0,6*	100	0,034	0,032	0,023	0,041	0,038	0,028	0,047	0,044	0,032	0,057	0,054	0,039	0,066	0,061	0,045		●	
K.2.2	0,9	0,7*	0,6*	80	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,027	0,047	0,044	0,032	0,054	0,050	0,037		●	
K.3.1	0,9	0,7*	0,6*	70	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,027	0,047	0,044	0,032	0,054	0,050	0,037		●	
K.3.2	0,9	0,7*	0,6*	70	0,024	0,022	0,017	0,029	0,027	0,020	0,033	0,031	0,023	0,041	0,038	0,028	0,046	0,043	0,032		●	
N.1.1	0,9	0,7*	0,6*	420	0,045	0,042	0,031	0,054	0,050	0,037	0,062	0,058	0,042	0,076	0,071	0,052	0,087	0,081	0,059	●		○
N.1.2	0,9	0,7*	0,6*	380	0,041	0,038	0,028	0,049	0,046	0,034	0,056	0,053	0,039	0,069	0,064	0,047	0,079	0,073	0,054	●		○
N.2.1	0,9	0,7*	0,6*	255	0,043	0,040	0,029	0,052	0,048	0,035	0,059	0,055	0,041	0,072	0,067	0,050	0,083	0,077	0,057	●		○
N.2.2	0,9	0,7*	0,6*	205	0,045	0,042	0,031	0,054	0,050	0,037	0,062	0,058	0,042	0,076	0,071	0,052	0,087	0,081	0,059	●		○
N.2.3	0,9	0,7*	0,6*	145	0,049	0,046	0,034	0,059	0,055	0,040	0,068	0,063	0,046	0,083	0,077	0,057	0,095	0,088	0,065	●		○
N.3.1	0,9	0,7*	0,6*	185	0,020	0,019	0,014	0,025	0,023	0,017	0,028	0,026	0,019	0,034	0,032	0,024	0,039	0,037	0,027	●		○
N.3.2	0,9	0,7*	0,6*	110	0,033	0,031	0,022	0,039	0,037	0,027	0,045	0,042	0,031	0,055	0,051	0,038	0,063	0,059	0,043	●		○
N.3.3	0,9	0,7*	0,6*	145	0,033	0,031	0,022	0,039	0,037	0,027	0,045	0,042	0,031	0,055	0,051	0,038	0,063	0,059	0,043	●		○
N.4.1																						
S.1.1																						
S.1.2																						
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H.2.1																						
H.3.1																						
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Radius torus cutters – HSC machining

Index	52 865 ..., 52 866 ...									● 1st choice ○ suitable		
	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c (m/min)	Feedrates for extra short and short holder Ø DC (mm) = 8	10	12	16	20	Emulsion	Compressed air	MMS
					a_e/a_p = 0,04	0,05	0,06	0,08	0,10			
					f_z (mm)							
P.1.1	0,9	0,7*	0,6*	385	0,11	0,11	0,11	0,11	0,11	○	●	○
P.1.2	0,9	0,7*	0,6*	365	0,10	0,11	0,11	0,11	0,11	○	●	○
P.1.3	0,9	0,7*	0,6*	350	0,10	0,10	0,10	0,10	0,10	○	●	○
P.1.4	0,9	0,7*	0,6*	330	0,09	0,10	0,10	0,10	0,10	○	●	○
P.1.5	0,9	0,7*	0,6*	315	0,09	0,09	0,09	0,09	0,09	○	●	○
P.2.1	0,9	0,7*	0,6*	350	0,11	0,11	0,11	0,11	0,11	○	●	○
P.2.2	0,9	0,7*	0,6*	315	0,10	0,10	0,10	0,10	0,10	○	●	○
P.2.3	0,9	0,7*	0,6*	285	0,09	0,09	0,09	0,09	0,09	○	●	○
P.2.4	0,9	0,7*	0,6*	220	0,08	0,08	0,09	0,09	0,08	○	●	○
P.3.1	0,9	0,7*	0,6*	205	0,09	0,10	0,10	0,10	0,10	●		○
P.3.2	0,9	0,7*	0,6*	190	0,09	0,09	0,09	0,09	0,09	●		○
P.3.3	0,9	0,7*	0,6*	175	0,08	0,09	0,09	0,09	0,09	●		○
P.4.1	0,9	0,7*	0,6*	140	0,07	0,07	0,07	0,07	0,07	●		○
P.4.2	0,9	0,7*	0,6*	140	0,07	0,07	0,07	0,07	0,07	●		○
M.1.1	0,9	0,7*	0,6*	95	0,06	0,06	0,06	0,06	0,06	●		
M.2.1	0,9	0,7*	0,6*	90	0,05	0,05	0,05	0,05	0,05	●		
M.3.1	0,9	0,7*	0,6*	95	0,05	0,05	0,05	0,05	0,05	●		
K.1.1	0,9	0,7*	0,6*	380	0,16	0,17	0,17	0,17	0,17		●	
K.1.2	0,9	0,7*	0,6*	285	0,11	0,12	0,12	0,12	0,12		●	
K.2.1	0,9	0,7*	0,6*	350	0,14	0,14	0,14	0,15	0,14		●	
K.2.2	0,9	0,7*	0,6*	285	0,11	0,12	0,12	0,12	0,12		●	
K.3.1	0,9	0,7*	0,6*	255	0,11	0,12	0,12	0,12	0,12		●	
K.3.2	0,9	0,7*	0,6*	235	0,10	0,10	0,10	0,10	0,10		●	
N.1.1	0,9	0,7*	0,6*	840	0,18	0,19	0,19	0,19	0,19	●		○
N.1.2	0,9	0,7*	0,6*	765	0,17	0,17	0,17	0,17	0,17	●		○
N.2.1	0,9	0,7*	0,6*	510	0,17	0,18	0,18	0,18	0,18	●		○
N.2.2	0,9	0,7*	0,6*	405	0,18	0,19	0,19	0,19	0,19	●		○
N.2.3	0,9	0,7*	0,6*	290	0,20	0,21	0,21	0,21	0,20	●		○
N.3.1	0,9	0,7*	0,6*	365	0,08	0,09	0,09	0,09	0,09	●		○
N.3.2	0,9	0,7*	0,6*	220	0,13	0,14	0,14	0,14	0,14	●		○
N.3.3	0,9	0,7*	0,6*	290	0,13	0,14	0,14	0,14	0,14	●		○
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1				150	0,083	0,086	0,087	0,087	0,085	●		
O.1.2				100	0,083	0,086	0,087	0,087	0,085	●		
O.2.1												
O.2.2												
O.3.1												

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

14

Cutting data standard values – MultiChange – Torus cutter heads

Index	52 870 ...												● 1st choice ○ suitable		
	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c (m/min)	Feedrates for extra short and short holder Ø DC (mm) = 10		12		16		20		Emulsion	Compressed air	MMS
					$a_{p\,max.}$ = 5,0	3,0	6,0	3,6	8,0	4,8	10,0	6,0			
					a_e x DC										
					f_z (mm)										
P.1.1															
P.1.2															
P.1.3															
P.1.4															
P.1.5															
P.2.1															
P.2.2															
P.2.3															
P.2.4															
P.3.1															
P.3.2															
P.3.3															
P.4.1															
P.4.2															
M.1.1															
M.2.1															
M.3.1															
K.1.1															
K.1.2															
K.2.1															
K.2.2															
K.3.1															
K.3.2															
N.1.1	0,9	0,7	0,6	840	0,187	0,216	0,215	0,248	0,263	0,303	0,301	0,346	●		
N.1.2	0,9	0,7	0,6	765	0,170	0,196	0,196	0,225	0,239	0,275	0,273	0,315	●		
N.2.1	0,9	0,7	0,6	510	0,179	0,206	0,206	0,237	0,251	0,289	0,287	0,331	●		
N.2.2	0,9	0,7	0,6	405	0,187	0,216	0,215	0,248	0,263	0,303	0,301	0,346	●		
N.2.3	0,9	0,7	0,6	295	0,204	0,235	0,235	0,271	0,287	0,331	0,328	0,378	●		
N.3.1															
N.3.2															
N.3.3															
N.4.1															
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1															
S.3.2															
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Quarter-round cutter heads

Index	v_c (m/min)	52 869 ... Ø DCX (mm) = 8 PRFRAD = 0,5	8 1,0	10 1,5	10 2,0	12 2,5	12 3,0	12 3,5	16 4,0	16 4,5	20 5,0	20 5,0	20 6,0	● 1st choice ○ suitable Emulsion	Compressed air	MMS
		f_z (mm)														
P.1.1	150	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,07	0,07	0,06	0,08	0,08	○	●	○
P.1.2	170	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09	○	●	○
P.1.3	130	0,03	0,04	0,03	0,05	0,05	0,04	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.1.4	120	0,03	0,04	0,03	0,05	0,05	0,04	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.1.5	170	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09	○	●	○
P.2.1	130	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07	○	●	○
P.2.2	130	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07	○	●	○
P.2.3	120	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.2.4	120	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.3.1	80	0,02	0,02	0,03	0,02	0,03	0,03	0,03	0,05	0,05	0,04	0,06	0,06	○	●	○
P.3.2	70	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
P.3.3	70	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
P.4.1	70	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
P.4.2	70	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
M.1.1	40	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		
M.2.1	40	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		
M.3.1	40	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		
K.1.1	130	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09		●	
K.1.2	100	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,07	0,07	0,06	0,08	0,08		●	
K.2.1	120	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08		●	
K.2.2	100	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07		●	
K.3.1	100	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08		●	
K.3.2	90	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07		●	
N.1.1	430	0,05	0,04	0,06	0,05	0,09	0,08	0,07	0,12	0,11	0,1	0,14	0,13	●		○
N.1.2	380	0,05	0,04	0,06	0,05	0,09	0,08	0,07	0,12	0,11	0,1	0,14	0,13	●		○
N.2.1	260	0,05	0,04	0,05	0,05	0,08	0,07	0,06	0,11	0,1	0,09	0,12	0,12	●		○
N.2.2	320	0,05	0,04	0,06	0,05	0,08	0,07	0,07	0,11	0,11	0,1	0,13	0,12	●		○
N.2.3	130	0,04	0,03	0,05	0,04	0,07	0,06	0,05	0,1	0,09	0,08	0,11	0,1	●		○
N.3.1	190	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09	●		○
N.3.2	170	0,02	0,02	0,02	0,02	0,03	0,03	0,03	0,04	0,04	0,04	0,05	0,05	●		○
N.3.3	140	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		○
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1																
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

For unstable applications, the cutting data can be reduced.

14

Cutting data standard values – MultiChange – Deburring milling heads

Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c (m/min)	52 867 ...				52 868 ...				● 1st choice ○ suitable		
					Feedrates for extra short and short holder										
					Ø DCX (mm) =				Ø DCX (mm) =						
					10	12	16	20	10	12	16	20			
					$a_{p\,max.}$ (mm) =				$a_{p\,max.}$ (mm) =						
					5,0	6,0	4,8	6,0	1,25	1,5	2,0	2,5			
					a_e 0,1– 0,2 x DCX				a_e 0,1– 0,2 x DCX						
					f_z (mm)								Emulsion	Compressed air	MMS
P.1.1	0,9	0,7	0,6	200	0,06	0,07	0,08	0,09	0,06	0,07	0,08	0,09	○	●	○
P.1.2	0,9	0,7	0,6	190	0,06	0,06	0,08	0,09	0,06	0,06	0,08	0,09	○	●	○
P.1.3	0,9	0,7	0,6	185	0,05	0,06	0,07	0,08	0,05	0,06	0,07	0,08	○	●	○
P.1.4	0,9	0,7	0,6	175	0,05	0,06	0,07	0,08	0,05	0,06	0,07	0,08	○	●	○
P.1.5	0,9	0,7	0,6	165	0,05	0,05	0,07	0,08	0,05	0,05	0,07	0,08	○	●	○
P.2.1	0,9	0,7	0,6	185	0,06	0,07	0,08	0,09	0,06	0,07	0,08	0,09	○	●	○
P.2.2	0,9	0,7	0,6	165	0,05	0,06	0,07	0,08	0,05	0,06	0,07	0,08	○	●	○
P.2.3	0,9	0,7	0,6	150	0,05	0,05	0,07	0,08	0,05	0,05	0,07	0,08	○	●	○
P.2.4	0,9	0,7	0,6	115	0,04	0,05	0,06	0,07	0,04	0,05	0,06	0,07	○	●	○
P.3.1	0,9	0,7	0,6	110	0,05	0,06	0,07	0,08	0,05	0,06	0,07	0,08	●		○
P.3.2	0,9	0,7	0,6	100	0,05	0,06	0,07	0,08	0,05	0,06	0,07	0,08	●		○
P.3.3	0,9	0,7	0,6	90	0,05	0,05	0,06	0,07	0,05	0,05	0,06	0,07	●		○
P.4.1	0,9	0,7	0,6	75	0,04	0,04	0,05	0,06	0,04	0,04	0,05	0,06	●		○
P.4.2	0,9	0,7	0,6	75	0,04	0,04	0,05	0,06	0,04	0,04	0,05	0,06	●		○
M.1.1	0,9	0,7	0,6	50	0,03	0,04	0,04	0,05	0,03	0,04	0,04	0,05	●		
M.2.1	0,9	0,7	0,6	45	0,03	0,03	0,04	0,04	0,03	0,03	0,04	0,04	●		
M.3.1	0,9	0,7	0,6	50	0,03	0,03	0,04	0,04	0,03	0,03	0,04	0,04	●		
K.1.1	0,9	0,7	0,6	200	0,09	0,10	0,12	0,14	0,09	0,10	0,12	0,14		●	
K.1.2	0,9	0,7	0,6	150	0,06	0,07	0,09	0,10	0,06	0,07	0,09	0,10		●	
K.2.1	0,9	0,7	0,6	185	0,07	0,09	0,11	0,12	0,07	0,09	0,11	0,12		●	
K.2.2	0,9	0,7	0,6	150	0,06	0,07	0,09	0,10	0,06	0,07	0,09	0,10		●	
K.3.1	0,9	0,7	0,6	135	0,06	0,07	0,09	0,10	0,06	0,07	0,09	0,10		●	
K.3.2	0,9	0,7	0,6	125	0,05	0,06	0,07	0,08	0,05	0,06	0,07	0,08		●	
N.1.1	0,9	0,7	0,6	550	0,10	0,11	0,14	0,16	0,10	0,11	0,14	0,16	●		○
N.1.2	0,9	0,7	0,6	500	0,09	0,10	0,13	0,14	0,09	0,10	0,13	0,14	●		○
N.2.1	0,9	0,7	0,6	330	0,09	0,11	0,13	0,15	0,09	0,11	0,13	0,15	●		○
N.2.2	0,9	0,7	0,6	265	0,10	0,11	0,14	0,16	0,10	0,11	0,14	0,16	●		○
N.2.3	0,9	0,7	0,6	190	0,11	0,12	0,15	0,17	0,11	0,12	0,15	0,17	●		○
N.3.1	0,9	0,7	0,6	240	0,04	0,05	0,06	0,07	0,04	0,05	0,06	0,07	●		○
N.3.2	0,9	0,7	0,6	145	0,07	0,08	0,10	0,12	0,07	0,08	0,10	0,12	●		○
N.3.3	0,9	0,7	0,6	190	0,07	0,08	0,10	0,12	0,07	0,08	0,10	0,12	●		○
N.4.1															
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1															
S.3.2															
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

For unstable applications the machining parameters must be reduced.

Cutting data standard values – T-slot milling cutter

Index	v_c (m/min)	54 065 ... Ø DC (mm) = 11,0	12,5	16,0	18,0	19,0	21,0	22,0	25,0	28,0	32,0	36,0	40,0	● 1st choice ○ suitable Emulsion	Compressed air	MMS
		f_z (mm)														
P.1.1	72	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.2	68	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.3	68	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.4	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.5	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.1	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.2	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.3	56	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.4	56	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.3.1	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.3.2	60	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.3.3	52	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.4.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
P.4.2	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
M.1.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
M.2.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
M.3.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
K.1.1	68	0,040	0,048	0,056	0,067	0,075	0,080	0,080	0,080	0,093	0,093	0,105	0,117	●		
K.1.2	56	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.2.1	64	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.2.2	52	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.3.1	56	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.3.2	54	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1																
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

The feed f_z must be reduced by 50% until the tool is fully engaged.

14

Cutting data standard values – mini milling cutter, uncoated

Index	Extra-short type		50 608 ..., 50 664 ...															
			Ø DC (mm) =															
			0,5		1,0		1,2		1,5		1,8–2,0		2,5–3,0			3,5–4,0		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)															
P.1.1																		
P.1.2																		
P.1.3																		
P.1.4																		
P.1.5																		
P.2.1																		
P.2.2																		
P.2.3																		
P.2.4																		
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1																		
P.4.2																		
M.1.1																		
M.2.1																		
M.3.1																		
K.1.1																		
K.1.2																		
K.2.1																		
K.2.2																		
K.3.1																		
K.3.2																		
N.1.1	250	1,0	0,007	0,006	0,011	0,009	0,014	0,011	0,018	0,014	0,024	0,019	0,038	0,030	0,019	0,050	0,040	0,025
N.1.2	250	1,0	0,007	0,006	0,011	0,009	0,014	0,011	0,018	0,014	0,024	0,019	0,038	0,030	0,019	0,050	0,040	0,025
N.2.1	180	1,0	0,009	0,007	0,013	0,010	0,016	0,013	0,020	0,016	0,026	0,021	0,037	0,030	0,019	0,048	0,038	0,024
N.2.2	180	1,0	0,009	0,007	0,013	0,010	0,016	0,013	0,020	0,016	0,026	0,021	0,037	0,030	0,019	0,048	0,038	0,024
N.2.3	150	1,0	0,009	0,007	0,013	0,010	0,016	0,013	0,020	0,016	0,026	0,021	0,037	0,030	0,019	0,048	0,038	0,024
N.3.1	200	1,0	0,004	0,003	0,008	0,006	0,010	0,008	0,014	0,011	0,018	0,014	0,028	0,022	0,014	0,038	0,030	0,019
N.3.2	200	1,0	0,004	0,003	0,008	0,006	0,010	0,008	0,014	0,011	0,018	0,014	0,028	0,022	0,014	0,038	0,030	0,019
N.3.3	140	1,0	0,004	0,003	0,008	0,006	0,010	0,008	0,014	0,011	0,018	0,014	0,028	0,022	0,014	0,038	0,030	0,019
N.4.1	180	1,0	0,009	0,007	0,013	0,010	0,016	0,013	0,020	0,016	0,026	0,021	0,037	0,030	0,019	0,048	0,038	0,024
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1	50	0,5	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
S.3.2	20	0,5	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Index	50 608 ..., 50 664 ...												● 1st choice ○ suitable		
	Ø DC (mm) =														
	4,5–5,0			5,5–6,0			6,7–8,0			8,7–10,0					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)														
P.1.1															
P.1.2															
P.1.3															
P.1.4															
P.1.5															
P.2.1															
P.2.2															
P.2.3															
P.2.4															
P.3.1															
P.3.2															
P.3.3															
P.4.1															
P.4.2															
M.1.1															
M.2.1															
M.3.1															
K.1.1															
K.1.2															
K.2.1															
K.2.2															
K.3.1															
K.3.2															
N.1.1	0,064	0,051	0,032	0,077	0,062	0,039	0,104	0,083	0,052	0,130	0,104	0,065	●		○
N.1.2	0,064	0,051	0,032	0,077	0,062	0,039	0,104	0,083	0,052	0,130	0,104	0,065	●		○
N.2.1	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
N.2.2	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
N.2.3	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
N.3.1	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.2	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.3	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.4.1	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.2	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

14

Cutting data standard values – mini milling cutter, coated

Index	Extra-short type		50 609 ..., 50 691 ...															
			Ø DC (mm) =															
			0,5		1,0		1,2		1,5		1,8–2,0		2,5–3,0			3,5–4,0		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)															
P.1.1	110	1,0	0,011	0,009	0,014	0,011	0,015	0,012	0,017	0,014	0,020	0,016	0,027	0,022	0,014	0,034	0,027	0,017
P.1.2	90	1,0	0,006	0,005	0,008	0,006	0,010	0,008	0,012	0,010	0,015	0,012	0,022	0,018	0,011	0,028	0,022	0,014
P.1.3	90	1,0	0,006	0,005	0,008	0,006	0,010	0,008	0,012	0,010	0,015	0,012	0,022	0,018	0,011	0,028	0,022	0,014
P.1.4	80	1,0	0,006	0,005	0,008	0,006	0,010	0,008	0,012	0,010	0,015	0,012	0,022	0,018	0,011	0,028	0,022	0,014
P.1.5	80	1,0	0,006	0,005	0,008	0,006	0,010	0,008	0,012	0,010	0,015	0,012	0,022	0,018	0,011	0,028	0,022	0,014
P.2.1	90	1,0	0,006	0,005	0,008	0,006	0,010	0,008	0,012	0,010	0,015	0,012	0,022	0,018	0,011	0,028	0,022	0,014
P.2.2	70	1,0	0,006	0,005	0,008	0,006	0,010	0,008	0,012	0,010	0,015	0,012	0,022	0,018	0,011	0,028	0,022	0,014
P.2.3	70	1,0	0,006	0,005	0,008	0,006	0,010	0,008	0,012	0,010	0,015	0,012	0,022	0,018	0,011	0,028	0,022	0,014
P.2.4	55	1,0	0,006	0,005	0,008	0,006	0,010	0,008	0,012	0,010	0,015	0,012	0,022	0,018	0,011	0,028	0,022	0,014
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1	50	1,0	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
P.4.2	40	1,0	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
M.1.1	40	1,0	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
M.2.1	50	1,0	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
M.3.1	50	1,0	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
K.1.1	130	1,0	0,018	0,014	0,022	0,018	0,024	0,019	0,028	0,022	0,034	0,027	0,044	0,035	0,022	0,056	0,045	0,028
K.1.2	120	1,0	0,018	0,014	0,022	0,018	0,024	0,019	0,028	0,022	0,034	0,027	0,044	0,035	0,022	0,056	0,045	0,028
K.2.1	130	1,0	0,017	0,014	0,020	0,016	0,022	0,018	0,024	0,019	0,028	0,022	0,035	0,028	0,018	0,042	0,034	0,021
K.2.2	120	1,0	0,017	0,014	0,020	0,016	0,022	0,018	0,024	0,019	0,028	0,022	0,035	0,028	0,018	0,042	0,034	0,021
K.3.1	130	1,0	0,018	0,014	0,022	0,018	0,024	0,019	0,028	0,022	0,034	0,027	0,044	0,035	0,022	0,056	0,045	0,028
K.3.2	120	1,0	0,018	0,014	0,022	0,018	0,024	0,019	0,028	0,022	0,034	0,027	0,044	0,035	0,022	0,056	0,045	0,028
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	200	1,0	0,004	0,003	0,008	0,006	0,010	0,008	0,014	0,011	0,018	0,014	0,028	0,022	0,014	0,038	0,030	0,019
N.3.2	200	1,0	0,004	0,003	0,008	0,006	0,010	0,008	0,014	0,011	0,018	0,014	0,028	0,022	0,014	0,038	0,030	0,019
N.3.3	140	1,0	0,004	0,003	0,008	0,006	0,010	0,008	0,014	0,011	0,018	0,014	0,028	0,022	0,014	0,038	0,030	0,019
N.4.1																		
S.1.1	30	0,5	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
S.1.2	30	0,5	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
S.2.1	30	0,5	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
S.2.2	30	0,5	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
S.2.3	30	0,5	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
S.3.1	50	0,5	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
S.3.2	20	0,5	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Index	50 609 ..., 50 691 ...												● 1st choice ○ suitable		
	Ø DC (mm) =														
	4,5–5,0			5,5–6,0			6,7–8,0			8,7–10,0					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)														
P.1.1	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038	○	●	○
P.1.2	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.1.3	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.1.4	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.1.5	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.1	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.2	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.3	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.4	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.3.1															
P.3.2															
P.3.3															
P.4.1	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
P.4.2	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
M.1.1	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
M.2.1	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
M.3.1	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
K.1.1	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
K.1.2	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
K.2.1	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036	0,086	0,069	0,043	○	●	○
K.2.2	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036	0,086	0,069	0,043	○	●	○
K.3.1	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
K.3.2	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
N.3.1	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.2	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.3	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.4.1															
S.1.1	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.1.2	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.2.1	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.2.2	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.2.3	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.1	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.2	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

14

Cutting data standard values – End mill – W version, short

Index	HPC		54 590..., 54 591..., 54 594..., 54 595..., 54 610..., 54 611..., 54 640..., 54 642...																	
			Ø DC (mm) =																	
			2,7–3,0			3,7–4,0			4,7–5,0			5,7–7,0			7,7–9,0			9,7–11,0		
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)																	
N.1.1	560	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.1.2	560	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.2.1	336	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.2.2	336	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.2.3	224	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.3.1	224	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,160	0,120	0,080	0,200	0,150	0,100
N.3.2	160	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,160	0,120	0,080	0,200	0,150	0,100
N.3.3	160	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,160	0,120	0,080	0,200	0,150	0,100
N.4.1																				

* = use a_p 1.5 x DC only in a_e range 0.1–0.4 x DC

Cutting data standard values – End mill – W version, long

Index	HPC		50 960 ..., 54 590 ..., 54 592 ..., 54 591 ..., 54 593 ..., 54 594 ..., 54 595 ..., 54 596 ..., 54 597 ..., 54 610 ..., 54 611 ..., 54 612 ..., 54 613 ..., 54 620 ..., 54 630 ..., 54 631 ..., 54 640 ...																	
			Ø DC (mm) =																	
			2,7–3,0			3,7–4,0			4,7–5,0			5,7–7,0			7,7–9,0			9,7–11,0		
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)																	
N.1.1	320	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.1.2	320	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.2.1	192	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.2.2	192	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.2.3	128	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.3.1	128	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,140	0,100	0,070	0,180	0,130	0,090
N.3.2	92	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,140	0,100	0,070	0,180	0,130	0,090
N.3.3	92	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,140	0,100	0,070	0,180	0,130	0,090
N.4.1																				

* = use a_p 1.5 x DC only in a_e range 0.1–0.4 x DC

Cutting data standard values – End mill – W and WR version, extra long

Index	HPC		54 590 ..., 54 592 ..., 54 610 ..., 54 612 ..., 54 630 ..., 54 631 ..., 54 632 ..., 54 633 ..., 54 650 ..., 54 640 ..., 54 642 ...																	
			Ø DC (mm) =																	
			2,7–3,0			3,7–4,0			4,7–5,0			5,7–7,0			7,7–9,0			9,7–11,0		
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)																	
N.1.1	240	0,750*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.1.2	240	0,750*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.2.1	144	0,750*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.2.2	144	0,750*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.2.3	100	0,750*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.3.1	100	0,750*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,040	0,030	0,020	0,050	0,040	0,030
N.3.2	72	0,750*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,040	0,030	0,020	0,050	0,040	0,030
N.3.3	72	0,750*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,040	0,030	0,020	0,050	0,040	0,030
N.4.1																				

* = use a_p 1.5 x DC only in a_e range 0.1–0.4 x DC

Cooling lubrication with emulsion

Feed rate guide values for ball nosed and torus cutters on → **Page** 486

Index	54 590..., 54 591..., 54 594..., 54 595..., 54 610..., 54 611..., 54 640..., 54 642...																		Emulsion	MMS
	Ø DC (mm) =																			
	11,7–13,0			13,7–15,0			15,7–16,0			18,0			19,7–20,0			24,7–25,0				
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		
	f_z (mm)																			
N.1.1	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.1.2	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.2.1	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.2.2	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.2.3	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.3.1	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,240	0,320	0,260	0,200	●	●
N.3.2	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,240	0,320	0,260	0,200	●	●
N.3.3	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,240	0,320	0,260	0,200	●	●
N.4.1																				

Index	50 960 ..., 54 590 ..., 54 592 ..., 54 591 ..., 54 593 ..., 54 594 ..., 54 595 ..., 54 596 ..., 54 597 ..., 54 610 ..., 54 611 ..., 54 612 ..., 54 613 ..., 54 620 ..., 54 630 ..., 54 631 ..., 54 640 ...																		Emulsion	MMS
	Ø DC (mm) =																			
	11,7–13,0			13,7–15,0			15,7–16,0			18,0			19,7–20,0			24,7–25,0				
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		
	f_z (mm)																			
N.1.1	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.1.2	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.2.1	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.2.2	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.2.3	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.3.1	0,200	0,160	0,110	0,220	0,170	0,120	0,230	0,180	0,130	0,260	0,200	0,140	0,260	0,210	0,150	0,290	0,230	0,180	●	●
N.3.2	0,200	0,160	0,110	0,220	0,170	0,120	0,230	0,180	0,130	0,260	0,200	0,140	0,260	0,210	0,150	0,290	0,230	0,180	●	●
N.3.3	0,200	0,160	0,110	0,220	0,170	0,120	0,230	0,180	0,130	0,260	0,200	0,140	0,260	0,210	0,150	0,290	0,230	0,180	●	●
N.4.1																				

Index	54 590 ..., 54 592 ..., 54 610 ..., 54 612 ..., 54 630 ..., 54 631 ..., 54 632 ..., 54 633 ..., 54 650 ..., 54 640 ..., 54 642 ...																		Emulsion	MMS
	Ø DC (mm) =																			
	11,7–13,0			13,7–15,0			15,7–16,0			18,0			19,7–20,0			24,7–25,0				
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		
	f_z (mm)																			
N.1.1	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.1.2	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.2.1	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.2.2	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.2.3	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.3.1	0,060	0,050	0,030	0,070	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,140	0,120	0,090	●	●
N.3.2	0,060	0,050	0,030	0,070	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,140	0,120	0,090	●	●
N.3.3	0,060	0,050	0,030	0,070	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,140	0,120	0,090	●	●
N.4.1																				

Cutting data standard values – End mill

Index	Type short / long		54 070 ..., 54 071 ..., 54 072 ...															
			Ø DC (mm) =															
			3			4			5			6			8			
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)															
P.1.1	210	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.1.2	200	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.1.3	200	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.1.4	190	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.1.5	190	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.2.1	200	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.2.2	190	1,0	0,022	0,018	0,011	0,030	0,024	0,015	0,038	0,030	0,019	0,046	0,037	0,023	0,062	0,050	0,031	
P.2.3	180	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.2.4	170	1,0	0,022	0,018	0,011	0,030	0,024	0,015	0,038	0,030	0,019	0,046	0,037	0,023	0,062	0,050	0,031	
P.3.1	180	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.3.2	170	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.3.3	140	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.4.1	100	1,0	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	
P.4.2	80	1,0	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	
M.1.1	100	1,0	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	
M.2.1	100	1,0	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	
M.3.1	100	1,0	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	
K.1.1	200	1,0	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	
K.1.2	180	1,0	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	
K.2.1	190	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
K.2.2	170	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
K.3.1	180	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
K.3.2	160	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	350	1,0	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	
N.3.2	350	1,0	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	
N.3.3	280	1,0	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	
N.4.1																		
S.1.1	30	1,0	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
S.1.2	30	1,0	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
S.2.1	30	1,0	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
S.2.2	30	1,0	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
S.2.3	30	1,0	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
S.3.1	90	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
S.3.2	50	1,0	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling: 3°

Index	54 070 ..., 54 071 ..., 54 072 ...												● 1st choice ○ suitable		
	Ø DC (mm) =														
	10			12			16			20					
	a_p 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)														
P.1.1	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.1.2	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.1.3	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.1.4	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.1.5	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.2.1	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.2.2	0,078	0,062	0,039	0,094	0,075	0,047	0,118	0,094	0,059	0,134	0,107	0,067	●	○	○
P.2.3	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.2.4	0,078	0,062	0,039	0,094	0,075	0,047	0,118	0,094	0,059	0,134	0,107	0,067	●	○	○
P.3.1	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.3.2	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.3.3	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.4.1	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
P.4.2	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.1.1	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.2.1	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.3.1	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
K.1.1	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
K.1.2	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
K.2.1	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
K.2.2	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
K.3.1	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
K.3.2	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
N.3.1	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●		
N.3.2	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●		
N.3.3	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●		
N.4.1															
S.1.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.1.2	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.2	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.3	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.3.1	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●		
S.3.2	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

14

Cutting data standard values – End mill

Index	Type long		54 078 ...															
			Ø DC (mm) =															
			6			8			10			12			16			
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)															
P.1.1	120	1xDC	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038	0,089	0,071	0,045	0,110	0,088	0,055	
P.1.2	110	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.1.3	110	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.1.4	110	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.1.5	110	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.2.1	110	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.2.2	110	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.2.3	110	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.2.4	95	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.3.1	95	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.3.2	95	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.3.3																		
P.4.1	70	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.4.2	60	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
M.1.1	70	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
M.2.1	70	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
M.3.1	70	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
K.1.1	130	1xDC	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	
K.1.2	120	1xDC	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	
K.2.1	130	1xDC	0,058	0,046	0,029	0,072	0,058	0,036	0,086	0,069	0,043	0,102	0,082	0,051	0,124	0,099	0,062	
K.2.2	120	1xDC	0,058	0,046	0,029	0,072	0,058	0,036	0,086	0,069	0,043	0,102	0,082	0,051	0,124	0,099	0,062	
K.3.1	130	1xDC	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	
K.3.2	130	1xDC	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1																		
S.3.2																		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling: 3°

At an a_e of < 0.3xDC, an a_p of 3xDC may be used.

Index	54 078 ... Ø DC (mm) = 20 a_e 0,1–0,2 x DC f_z (mm)	a_e 0,3–0,4 x DC f_z (mm)	a_e 0,6–1,0 x DC f_z (mm)	● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1	0,123	0,098	0,062	●	●	○
P.1.2	0,111	0,089	0,056	●	●	○
P.1.3	0,111	0,089	0,056	●	●	○
P.1.4	0,111	0,089	0,056	●	●	○
P.1.5	0,111	0,089	0,056	●	●	○
P.2.1	0,111	0,089	0,056	●	●	○
P.2.2	0,111	0,089	0,056	●	●	○
P.2.3	0,111	0,089	0,056	●	●	○
P.2.4	0,111	0,089	0,056	●	●	○
P.3.1	0,111	0,089	0,056	●	●	○
P.3.2	0,111	0,089	0,056	●	●	○
P.3.3						
P.4.1	0,111	0,089	0,056	●		
P.4.2	0,111	0,089	0,056	●		
M.1.1	0,111	0,089	0,056	●		
M.2.1	0,111	0,089	0,056	●		
M.3.1	0,111	0,089	0,056	●		
K.1.1	0,200	0,160	0,100		●	●
K.1.2	0,200	0,160	0,100		●	●
K.2.1	0,139	0,111	0,070		●	●
K.2.2	0,139	0,111	0,070		●	●
K.3.1	0,200	0,160	0,100		●	●
K.3.2	0,200	0,160	0,100		●	●
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Cutting data standard values – End mill

Index	Type extra long		54 070 ..., 54 071 ..., 54 072 ...														
			Ø DC (mm) =														
			3			4			5			6			8		
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)														
P.1.1	120	0,8	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031
P.1.2	110	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.1.3	110	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.1.4	110	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.1.5	110	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.2.1	110	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.2.2	110	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.2.3	110	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.2.4	95	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.3.1	95	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.3.2	95	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.3.3																	
P.4.1	70	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.4.2	60	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
M.1.1	70	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
M.2.1	70	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
M.3.1	70	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
K.1.1	130	0,8	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050
K.1.2	120	0,8	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050
K.2.1	130	0,8	0,035	0,028	0,018	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036
K.2.2	120	0,8	0,035	0,028	0,018	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036
K.3.1	130	0,8	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050
K.3.2	130	0,8	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1																	
S.1.2																	
S.2.1																	
S.2.2																	
S.2.3																	
S.3.1																	
S.3.2																	
S.3.3																	
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

Plunging angle for ramping and helical milling: 3°

Index	54 070 ..., 54 071 ..., 54 072 ...												● 1st choice ○ suitable		
	Ø DC (mm) =														
	10			12			16			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)														
P.1.1	0,075	0,060	0,038	0,089	0,071	0,045	0,110	0,088	0,055	0,123	0,098	0,062	●	○	○
P.1.2	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.3	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.4	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.5	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.1	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.2	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.3	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.4	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.3.1	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.3.2	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.3.3															
P.4.1	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●		
P.4.2	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●		
M.1.1	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●		
M.2.1	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●		
M.3.1	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●		
K.1.1	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
K.1.2	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
K.2.1	0,086	0,069	0,043	0,102	0,082	0,051	0,124	0,099	0,062	0,139	0,111	0,070	●	○	○
K.2.2	0,086	0,069	0,043	0,102	0,082	0,051	0,124	0,099	0,062	0,139	0,111	0,070	●	○	○
K.3.1	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
K.3.2	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
N.3.1															
N.3.2															
N.3.3															
N.4.1															
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1															
S.3.2															
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

Cutting data standard values – Finish milling cutter

Index	Type long	Type extra long	Type long / extra long	54 075 ..., 54 076 ...						● 1st choice ○ suitable		
				Ø DC (mm) =								
				6	8	10	12	16	20			
				a_e 0,05 x DC								
	v_c (m/min)		$a_{p\,max}$ x DC	f_z (mm)						Emulsion	Compressed air	MMS
P.1.1	210	145	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.2	200	140	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.3	200	140	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.4	185	130	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.5	185	130	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.1	200	140	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.2	185	130	2,0	0,021	0,028	0,035	0,042	0,053	0,060	●	○	○
P.2.3	175	125	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.4	170	115	2,0	0,021	0,028	0,035	0,042	0,053	0,060	●	○	○
P.3.1	180	125	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.3.2	170	115	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.3.3	140	95	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.4.1	95	65	2,0	0,017	0,023	0,030	0,036	0,045	0,052	●		
P.4.2	80	60	2,0	0,017	0,023	0,030	0,036	0,045	0,052	●		
M.1.1	95	65	2,0	0,017	0,023	0,030	0,036	0,045	0,052	●		
M.2.1	95	65	2,0	0,017	0,023	0,030	0,036	0,045	0,052	●		
M.3.1	95	65	2,0	0,017	0,023	0,030	0,036	0,045	0,052	●		
K.1.1	200	140	2,0	0,032	0,042	0,052	0,063	0,078	0,088	●	○	○
K.1.2	175	125	2,0	0,032	0,042	0,052	0,063	0,078	0,088	●	○	○
K.2.1	185	130	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
K.2.2	170	115	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
K.3.1	175	125	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
K.3.2	160	110	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	345	240	2,0	0,032	0,042	0,052	0,063	0,078	0,088	●	○	○
N.3.2	345	240	2,0	0,032	0,042	0,052	0,063	0,078	0,088	●	○	○
N.3.3	280	196	2,0	0,032	0,042	0,052	0,063	0,078	0,088	●	○	○
N.4.1												
S.1.1	35	25	2,0	0,014	0,018	0,023	0,027	0,034	0,038	●		
S.1.2	35	25	2,0	0,014	0,018	0,023	0,027	0,034	0,038	●		
S.2.1	35	25	2,0	0,014	0,018	0,023	0,027	0,034	0,038	●		
S.2.2	35	25	2,0	0,014	0,018	0,023	0,027	0,034	0,038	●		
S.2.3	35	25	2,0	0,014	0,018	0,023	0,027	0,034	0,038	●		
S.3.1	160	110	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●		
S.3.2	100	70	2,0	0,017	0,023	0,030	0,036	0,045	0,052	●		
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Plunging angle for ramping and helical milling = 1°

Cutting data standard values – Circular saw blades

Index	54 700 ... / 54 701 ...	
	Circular saws	
	Solid carbide Fine	
	v_c (m/min)	f_z (mm)
P.1.1	80–140	0,002–0,012
P.1.2	50–80	0,001–0,012
P.1.3	50–80	0,001–0,012
P.1.4	50–80	0,001–0,012
P.1.5	50–80	0,001–0,012
P.2.1	50–80	0,001–0,012
P.2.2	50–80	0,001–0,012
P.2.3	50–80	0,001–0,012
P.2.4	50–80	0,001–0,012
P.3.1	50–80	0,001–0,012
P.3.2	50–80	0,001–0,012
P.3.3	50–80	0,001–0,012
P.4.1	80–120	0,001–0,012
P.4.2	50–80	0,001–0,012
M.1.1	50–80	0,001–0,012
M.2.1	50–80	0,001–0,012
M.3.1	50–80	0,001–0,012
K.1.1	80–140	0,002–0,012
K.1.2	50–80	0,001–0,010
K.2.1	50–80	0,001–0,010
K.2.2	50–80	0,001–0,010
K.3.1	50–80	0,001–0,010
K.3.2	50–80	0,001–0,010
N.1.1	200–500	0,003–0,012
N.1.2	200–500	0,003–0,012
N.2.1	200–450	0,003–0,012
N.2.2	200–450	0,003–0,012
N.2.3	200–450	0,003–0,012
N.3.1	200–450	0,003–0,012
N.3.2	200–450	0,003–0,012
N.3.3	200–450	0,003–0,012
N.4.1		
S.1.1	20–30	0,001–0,012
S.1.2	20–30	0,001–0,012
S.2.1	20–30	0,001–0,012
S.2.2	20–30	0,001–0,012
S.2.3	20–30	0,001–0,012
S.3.1	30–70	0,001–0,012
S.3.2	30–70	0,001–0,012
S.3.3	30–70	0,001–0,012
H.1.1		
H.1.2		
H.1.3		
H.1.4		
H.2.1		
H.3.1		
O.1.1	130–200	0,003–0,015
O.1.2	130–200	0,003–0,015
O.2.1		
O.2.2		
O.3.1		

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

Cutting data standard values – NTR roughing-finishing milling cutter

Index	a_s 0,1–0,4 x DC	a_s 0,6–1,0 x DC	$a_{p\,max}$ in mm	52 318 ...															
				Ø DC (mm) =															
				6			8			10			12			14			
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)			f_z (mm)															
P.1.1	250	140	1xDC	0,074	0,047	0,028	0,095	0,060	0,035	0,114	0,072	0,042	0,131	0,083	0,049	0,145	0,092	0,055	
P.1.2	250	140	1xDC	0,074	0,047	0,028	0,095	0,060	0,035	0,114	0,072	0,042	0,131	0,083	0,049	0,145	0,092	0,055	
P.1.3	205	115	1xDC	0,069	0,044	0,026	0,089	0,056	0,033	0,106	0,067	0,040	0,122	0,077	0,046	0,135	0,086	0,051	
P.1.4	205	115	1xDC	0,069	0,044	0,026	0,089	0,056	0,033	0,106	0,067	0,040	0,122	0,077	0,046	0,135	0,086	0,051	
P.1.5	205	115	1xDC	0,069	0,044	0,026	0,089	0,056	0,033	0,106	0,067	0,040	0,122	0,077	0,046	0,135	0,086	0,051	
P.2.1	225	125	1xDC	0,074	0,047	0,028	0,095	0,060	0,035	0,114	0,072	0,042	0,131	0,083	0,049	0,145	0,092	0,055	
P.2.2	225	125	1xDC	0,074	0,047	0,028	0,095	0,060	0,035	0,114	0,072	0,042	0,131	0,083	0,049	0,145	0,092	0,055	
P.2.3	135	75	1xDC	0,068	0,043	0,025	0,087	0,055	0,033	0,104	0,066	0,039	0,120	0,076	0,045	0,133	0,085	0,055	
P.2.4	135	75	1xDC	0,068	0,043	0,025	0,087	0,055	0,033	0,104	0,066	0,039	0,120	0,076	0,045	0,133	0,085	0,050	
P.3.1	145	85	1xDC	0,072	0,045	0,027	0,092	0,058	0,034	0,110	0,070	0,041	0,127	0,080	0,047	0,141	0,089	0,053	
P.3.2	125	70	1xDC	0,064	0,041	0,024	0,082	0,052	0,031	0,099	0,062	0,037	0,113	0,072	0,042	0,126	0,080	0,047	
P.3.3	125	70	1xDC	0,064	0,041	0,024	0,082	0,052	0,031	0,099	0,062	0,037	0,113	0,072	0,042	0,126	0,080	0,047	
P.4.1	100	55	1xDC	0,050	0,031	0,018	0,063	0,040	0,024	0,076	0,048	0,028	0,087	0,055	0,033	0,097	0,061	0,037	
P.4.2	100	55	1xDC	0,050	0,031	0,018	0,063	0,040	0,024	0,076	0,048	0,028	0,087	0,055	0,033	0,097	0,061	0,037	
M.1.1	75	40	1xDC	0,043	0,027	0,016	0,055	0,035	0,021	0,066	0,042	0,025	0,076	0,048	0,028	0,084	0,054	0,032	
M.2.1	85	40	1xDC	0,047	0,030	0,018	0,060	0,038	0,022	0,072	0,046	0,027	0,083	0,052	0,031	0,092	0,058	0,035	
M.3.1	70	35	1xDC	0,036	0,023	0,013	0,046	0,029	0,017	0,055	0,035	0,021	0,063	0,040	0,024	0,070	0,045	0,027	
K.1.1	310	150	1xDC	0,124	0,078	0,046	0,158	0,100	0,059	0,190	0,120	0,071	0,218	0,138	0,081	0,242	0,154	0,090	
K.1.2	260	100	1xDC	0,100	0,060	0,026	0,138	0,080	0,039	0,160	0,100	0,051	0,188	0,120	0,061	0,212	0,135	0,070	
K.2.1	285	140	1xDC	0,105	0,067	0,039	0,135	0,085	0,050	0,161	0,102	0,060	0,185	0,117	0,069	0,205	0,130	0,077	
K.2.2	130	65	1xDC	0,050	0,031	0,018	0,063	0,040	0,024	0,076	0,048	0,028	0,087	0,055	0,033	0,097	0,061	0,037	
K.3.1	205	100	1xDC	0,087	0,055	0,032	0,111	0,070	0,041	0,133	0,084	0,050	0,153	0,097	0,057	0,170	0,108	0,064	
K.3.2	195	95	1xDC	0,074	0,047	0,028	0,095	0,060	0,035	0,114	0,072	0,042	0,131	0,083	0,049	0,145	0,092	0,055	
N.1.1	825	535	1xDC	0,092	0,066	0,047	0,117	0,084	0,060	0,140	0,101	0,072	0,161	0,116	0,083	0,179	0,129	0,092	
N.1.2	825	535	1xDC	0,092	0,066	0,047	0,117	0,084	0,060	0,140	0,101	0,072	0,161	0,116	0,083	0,179	0,129	0,092	
N.2.1	550	355	1xDC	0,096	0,069	0,049	0,123	0,088	0,063	0,147	0,106	0,076	0,169	0,122	0,087	0,188	0,136	0,097	
N.2.2	440	285	1xDC	0,101	0,073	0,052	0,129	0,093	0,066	0,154	0,111	0,079	0,178	0,128	0,091	0,198	0,142	0,101	
N.2.3	315	205	1xDC	0,110	0,079	0,057	0,141	0,101	0,072	0,168	0,121	0,087	0,194	0,139	0,099	0,216	0,155	0,110	
N.3.1	395	255	1xDC	0,046	0,033	0,024	0,059	0,042	0,030	0,070	0,050	0,036	0,081	0,058	0,041	0,090	0,065	0,046	
N.3.2	315	205	1xDC	0,073	0,053	0,038	0,094	0,067	0,048	0,112	0,081	0,058	0,129	0,093	0,066	0,144	0,103	0,074	
N.3.3	235	155	1xDC	0,073	0,053	0,038	0,094	0,067	0,048	0,112	0,081	0,058	0,129	0,093	0,066	0,144	0,103	0,074	
N.4.1																			
S.1.1																			
S.1.2																			
S.2.1																			
S.2.2																			
S.2.3																			
S.3.1																			
S.3.2																			
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

Index	52 318 ...									● 1st choice ○ suitable		
	Ø DC (mm) =											
	16			18			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)											
P.1.1	0,160	0,101	0,060	0,171	0,109	0,064	0,183	0,116	0,068	●	○	○
P.1.2	0,160	0,101	0,060	0,171	0,109	0,064	0,183	0,116	0,068	●	○	○
P.1.3	0,149	0,094	0,056	0,160	0,101	0,060	0,171	0,108	0,064	●	○	○
P.1.4	0,149	0,094	0,056	0,160	0,101	0,060	0,171	0,108	0,064	●	○	○
P.1.5	0,149	0,094	0,056	0,160	0,101	0,060	0,171	0,108	0,064	●	○	○
P.2.1	0,160	0,101	0,060	0,171	0,109	0,064	0,183	0,116	0,068	●	○	○
P.2.2	0,160	0,101	0,060	0,171	0,109	0,064	0,183	0,116	0,068	●	○	○
P.2.3	0,147	0,093	0,055	0,157	0,100	0,059	0,168	0,106	0,062	●	○	○
P.2.4	0,147	0,093	0,055	0,157	0,100	0,059	0,168	0,106	0,062	●	○	○
P.3.1	0,155	0,098	0,058	0,166	0,105	0,062	0,177	0,112	0,066	●	○	○
P.3.2	0,139	0,088	0,052	0,148	0,094	0,056	0,158	0,100	0,059	●	○	○
P.3.3	0,139	0,088	0,052	0,148	0,094	0,056	0,158	0,100	0,059	●	○	○
P.4.1	0,107	0,067	0,040	0,114	0,072	0,043	0,122	0,077	0,045	●	○	○
P.4.2	0,107	0,067	0,040	0,114	0,072	0,043	0,122	0,077	0,045	●	○	○
M.1.1	0,093	0,059	0,035	0,100	0,063	0,038	0,107	0,067	0,040	●	○	○
M.2.1	0,101	0,064	0,038	0,108	0,069	0,041	0,116	0,073	0,043	●	○	○
M.3.1	0,077	0,049	0,029	0,082	0,053	0,031	0,088	0,056	0,033	●	○	○
K.1.1	0,266	0,169	0,099	0,286	0,181	0,107	0,305	0,193	0,114	●	○	○
K.1.2	0,236	0,149	0,079	0,256	0,161	0,087	0,275	0,173	0,094	●	○	○
K.2.1	0,226	0,143	0,084	0,243	0,154	0,091	0,259	0,164	0,097	●	○	○
K.2.2	0,107	0,067	0,040	0,115	0,072	0,043	0,122	0,077	0,045	●	○	○
K.3.1	0,187	0,118	0,070	0,200	0,127	0,075	0,213	0,135	0,080	●	○	○
K.3.2	0,160	0,101	0,060	0,172	0,109	0,064	0,183	0,116	0,068	●	○	○
N.1.1	0,197	0,142	0,101	0,211	0,152	0,109	0,225	0,162	0,116	●	○	○
N.1.2	0,197	0,142	0,101	0,211	0,152	0,109	0,225	0,162	0,116	●	○	○
N.2.1	0,207	0,149	0,106	0,222	0,160	0,114	0,237	0,170	0,122	●	○	○
N.2.2	0,217	0,156	0,111	0,233	0,167	0,119	0,248	0,178	0,127	●	○	○
N.2.3	0,237	0,170	0,121	0,254	0,182	0,130	0,270	0,194	0,139	●	○	○
N.3.1	0,099	0,071	0,051	0,106	0,076	0,055	0,113	0,081	0,058	●	○	○
N.3.2	0,158	0,113	0,081	0,169	0,122	0,087	0,180	0,130	0,093	●	○	○
N.3.3	0,158	0,113	0,081	0,169	0,122	0,087	0,180	0,130	0,093	●	○	○
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data standard values – Rough milling cutter

Index	Type long		54 077 ...															
			Ø DC (mm) =															
			4			5			6			8			10			
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)															
P.1.1	185	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.1.2	175	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.1.3	175	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.1.4	170	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.1.5	170	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.2.1	175	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.2.2	170	1,0	0,034	0,027	0,017	0,044	0,035	0,022	0,054	0,043	0,027	0,072	0,058	0,036	0,090	0,072	0,045	
P.2.3	160	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.2.4	150	1,0	0,034	0,027	0,017	0,044	0,035	0,022	0,054	0,043	0,027	0,072	0,058	0,036	0,090	0,072	0,045	
P.3.1	160	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.3.2	150	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.3.3	130	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.4.1	90	1,0	0,022	0,017	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,047	0,037	0,023	0,059	0,048	0,030	
P.4.2	70	1,0	0,022	0,017	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,047	0,037	0,023	0,059	0,048	0,030	
M.1.1	90	1,0	0,022	0,017	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,047	0,037	0,023	0,059	0,048	0,030	
M.2.1	90	1,0	0,022	0,017	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,047	0,037	0,023	0,059	0,048	0,030	
M.3.1	90	1,0	0,022	0,017	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,047	0,037	0,023	0,059	0,048	0,030	
K.1.1	175	1,0	0,056	0,045	0,028	0,070	0,056	0,035	0,085	0,068	0,042	0,113	0,091	0,057	0,144	0,115	0,072	
K.1.2	160	1,0	0,056	0,045	0,028	0,070	0,056	0,035	0,085	0,068	0,042	0,113	0,091	0,057	0,144	0,115	0,072	
K.2.1	170	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
K.2.2	155	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
K.3.1	160	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
K.3.2	145	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	280	1,0	0,056	0,045	0,028	0,070	0,056	0,035	0,085	0,068	0,042	0,113	0,091	0,057	0,144	0,115	0,072	
N.3.2	280	1,0	0,056	0,045	0,028	0,070	0,056	0,035	0,085	0,068	0,042	0,113	0,091	0,057	0,144	0,115	0,072	
N.3.3	225	1,0	0,056	0,045	0,028	0,070	0,056	0,035	0,085	0,068	0,042	0,113	0,091	0,057	0,144	0,115	0,072	
N.4.1																		
S.1.1	25	1,0	0,018	0,014	0,009	0,023	0,018	0,011	0,027	0,022	0,014	0,036	0,029	0,018	0,045	0,036	0,023	
S.1.2	25	1,0	0,018	0,014	0,009	0,023	0,018	0,011	0,027	0,022	0,014	0,036	0,029	0,018	0,045	0,036	0,023	
S.2.1	25	1,0	0,018	0,014	0,009	0,023	0,018	0,011	0,027	0,022	0,014	0,036	0,029	0,018	0,045	0,036	0,023	
S.2.2	25	1,0	0,018	0,014	0,009	0,023	0,018	0,011	0,027	0,022	0,014	0,036	0,029	0,018	0,045	0,036	0,023	
S.2.3	25	1,0	0,018	0,014	0,009	0,023	0,018	0,011	0,027	0,022	0,014	0,036	0,029	0,018	0,045	0,036	0,023	
S.3.1	70	1,0	0,034	0,027	0,017	0,044	0,035	0,022	0,054	0,043	0,027	0,072	0,058	0,036	0,090	0,072	0,045	
S.3.2	40	1,0	0,022	0,017	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,047	0,037	0,023	0,059	0,048	0,030	
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling: 3°

Index	54 077 ... Ø DC (mm) = 12			16			20			● 1st choice ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)											
P.1.1	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.1.2	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.1.3	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.1.4	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.1.5	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.2.1	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.2.2	0,108	0,086	0,054	0,135	0,108	0,068	0,153	0,122	0,077	●	○	○
P.2.3	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.2.4	0,108	0,086	0,054	0,135	0,108	0,068	0,153	0,122	0,077	●	○	○
P.3.1	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.3.2	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.3.3	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.4.1	0,072	0,058	0,036	0,091	0,073	0,045	0,104	0,083	0,052	●		
P.4.2	0,072	0,058	0,036	0,091	0,073	0,045	0,104	0,083	0,052	●		
M.1.1	0,072	0,058	0,036	0,091	0,073	0,045	0,104	0,083	0,052	●		
M.2.1	0,072	0,058	0,036	0,091	0,073	0,045	0,104	0,083	0,052	●		
M.3.1	0,072	0,058	0,036	0,091	0,073	0,045	0,104	0,083	0,052	●		
K.1.1	0,173	0,138	0,086	0,216	0,173	0,108	0,247	0,197	0,123	●	○	○
K.1.2	0,173	0,138	0,086	0,216	0,173	0,108	0,247	0,197	0,123	●	○	○
K.2.1	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
K.2.2	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
K.3.1	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
K.3.2	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	0,173	0,138	0,086	0,216	0,173	0,108	0,247	0,197	0,123	●		
N.3.2	0,173	0,138	0,086	0,216	0,173	0,108	0,247	0,197	0,123	●		
N.3.3	0,173	0,138	0,086	0,216	0,173	0,108	0,247	0,197	0,123	●		
N.4.1												
S.1.1	0,054	0,043	0,027	0,068	0,054	0,034	0,076	0,060	0,038	●		
S.1.2	0,054	0,043	0,027	0,068	0,054	0,034	0,076	0,060	0,038	●		
S.2.1	0,054	0,043	0,027	0,068	0,054	0,034	0,076	0,060	0,038	●		
S.2.2	0,054	0,043	0,027	0,068	0,054	0,034	0,076	0,060	0,038	●		
S.2.3	0,054	0,043	0,027	0,068	0,054	0,034	0,076	0,060	0,038	●		
S.3.1	0,108	0,086	0,054	0,135	0,108	0,068	0,153	0,122	0,077	●		
S.3.2	0,072	0,058	0,036	0,091	0,073	0,045	0,104	0,083	0,052	●		
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data standard values – Rough milling cutter

Index	Full slot milling v_c (m/min)	Contour milling v_c (m/min)	52 338 ..., 52 339 ..., 52 341 ..., 52 342 ..., 52 343 ... Ti1000 Ø DC (mm) = 6 f_z (mm)		8 f_z (mm)		10 f_z (mm)		12 f_z (mm)		14 f_z (mm)	
P.1.1	170	190	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.2	160	180	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.3	150	170	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.4	150	170	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.5	130	150	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.1	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.2	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.3	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.4	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.3.1	160	180	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.3.2	90	110	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.3.3	90	110	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.4.1	55	65	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
P.4.2	35	45	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
M.1.1	60	70	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
M.2.1	45	55	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
M.3.1	50	60	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
K.1.1	120	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.1.2	110	120	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.2.1	110	120	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.2.2	90	100	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.3.1	110	120	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.3.2	100	110	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

For **Full slot milling** the values indicated in the table are based on:
a_e = 1,0 x DC / a_p = 1,0 x DC

For **Contour milling** the values indicated in the table are based on:
a_e = 0,4 x DC / a_p = 1,0 x DC

Index	52 338 ..., 52 339 ..., 52 340 ..., 52 341 ..., 52 342 ..., 52 343 ...								● 1st choice ○ suitable		
	Ti1000										
	Ø DC (mm) =										
	16		18		20		25				
	f_z (mm)										
									Emulsion	Compressed air	MMS
P.1.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.3	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.4	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.5	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.3	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.4	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.3.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.3.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.3.3	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.4.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
P.4.2	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
M.1.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
M.2.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
M.3.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
K.1.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.1.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.2.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.2.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.3.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.3.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

With tools with internal cooling (52 338…/52 339…) the cutting speed (v_c) can be increased by 20–30 %!

Cutting data standard values – Ball-nosed end mill

Index	Type short		54 073 ...															
			Ø DC (mm) =															
			3			4			5			6			8			
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC
			f_z (mm)															
P.1.1	180	0,08	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.1.2	160	0,08	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.1.3	160	0,08	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.1.4	150	0,08	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.1.5	150	0,08	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.2.1	170	0,08	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.2.2	140	0,08	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.2.3	140	0,08	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.2.4	130	0,08	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1	100	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
P.4.2	40	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
M.1.1	50	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
M.2.1	50	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
M.3.1	50	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
K.1.1	120	0,08	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050
K.1.2	80	0,08	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050
K.2.1	120	0,08	0,035	0,028	0,018	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036
K.2.2	200	0,08	0,035	0,028	0,018	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036
K.3.1	120	0,08	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050
K.3.2	100	0,08	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	200	0,08	0,032	0,026	0,016	0,043	0,034	0,022	0,054	0,043	0,027	0,066	0,053	0,033	0,088	0,070	0,044
N.3.2	200	0,08	0,032	0,026	0,016	0,043	0,034	0,022	0,054	0,043	0,027	0,066	0,053	0,033	0,088	0,070	0,044
N.3.3	140	0,08	0,032	0,026	0,016	0,043	0,034	0,022	0,054	0,043	0,027	0,066	0,053	0,033	0,088	0,070	0,044
N.4.1																		
S.1.1	30	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.1.2	30	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.1	30	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.2	30	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.3	30	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.3.1	50	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.3.2	20	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Index	54 073 ... Ø DC (mm) = 10			12			16			20			● 1st choice ○ suitable		
	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	Emulsion	Compressed air	MMS
	f_z (mm)														
P.1.1	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.2	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.3	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.4	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.5	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.1	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.2	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.3	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.4	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.3.1															
P.3.2															
P.3.3															
P.4.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
P.4.2	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
M.1.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
M.2.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
M.3.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
K.1.1	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
K.1.2	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
K.2.1	0,086	0,069	0,043	0,102	0,082	0,051	0,124	0,099	0,062	0,139	0,111	0,070	●	○	○
K.2.2	0,086	0,069	0,043	0,102	0,082	0,051	0,124	0,099	0,062	0,139	0,111	0,070	●	○	○
K.3.1	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
K.3.2	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
N.3.1	0,110	0,088	0,055	0,132	0,106	0,066	0,166	0,133	0,083	0,188	0,150	0,094	●		
N.3.2	0,110	0,088	0,055	0,132	0,106	0,066	0,166	0,133	0,083	0,188	0,150	0,094	●		
N.3.3	0,110	0,088	0,055	0,132	0,106	0,066	0,166	0,133	0,083	0,188	0,150	0,094	●		
N.4.1															
S.1.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.1.2	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.2	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.3	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.3.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.3.2	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

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Cutting data standard values – Ball-nosed end mill

Index	Type short / long		54 074 ...															
			Ø DC (mm) =															
			3			4			5			6			8			
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC
			f_z (mm)															
P.1.1	130	0,08xD	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	
P.1.2	110	0,08xD	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	
P.1.3	110	0,08xD	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	
P.1.4	95	0,08xD	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	
P.1.5	95	0,08xD	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	
P.2.1	110	0,08xD	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	
P.2.2	85	0,08xD	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	
P.2.3	85	0,08xD	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	
P.2.4	65	0,08xD	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1	60	0,08xD	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
P.4.2	50	0,08xD	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
M.1.1	50	0,08xD	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
M.2.1	60	0,08xD	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
M.3.1	60	0,08xD	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
K.1.1	155	0,08xD	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	
K.1.2	145	0,08xD	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	
K.2.1	155	0,08xD	0,035	0,028	0,018	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036	
K.2.2	145	0,08xD	0,035	0,028	0,018	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036	
K.3.1	155	0,08xD	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	
K.3.2	145	0,08xD	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	240	0,08xD	0,032	0,026	0,016	0,043	0,034	0,022	0,054	0,043	0,027	0,066	0,053	0,033	0,088	0,070	0,044	
N.3.2	240	0,08xD	0,032	0,026	0,016	0,043	0,034	0,022	0,054	0,043	0,027	0,066	0,053	0,033	0,088	0,070	0,044	
N.3.3	170	0,08xD	0,032	0,026	0,016	0,043	0,034	0,022	0,054	0,043	0,027	0,066	0,053	0,033	0,088	0,070	0,044	
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1																		
S.3.2																		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Index	54 074 ... Ø DC (mm) = 10			12			16			20			● 1st choice ○ suitable		
	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	Emulsion	Compressed air	MMS
	f_z (mm)														
P.1.1	0,075	0,060	0,038	0,089	0,071	0,045	0,110	0,088	0,055	0,123	0,098	0,062	●	○	○
P.1.2	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.3	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.4	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.5	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.1	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.2	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.3	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.4	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.3.1															
P.3.2															
P.3.3															
P.4.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
P.4.2	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
M.1.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
M.2.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
M.3.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
K.1.1	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
K.1.2	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
K.2.1	0,086	0,069	0,043	0,102	0,082	0,051	0,124	0,099	0,062	0,139	0,111	0,070	●	○	○
K.2.2	0,086	0,069	0,043	0,102	0,082	0,051	0,124	0,099	0,062	0,139	0,111	0,070	●	○	○
K.3.1	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
K.3.2	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
N.3.1	0,110	0,088	0,055	0,132	0,106	0,066	0,166	0,133	0,083	0,188	0,150	0,094	●		
N.3.2	0,110	0,088	0,055	0,132	0,106	0,066	0,166	0,133	0,083	0,188	0,150	0,094	●		
N.3.3	0,110	0,088	0,055	0,132	0,106	0,066	0,166	0,133	0,083	0,188	0,150	0,094	●		
N.4.1															
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1															
S.3.2															
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

14

Cutting Speeds – Depending upon Coating

Index	uncoated		Ti400		● 1st choice ○ suitable			Ti1000 / DPX72S		● 1st choice ○ suitable		
					Emulsion	Compressed air	MMS			Emulsion	Compressed air	MMS
	v_c (m/min)		v_c (m/min)					v_c (m/min)				
P.1.1	90–110	130–160	90–130	140–200	●	○	○	150–170	220–240	○	●	○
P.1.2	80–100	120–140	90–110	100–160	●	○	○	130–150	180–220	○	●	○
P.1.3	80–100	120–140	90–110	100–160	●	○	○	130–150	180–220	○	●	○
P.1.4	50–60	70–90	60–70	80–110	●	○	○	70–100	100–140	○	●	○
P.1.5	50–60	70–90	60–70	80–110	●	○	○	70–100	100–140	○	●	○
P.2.1	70–90	100–130	80–100	140–160	●	○	○	120–140	170–200	○	●	○
P.2.2	70–90	100–130	80–100	100–150	●	○	○	120–140	170–200	○	●	○
P.2.3	40–60	60–80	50–70	70–100	●	○	○	60–80	90–120	○	●	○
P.2.4	40–60	60–80	50–70	70–100	●	○	○	60–80	90–120	○	●	○
P.3.1	50–60	70–90	60–80	70–110	●	○	○	70–100	100–140	○	●	○
P.3.2	30–50	40–70	40–60	70–100	●	○	○	60–80	80–120	○	●	○
P.3.3	25–40	40–60	40–60	70–100	●	○	○	50–80	70–110	○	●	○
P.4.1	40–50	60–70	40–50	60–80	●	○	○	60–80	90–120	●		○
P.4.2	40–50	60–70	40–50	60–80	●	○	○	60–80	90–120	●		○
M.1.1	40–50	60–70	50–60	80–110	●	○	○	70–80	100–120	●		○
M.2.1	20–30	30–40	25–35	40–70	●	○	○	40–60	60–80	●		○
M.3.1	30–40	40–50	40–50	70–100	●	○	○	50–70	80–100	●		○
K.1.1	60–80	90–120	70–90	100–130	●	○	○	100–110	140–160	○	●	○
K.1.2	60–70	80–100	60–80	90–120	●	○	○	80–100	120–140	○	●	○
K.2.1	60–70	80–100	70–90	100–130	●	○	○	80–100	120–140	○	●	○
K.2.2	50–60	70–90	60–80	90–120	●	○	○	70–80	100–120	○	●	○
K.3.1	60–80	90–120	60–80	90–120	●	○	○	100–110	140–160	○	●	○
K.3.2	50–60	70–90	60–80	90–120	●	○	○	70–80	100–120	○	●	○
N.1.1	<300	<400	280–320	250–350	●	○	○	180–350	250–500	●		○
N.1.2	<300	<400	280–320	220–320	●	○	○	180–350	250–500	●		○
N.2.1	130–180	200–250	220–270	200–300	●	○	○	140–200	200–300	●		○
N.2.2	100–120	140–170	170–200	200–250	●	○	○	110–130	160–180	●		○
N.2.3	40–60	60–80	120–180	150–200	●	○	○	50–70	80–100	●		○
N.3.1	160–200	230–280	100–130	120–200	●	○	○	180–210	250–300	●	○	○
N.3.2	150–180	210–260	100–130	120–180	●	○	○	180–210	250–300	●		○
N.3.3	150–180	210–260	100–130	120–180	●	○	○	180–210	250–300	●		○
N.4.1	150–180	220–260	170–200	170–250		●	○	180–210	250–300		●	○
S.1.1			25–35	30–50	●	○	○	30–40	40–60	●	○	○
S.1.2			25–35	30–50	●	○	○	30–40	40–60	●	○	○
S.2.1	15–25	20–35	40–60	50–80	●	○	○	35–50	50–70	●	○	○
S.2.2			30–40	40–60	●	○	○	30–40	40–60	●	○	○
S.2.3												
S.3.1	30–50	40–70	40–50	70–100	●	○	○	50–70	80–100	●	○	○
S.3.2	30–40	40–50	50–60	80–120	●	○	○	50–60	70–90	●	○	○
S.3.3			30–40	40–60	●	○	○	20–30	30–40	●	○	○
H.1.1								60–70	80–100		●	○
H.1.2								40–60	60–80		●	○
H.1.3								30–40	40–60		●	○
H.1.4								20–30	30–40		●	○
H.2.1								70–80	100–120		●	○
H.3.1								60–70	80–100		●	○
O.1.1	50–70	70–100	120–180	150–220	●	○	○	60–80	80–120	○	●	○
O.1.2	40–60	60–90	70–90	90–120	●	○	○	40–70	60–100	○	●	○
O.2.1	30–50	40–70	50–70	70–110	●	○	○	40–60	60–80	○	●	○
O.2.2	30–50	40–70	50–70	70–110	●	○	○	40–60	60–80	○	●	○
O.3.1	70–100	100–140	100–120	130–180		●	○	80–120	120–180		●	○

Index	Ti1001		● 1st choice ○ suitable			Ti10 / Ti20		● 1st choice ○ suitable		
	v_c (m/min)		Emulsion	Compressed air	MMS	v_c (m/min)		Emulsion	Compressed air	MMS
P.1.1										
P.1.2										
P.1.3										
P.1.4										
P.1.5										
P.2.1										
P.2.2										
P.2.3										
P.2.4										
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1										
K.1.2										
K.2.1										
K.2.2										
K.3.1										
K.3.2										
N.1.1	300–400	300–500	●		○	150–350	250–500	●		○
N.1.2	300–400	300–500	●		○	120–220	150–300	●		○
N.2.1	250–300	300–450	●		○	150–180	220–250	●		○
N.2.2	200–250	250–350	●		○	100–130	150–180	●		○
N.2.3	150–200	200–250	●		○					○
N.3.1						170–180	240–260	●		○
N.3.2	220–280	250–330	●		○	120–150	170–220	●		○
N.3.3	220–280	250–330	●		○	120–150	170–220	●		○
N.4.1						140–170	200–250		●	
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1							80–100	●		○
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1						220–280	300–400	●		○
O.1.2						140–170	200–240	●		○
O.2.1						70–100	100–140	●		○
O.2.2						70–100	100–140	●		○
O.3.1										

Depths of Cut Reference Values – Milling Cutters – extra short – long

Index	$a_{p\,max.}$ x DC		Ø DC (mm) = 2,5			3,0			$a_{p\,max.}$ x DC		Ø DC (mm) = 4,0			5,0			6,0		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)								f_z (mm)								
P.1.1	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,041	0,027	0,020	0,054	0,035	0,026
P.1.2	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.1.3	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.1.4	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.1.5	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.2.1	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.2.2	1,0	0,5	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
P.2.3	1,0	0,5	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
P.2.4	1,0	0,5	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
P.3.1	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.3.2	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.3.3	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.4.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
P.4.2	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
M.1.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
M.2.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
M.3.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
K.1.1	1,0	0,5	0,020	0,013	0,010	0,029	0,019	0,014	1,5	1,0	0,039	0,026	0,019	0,052	0,034	0,025	0,064	0,042	0,031
K.1.2	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.2.1	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.2.2	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.3.1	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.3.2	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
N.1.1	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.1.2	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.2.1	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.2.2	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.2.3	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.3.1	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,0	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
N.3.2	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,0	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
N.3.3	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,0	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
N.4.1	1,0	0,5	0,026	0,017	0,012	0,038	0,025	0,018	1,5	1,0	0,051	0,033	0,025	0,067	0,044	0,033	0,083	0,054	0,040
S.1.1	0,7	0,3	0,014	0,009	0,007	0,020	0,013	0,010	1,0	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
S.1.2	0,7	0,3	0,014	0,009	0,007	0,020	0,013	0,010	1,0	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
S.2.1	0,7	0,3	0,015	0,010	0,007	0,022	0,014	0,011	1,0	1,0	0,030	0,020	0,014	0,039	0,026	0,019	0,049	0,032	0,024
S.2.2	0,7	0,3	0,014	0,009	0,007	0,020	0,013	0,010	1,0	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
S.2.3	0,7	0,3	0,015	0,010	0,007	0,022	0,014	0,011	1,0	1,0	0,030	0,020	0,014	0,039	0,026	0,019	0,049	0,032	0,024
S.3.1	0,7	0,3	0,017	0,011	0,008	0,024	0,016	0,012	1,0	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
S.3.2	0,7	0,3	0,018	0,012	0,009	0,026	0,017	0,013	1,0	1,0	0,035	0,023	0,017	0,046	0,030	0,023	0,058	0,038	0,028
S.3.3	0,7	0,3	0,018	0,012	0,009	0,026	0,017	0,013	1,0	1,0	0,035	0,023	0,017	0,046	0,030	0,023	0,058	0,038	0,028
H.1.1	0,5*		0,019**			0,027**			1,0		0,037**			0,049**			0,061**		
H.1.2	0,5*		0,017**			0,025**			1,0		0,034**			0,045**			0,056**		
H.1.3	0,5*		0,015**			0,022**			1,0		0,030**			0,040**			0,050**		
H.1.4	0,5*		0,013**			0,020**			1,0		0,026**			0,035**			0,043**		
H.2.1	0,5*		0,021**			0,030**			1,0		0,041**			0,054**			0,067**		
H.3.1	0,5*		0,019**			0,027**			1,0		0,037**			0,049**			0,061**		
O.1.1	1,0	0,5	0,044	0,029	0,021	0,064	0,042	0,031	1,5	1,0	0,086	0,057	0,042	0,114	0,074	0,055	0,141	0,092	0,068
O.1.2	1,0	0,5	0,040	0,026	0,019	0,058	0,038	0,028	1,5	1,1	0,078	0,051	0,038	0,103	0,068	0,050	0,128	0,084	0,062
O.2.1	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,2	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
O.2.2	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,3	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
O.3.1	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,4	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030

* = Trimming and trochoidal slot milling

** = With an a_e = 0.1xDC

Depths of cut reference values – Finish milling, extra short – long

$a_{p\,max.}$ x DC	Ø DC (mm) = 2,5			3,0			$a_{p\,max.}$ x DC	Ø DC (mm) = 4,0			5,0			6,0		
								a_e : 0,2–0,3 mm			a_e : 0,2–0,3 mm			a_e : 0,2–0,3 mm		
	f_z (mm)							f_z (mm)								
0,7							1,5	0,080***			0,090***			0,100***		

*** = To improve the surface quality reduce the f_z

Cutting data for Micro-Mini cutters for milling with diameter < 2.5 mm → v_c/f_z Page 432–439

Index	Ø DC (mm) = 8,0			10,0			12,0			14,0			16,0			18,0			20,0–25,0		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	f_z (mm)																				
P.1.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.3	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.4	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.5	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.2.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.2.2	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
P.2.3	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
P.2.4	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
P.3.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.3.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.3.3	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.4.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
P.4.2	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
M.1.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
M.2.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
M.3.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
K.1.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,060	0,140	0,080	0,060	0,160	0,100	0,070	0,170	0,110	0,080	0,200	0,130	0,08
K.1.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.2.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.2.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.3.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.3.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
N.1.1	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.1.2	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.2.1	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.2.2	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.2.3	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.3.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
N.3.2	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
N.3.3	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
N.4.1	0,110	0,070	0,050	0,130	0,090	0,070	0,150	0,100	0,070	0,180	0,110	0,080	0,210	0,130	0,090	0,230	0,150	0,100	0,250	0,170	0,11
S.1.1	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
S.1.2	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
S.2.1	0,060	0,040	0,030	0,080	0,050	0,040	0,090	0,060	0,040	0,110	0,060	0,050	0,120	0,080	0,050	0,130	0,090	0,060	0,150	0,100	0,06
S.2.2	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
S.2.3	0,060	0,040	0,030	0,080	0,050	0,040	0,090	0,060	0,040	0,110	0,060	0,050	0,120	0,080	0,050	0,130	0,090	0,060	0,150	0,100	0,06
S.3.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
S.3.2	0,070	0,050	0,040	0,090	0,060	0,050	0,100	0,070	0,050	0,130	0,070	0,050	0,140	0,090	0,060	0,160	0,100	0,070	0,180	0,120	0,08
S.3.3	0,070	0,050	0,040	0,090	0,060	0,050	0,100	0,070	0,050	0,130	0,070	0,050	0,140	0,090	0,060	0,160	0,100	0,070	0,180	0,120	0,08
H.1.1	0,080**			0,100**			0,110**			0,120**			0,130**			0,150**			0,170**		
H.1.2	0,070**			0,090**			0,100**			0,110**			0,120**			0,140**			0,150**		
H.1.3	0,060**			0,080**			0,090**			0,100**			0,110**			0,120**			0,130**		
H.1.4	0,060**			0,070**			0,080**			0,080**			0,100**			0,110**			0,120**		
H.2.1	0,090**			0,110**			0,120**			0,130**			0,150**			0,160**			0,180**		
H.3.1	0,080**			0,100**			0,110**			0,120**			0,130**			0,150**			0,170**		
O.1.1	0,180	0,120	0,090	0,230	0,150	0,110	0,250	0,160	0,120	0,310	0,180	0,130	0,350	0,230	0,150	0,380	0,250	0,170	0,430	0,280	0,19
O.1.2	0,170	0,110	0,080	0,210	0,140	0,100	0,230	0,150	0,110	0,280	0,160	0,120	0,320	0,210	0,140	0,350	0,230	0,150	0,390	0,260	0,17
O.2.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
O.2.2	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
O.3.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08

Ø DC (mm) = 8,0	10,0	12,0	14,0	16,0	18,0	20,0–25,0
a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm
f_z (mm)						
0,110***	0,130***	0,150***	0,170***	0,190***	0,210***	0,230***

Plunging angle for ramping and helical milling: 3°

Feed rate guide values for ball nosed and torus cutters on → **Page 486**

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Depths of Cut Reference Values – Milling Cutters – extra long

Index	$a_{p\,max.}$ x DC	Ø DC (mm) = 2,5		3,0		$a_{p\,max.}$ x DC	4,0		5,0		6,0		8,0		10,0		12,0	
		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
		f_z (mm)					f_z (mm)											
P.1.1	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,052	0,034	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.2	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.3	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.4	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.5	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.2.1	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.2.2	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
P.2.3	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
P.2.4	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
P.3.1	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.3.2	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.3.3	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.4.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
P.4.2	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
M.1.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
M.2.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
M.3.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
K.1.1	0,6	0,015	0,010	0,029	0,019	1,0	0,039	0,025	0,048	0,032	0,058	0,038	0,080	0,050	0,100	0,060	0,110	0,070
K.1.2	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.2.1	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.2.2	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.3.1	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.3.2	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
N.1.1	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.1.2	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.2.1	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.2.2	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.2.3	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.3.1	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
N.3.2	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
N.3.3	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
N.4.1	0,6	0,020	0,013	0,038	0,025	1,0	0,050	0,033	0,063	0,041	0,076	0,049	0,100	0,070	0,130	0,080	0,140	0,090
S.1.1	0,3	0,011	0,007	0,020	0,013	0,5	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
S.1.2	0,3	0,011	0,007	0,020	0,013	0,5	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
S.2.1	0,3	0,012	0,008	0,022	0,014	0,5	0,029	0,019	0,037	0,024	0,044	0,029	0,060	0,040	0,070	0,050	0,080	0,050
S.2.2	0,3	0,011	0,007	0,020	0,013	0,5	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
S.2.3	0,3	0,012	0,008	0,022	0,014	0,5	0,029	0,019	0,037	0,024	0,044	0,029	0,060	0,040	0,070	0,050	0,080	0,050
S.3.1	0,3	0,013	0,009	0,024	0,016	0,5	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
S.3.2	0,3	0,014	0,009	0,026	0,017	0,5	0,035	0,023	0,044	0,029	0,052	0,034	0,070	0,050	0,090	0,060	0,100	0,060
S.3.3	0,3	0,014	0,009	0,026	0,017	0,5	0,035	0,023	0,044	0,029	0,052	0,034	0,070	0,050	0,090	0,060	0,100	0,060
H.1.1	0,3*	0,012**		0,022**		0,5*	0,029**		0,037**		0,044**		0,060**		0,070**		0,080**	
H.1.2	0,3*	0,011**		0,020**		0,5*	0,027**		0,034**		0,041**		0,050**		0,070**		0,080**	
H.1.3	0,3*	0,010**		0,018**		0,5*	0,024**		0,030**		0,036**		0,050**		0,060**		0,070**	
H.1.4	0,3*	0,008**		0,016**		0,5*	0,021**		0,026**		0,031**		0,040**		0,050**		0,060**	
H.2.1	0,3*	0,013**		0,024**		0,5*	0,033**		0,041**		0,049**		0,070**		0,080**		0,090**	
H.3.1	0,3*	0,012**		0,022**		0,5*	0,029**		0,037**		0,044**		0,060**		0,070**		0,080**	
O.1.1	0,6	0,034	0,022	0,064	0,042	1,0	0,085	0,056	0,107	0,070	0,128	0,084	0,170	0,110	0,210	0,140	0,230	0,150
O.1.2	0,6	0,031	0,020	0,058	0,038	1,0	0,077	0,051	0,097	0,063	0,116	0,076	0,160	0,100	0,190	0,130	0,210	0,140
O.2.1	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
O.2.2	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
O.3.1	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070

* = Trimming and trochoidal slot milling

** = With an a_e = 0.1xDC

Depths of cut reference values – Finish milling, extra long

$a_{p\,max.}$ x DC	Ø DC (mm) = 2,5	3,0	$a_{p\,max.}$ x DC	4,0	5,0	6,0	8,0	10,0	12,0
	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm		a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm
	f_z (mm)			f_z (mm)					
0,7			0,7	0,080***	0,090***	0,100***	0,110***	0,130***	0,150***

*** = With an a_p of 1.5 x DC multiply the f_z by 0.75

Cutting data for Micro-Mini cutters for milling with diameter < 2.5 mm → v_c/f_z Page 432–439

Index	Ø DC (mm) = 14,0		16,0		18,0		20,0–25,0	
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
	f_z (mm)							
P.1.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.2	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.3	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.4	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.5	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.2.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.2.2	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
P.2.3	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
P.2.4	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
P.3.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.3.2	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.3.3	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.4.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
P.4.2	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
M.1.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
M.2.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
M.3.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
K.1.1	0,120	0,080	0,130	0,090	0,150	0,100	0,160	0,110
K.1.2	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.2.1	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.2.2	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.3.1	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.3.2	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
N.1.1	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.1.2	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.2.1	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.2.2	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.2.3	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.3.1	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
N.3.2	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
N.3.3	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
N.4.1	0,150	0,100	0,170	0,110	0,190	0,120	0,210	0,140
S.1.1	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
S.1.2	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
S.2.1	0,090	0,060	0,100	0,070	0,110	0,070	0,120	0,080
S.2.2	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
S.2.3	0,090	0,060	0,100	0,070	0,110	0,070	0,120	0,080
S.3.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
S.3.2	0,110	0,070	0,120	0,080	0,130	0,090	0,150	0,100
S.3.3	0,110	0,070	0,120	0,080	0,130	0,090	0,150	0,100
H.1.1	0,090**		0,100**		0,110**		0,120**	
H.1.2	0,080**		0,090**		0,100**		0,110**	
H.1.3	0,070**		0,080**		0,090**		0,100**	
H.1.4	0,060**		0,070**		0,080**		0,090**	
H.2.1	0,100**		0,110**		0,120**		0,140**	
H.3.1	0,090**		0,100**		0,110**		0,120**	
O.1.1	0,260	0,170	0,290	0,190	0,320	0,210	0,360	0,230
O.1.2	0,230	0,150	0,260	0,170	0,290	0,190	0,330	0,210
O.2.1	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
O.2.2	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
O.3.1	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100

	Ø DC (mm) = 14,0	16,0	18,0	20,0–25,0
	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm
	f_z (mm)			
	0,170***	0,190***	0,210***	0,230***

Plunging angle for ramping and helical milling: 3°

Feed rate guide values for ball nosed and torus cutters on → **Page 486**

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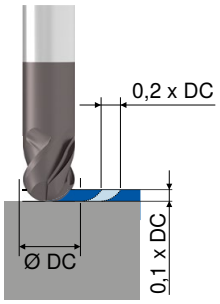
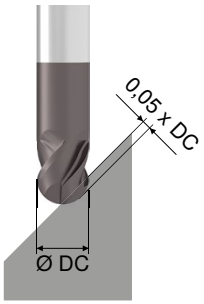
Feedrate for machining in steel, iron and non-ferrous materials with torus and ball nosed end mills

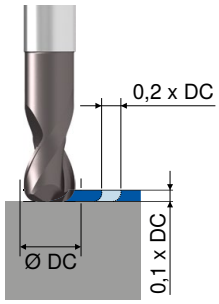
Ball nose end milling cutters



Ball Nosed and Torus Cutters



Torus end milling cutters



Ø DC mm	f_z mm	f_z mm	f_z mm
2	0,015	0,010	0,010
3	0,030	0,020	0,015
4	0,040	0,030	0,020
5	0,060	0,050	0,030
6	0,070	0,060	0,050
8	0,100	0,080	0,070
10	0,120	0,100	0,080
12	0,150	0,120	0,100
16	0,180	0,150	0,120
18	0,200	0,180	0,140
20	0,220	0,200	0,150

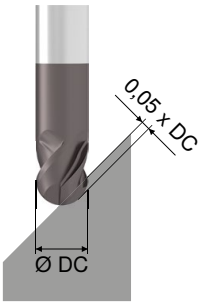
The feed should be reduced by 10–20% for uncoated tools.

Feedrates for the machining of hardened materials with Ti1000 coated torus and ball nosed cutters

Ball Nosed and Torus Cutters

Hardness = 40–60 HRC

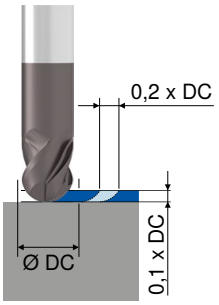
v_c = 80 -120 m/min



Ball Nosed and Torus Cutters

Hardness = 40–60 HRC

v_c = 80 -120 m/min



Ø DC mm	f_z mm	f_z mm
2	0,005	0,005
3	0,015	0,010
4	0,030	0,015
5	0,050	0,020
6	0,060	0,030
8	0,070	0,035
10	0,080	0,040
12	0,080	0,050
16	0,100	0,080

Trochoidal Milling

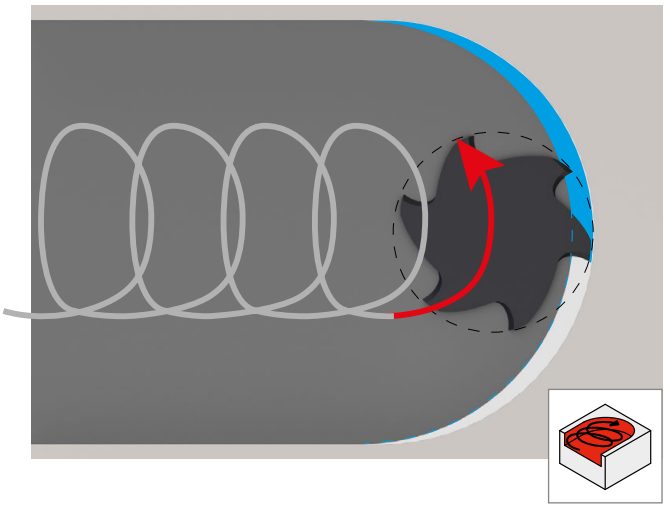
Due to the trochoidal milling process, large depths of cut are also possible on unstable and weak machines.

Depending on the tensile strength of the material, the radial infeed is 5–20% of the cutting edge diameter. As trochoidal milling is a plain milling process, the forces that occur are lower.

When trochoidal milling a slot, the milling cutter diameter should be a maximum of 70% of the slot width.
Example: Slot 20 mm x 70% = 14 mm
A Ø 14 mm milling cutter would be the perfect tool.

Advantages/Benefits

- ▲ Reduced tool wear
- ▲ Reduced cycle time
- ▲ Exploiting the full length of the cutting edge
- ▲ Reduced cutting pressure



Most CAM providers offer an application for trochoidal milling. Our recommendations for this application are as follows:

Material	Depth of Cut	Radial Infeed	Feed rate Correction Factor	v_c Correction Factor
Steel	2xDC	0,05xD	3,5	1,6
	2xDC	0,10xD	2,5	1,3
Stainless steel	2xDC	0,05xD	3,5	1,4
	2xDC	0,10xD	2,5	1,2
Cast iron	2xDC	0,05xD	3,5	1,6
	2xDC	0,10xD	2,5	1,3
Non-ferrous metals	2xDC	0,05xD	3,5	1,8
	2xDC	0,10xD	2,5	1,4
	2xDC	0,20xD	1,5	1,2
Heat-resistant	2xDC	0,05xD	2,5	1,4
	2xDC	0,10xD	2,0	1,2
Tempered steel	2xDC	0,02xD	2,5	1,5
	2xDC	0,05xD	2,0	1,3

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Please note that the indicated values may require reducing due to the component design, machine rigidity and machine dynamics. In optimal conditions, the values can also be increased.

Technical references

Feedrate Adjustment

If the speed stated in the tables cannot be achieved by the machine spindle you are using, reduce the feed rate as a percentage of the speed.

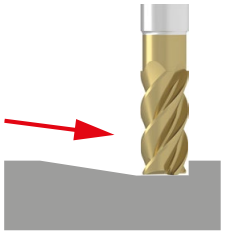
Example:
required according to table = n 50,000 rpm and v_f 1000 mm/min,
available machine speed = 40,000 rpm

Calculation of the feed rate to be entered:
40,000 rpm / 50,000 rpm *100= corresponds to 80%
1000 mm/min * 80% = 800 mm/min

The feed rate to be entered = **800 mm/min.**

Angled ramping with solid carbide cutters

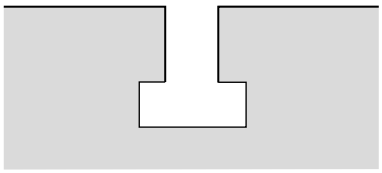
Angled ramping with solid carbide cutters is possible at an angle of 2° to 10° depending on the cutter type.
A protective edge chamfer or corner radius is an advantage.



Recommended ramping angles for solid carbide mills:

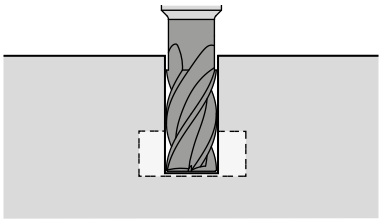
- ▲ Ramping angle with 3 or less cutting edges → 6°–10°
- ▲ Ramping angle with 4 cutting edges → 3°–6°
- ▲ Ramping angle with 5 cutting edges → 2°–3°
- ▲ Ramping angle with more than 5 cutting edges → only possible under certain conditions!

Preparation for T-slot milling cutter



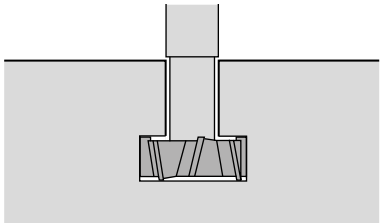
To produce a T-slot with the solid carbide T-slot milling cutter, proceed as follows:

1



Rough-mill the slot up to approx. 0.5 mm above the bottom.
Bottom corresponds to the finished dimension of the T-slot.
The slot width should be milled to the finished dimension during this step.

2



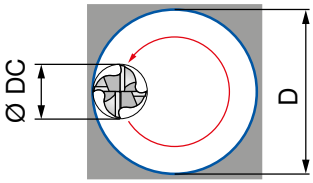
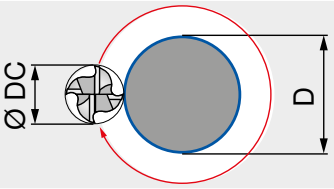
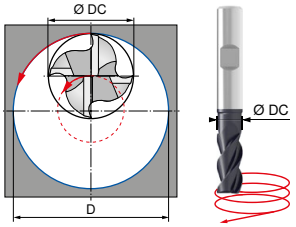
Then finish milling the slot with the T-slot milling cutter.
Reduce the feed by 50% when entering the material

General formula for calculating the cutting parameters

Designation	Abbreviation	Unit	Formula	Example	
Number of revolutions	**n**	**min^{-1}**	$n = \frac{v_c \times 1000}{DC \times \pi}$	v_c = 25 m/min DC = 20 mm	$n = \frac{25 \times 1000}{20 \times \pi}$ = 398 min^{-1}
Cutting speed	**v_c**	**m/min**	$v_c = \frac{DC \times \pi \times n}{1000}$	n = 400 min^{-1} DC = 20 mm	$v_c = \frac{20 \times \pi \times 400}{1000}$ = 25 m/min
Feed per tooth	**f_z**	**mm**	$f_z = \frac{v_f}{ZEFP \times n}$	v_f = 320mm/min. n = 400 min^{-1} ZEFP = 4	$f_z = \frac{320}{4 \times 400}$ = 0,2 mm
Feed per revolution	**f**	**mm/rev.**	$f = f_z \times ZEFP$	f_z = 0,2 mm ZEFP = 4	f = 0,2 x 4 = 0,8 mm
Feed rate	**v_f**	**mm/min.**	$v_f = f_z \times ZEFP \times n$	f_z = 0,2 mm ZEFP = 4 n = 400 min^{-1}	v_f = 0,2 x 4 x 400 = 320 mm/min.
Average chip thickness	**h_m**	**mm**	$h_m = f_z \times \sqrt{\frac{a_e}{DC}}$	f_z = 0,2 mm a_e = 0,3 mm DC = 20 mm	h_m = 0,2 x $\sqrt{\frac{0,3}{20}}$ = 0,024 mm

ZEFP = Number of flutes
a_e = cutting width

Calculation of the feed rate on the midpoint path of the milling cutter (v_{fM})

Designation	Abbreviation	Unit	Formula	Example
Internal contour	**v_{fM}**	**mm/min.**	$v_{fM} = \frac{v_f \times (D - DC)}{D}$	
Outside profile	**v_{fM}**	**mm/min.**	$v_{fM} = \frac{v_f \times (D + DC)}{D}$	
Helical ramping	**v_{fM}**	**mm/min.**	$v_{fM} = \frac{n \times f_z \times ZEFP \times (D - D_C)}{D}$	

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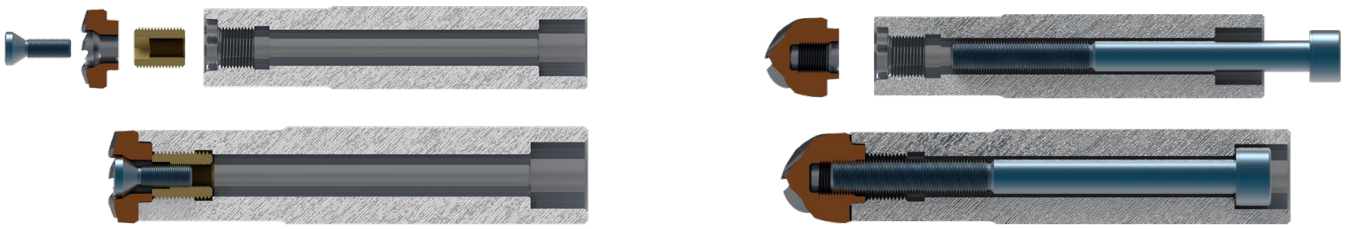
Assembly instructions

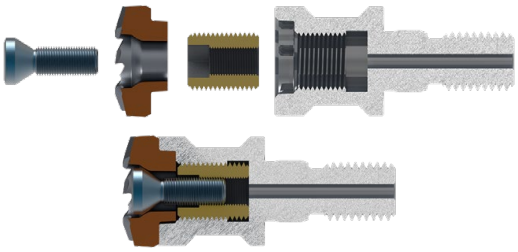
Image of MultiLock cylindrical shank adapter assembly



▲ The cylindrical shank adapter can be used universally. In this case, the MultiLock high-feed and torus cutters are clamped from the front using a threaded bush and clamping screw. The MultiLock radius milling and deburring cutters are clamped via the shank using a cylindrical screw.

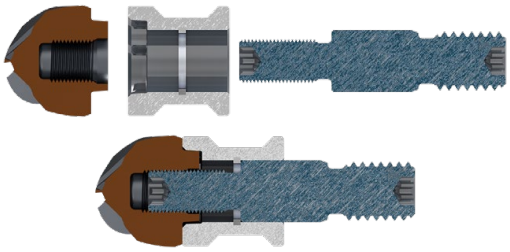
Image of MultiLock screw-in adapter assembly

Type A



▲ The type A screw-in adapter must be used for MultiLock high-feed and torus cutters. These are clamped from the front using a threaded bush and clamping screw.

Type B



▲ The type B screw-in adapter has two parts and must be used for MultiLock radius milling and deburring cutters. These are tensioned from the rear using a clamping screw. The clamping screw is simultaneously used for screwing in the adapter.

Detailed assembly instructions are enclosed with the respective holders. You can also find this in our online shop.

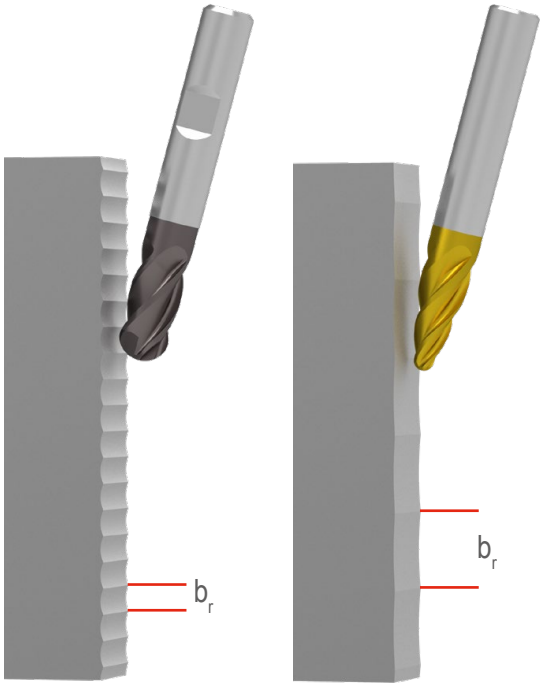
Comparison – ball nose end milling cutters vs. 3D Finish

3D Finish

- Radius does not depend on the tool diameter
- High depths of cut possible owing to the large radius
- Tools with a large radius and small shank diameter are more economical as the carbide content is lower, e.g. diameter 16 mm, radius 1500 mm

Ball nose end milling cutters

- Radius depends on the tool diameter
- Only low widths of cut are possible; linked to the small radius
- Tools with a large diameter/radius are expensive due to the high carbide content, e.g. diameter 16 mm radius 8 mm



Formulae for calculations:

$$b_r = 2 \times \sqrt{R_{th} \times (r \times 2 - R_{th})}$$

$$R_{th} = r - \sqrt{\frac{(r \times 2)^2 - b_r^2}{4}}$$

$$R_a \simeq 0{,}1 \times R_{th}$$

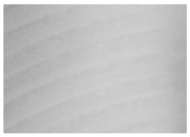
$$R_{th} \simeq R_a / 0{,}1$$

Result

Required surface quality = R_a 0,4
$R_{th} \simeq 0{,}4 / 0{,}1 \simeq 4\ \mu m = 0{,}004$ mm

Ball nose end milling cutters
Diameter 16 mm, radius 8 mm
$b_r = 2 \times \sqrt{0{,}004 \times (8 \times 2 - 0{,}004)}$
b_r = 0,51 mm

3D Finish
Diameter 16 mm, radius 1500 mm
$b_r = 2 \times \sqrt{0{,}004 \times (1500 \times 2 - 0{,}004)}$
b_r = 6,93 mm



Key

R_{th} = Theoretical roughness
r = Radius
R_a = Average roughness
b_r = Step down

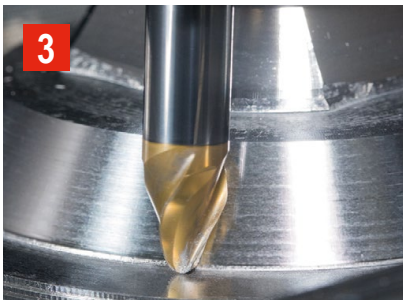
Application information

3D Finish – barrel shape

- Suitable for easily accessible areas

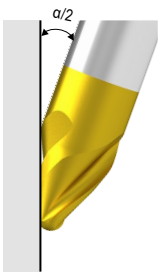
3D Finish – oval shape

- Suitable for easily accessible flanks
- Not suitable for deep areas



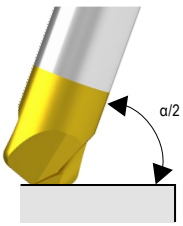
3D Finish – taper shape

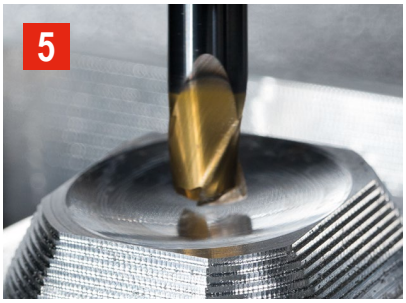
- Suitable for steep walls and deep cavities
- α/2 is the angle to the surface to be used
- If the surface exhibits a tilt angle of α/2, the surface can also be machined on three axes



3D Finish – taper shape

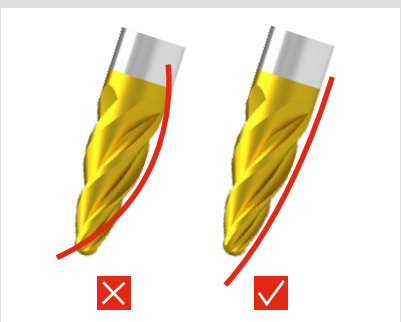
- Suitable for flat areas
- α/2 is the angle to the surface to be used
- If the surface exhibits a tilt angle of α/2, the surface can also be machined on three axes





3D Finish – lens shape

- Suitable for flat areas

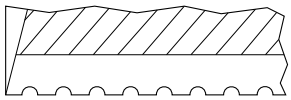
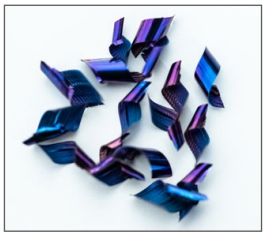
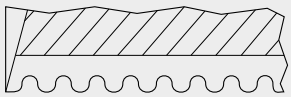


Please note:

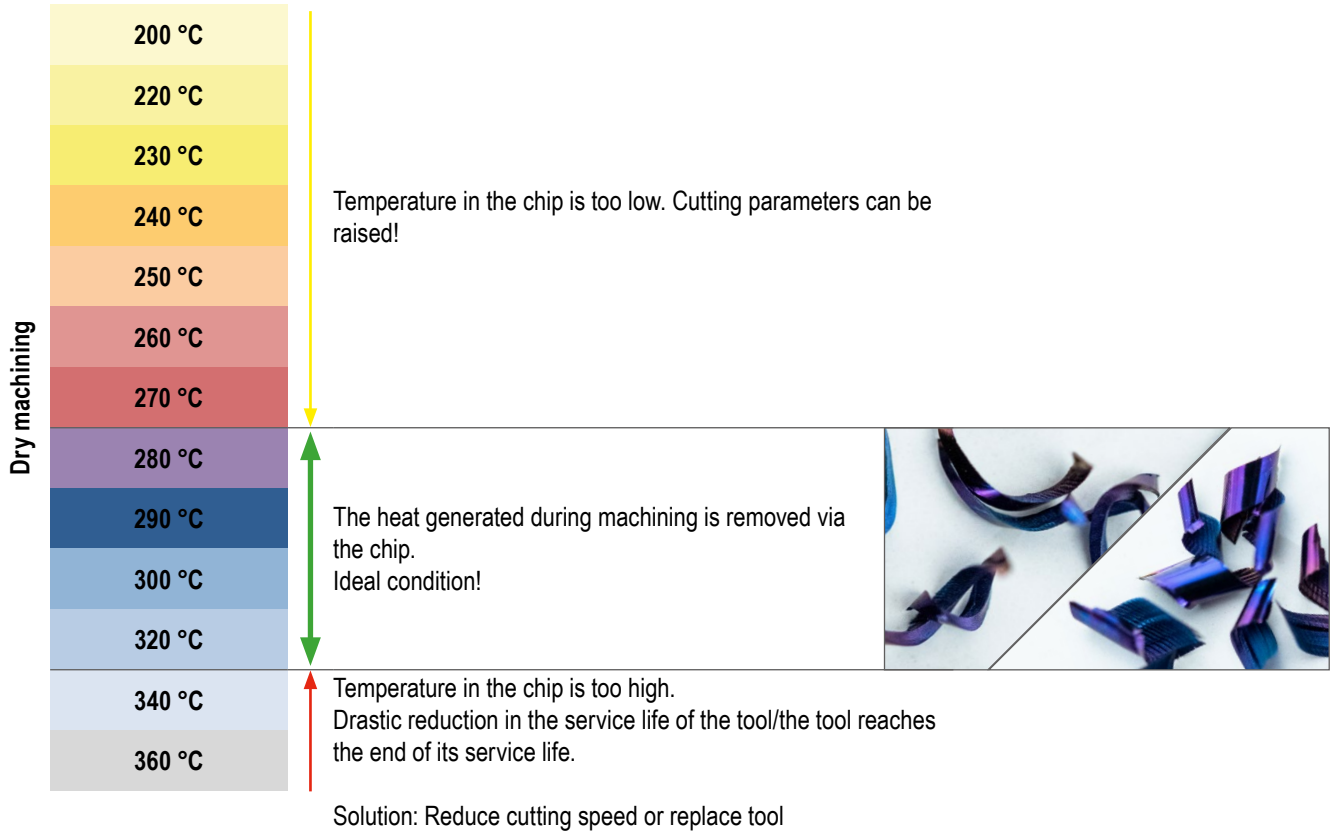
Note that the curvature of the component should be greater than the curvature of the tool.

Check whether your programming system supports the tool geometry of the 3D Finish and can work with it.

Differences between the milling cutter types

Designation	Type	Shape of the chip breaker	Application description	Chip shape
Rough and finish milling cutters	WF NF HF		▲ High chip volume, even on less powerful machines ▲ Surface quality mostly sufficient ▲ Lower cutting pressure compared to smooth-edged milling cutters ▲ Finish machining not needed	
Rough milling cutters	WR NR HR		▲ Produces very small and short chips ▲ Problem-solver in unstable conditions ▲ High chip volume, even on the weakest machines ▲ Exceptionally well suited to full slot milling ▲ Additional finish machining needed ▲ High feeds possible	

Temperature scale for chips when dry machining steel



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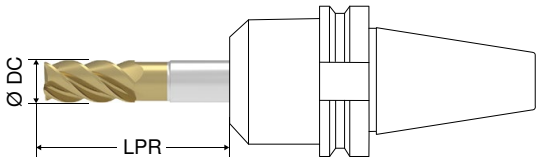
Tips for Tool Selection

Rake and helix angles combined with the coating are decisive factors for the operational area.

Characteristics	Benefits
Helix angle with slow spiral	
▲ For materials with high tensile strength	▲ High edge stability
▲ For high material removal rates	▲ Low tendency to edge chipping
▲ For slot milling, pocket milling, rough milling	
Helix angle with quick spiral	
▲ For soft steels, non ferrous metals, etc.	▲ Soft cut
▲ For low material removal rates	▲ Low cutting forces
▲ Typical for finishing processes	
Small rake angles are applied	
▲ For hard, brittle materials	▲ High edge stability
▲ For high material removal rates	▲ Low tendency to edge chipping
▲ For rough machining	
Large rake angles are applied	
▲ For soft materials	▲ Soft cut
▲ For low material removal rates	▲ Low cutting forces
▲ For finishing	▲ Favorable chip flow
	▲ Low tendency to stick

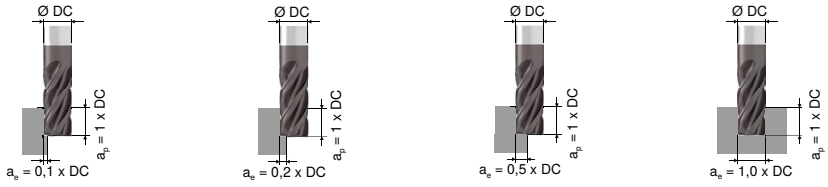
Correction factor for solid carbide milling cutters

Factors for cutting speed (v_c) and feed rate (f_z) in relation to the overhang length (LPR)



Length					
Overhang length (LPR)	1,5 x DC	4 x DC	8 x DC	12 x DC	> 12 x DC
Factor for v_c (Kf v_c)	1,0	1,0	0,9	0,85	0,7
Factor for f_z (Kf f_z)	1,2	1,0	0,8	0,7	0,5

Factors for cutting speed (v_c) and feed rate (f_z) in relation to the cutting depth (a_p) and cutting width (a_e)



Factor for v_c (Kf v_c)	1,3	1,1	1,0	0,85
Factor for f_z (Kf f_z)	1,5	1,3	1,0	0,8

Calculation aid for copy milling

Theoretical surface roughness (R_{th}) and step over (b_r)

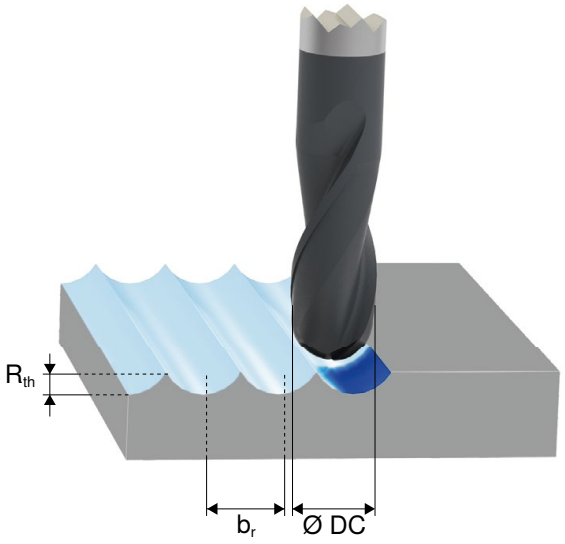
$$R_{th} = r - \sqrt{\frac{(r \times 2)^2 - b_r^2}{4}}$$

$$b_r = 2 \times \sqrt{R_{th} \times (r \times 2 - R_{th})}$$

$$R_{th} \simeq R_a / 0{,}1$$

$$R_a \simeq 0{,}1 \times R_{th}$$

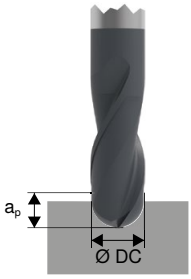
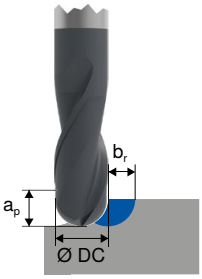
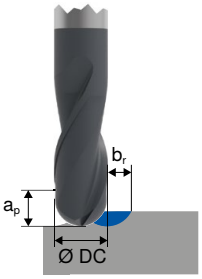
When copy milling, in order to achieve as smooth a surface as possible, the step over b_r should be adapted to the cutter diameter DC.
The smaller the cutter diameter DC is, the smaller the step over b_r must be.



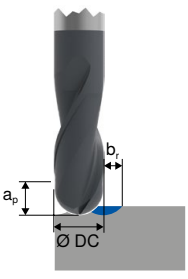
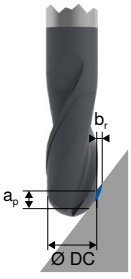
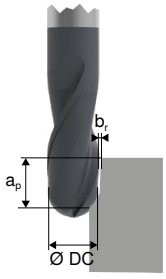
RPM correction factor (Kf n) for copy milling

$$n = \frac{v_c \times 1000}{DC \times \pi} \times Kf\ n$$

Rough machining

	Peripheral and ball nose copy milling	Ball nose copy milling	
			
Axial milling depth a_p	0,5 x DC	> 0,5 x DC	0,2 x DC – 0,5 x DC
Step over b_r	1 x DC	0,2 x DC – 0,5 x DC	0,2 x DC – 0,5 x DC
Correction factor (Kf n)	1	1	1,1

Finish milling

	Ball nose copy milling		
			
Axial milling depth a_p	< 0,2 x DC	0,2 x DC – 0,5 x DC	> 0,5 x DC
Step over b_r	< 0,2 x DC	< 0,2 x DC	< 0,2 x DC
Correction factor (Kf n)	2	1,3	1

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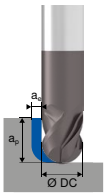
Calculation aid for copy milling

For peripheral milling or ball nosed copy milling at cutting depths of $\mathbf{a_p} \geq 0.5 \times DC$ and $\mathbf{a_e}$ = **0.2 to 0.5 x DC** the rpm can be calculated with the following fomula:

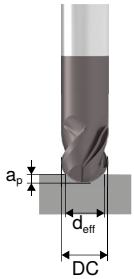
$$n = \frac{v_C \times 1000}{DC \times \pi}$$



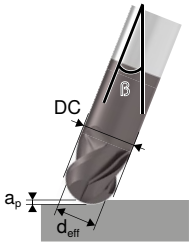
When ball milling the effective milling diameter $\mathbf{d_{eff.}}$ must be determined using the following formula:

Ball nose milling cutters

$$d_{eff.} = 2 \times \sqrt{a_p \times (DC - a_p)}$$

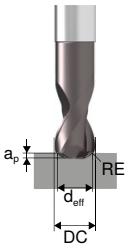


$$d_{eff.} = DC \times \sin\left(\beta \pm \arccos\left(\frac{DC - 2a_p}{DC}\right)\right)$$



Torus end milling cutters

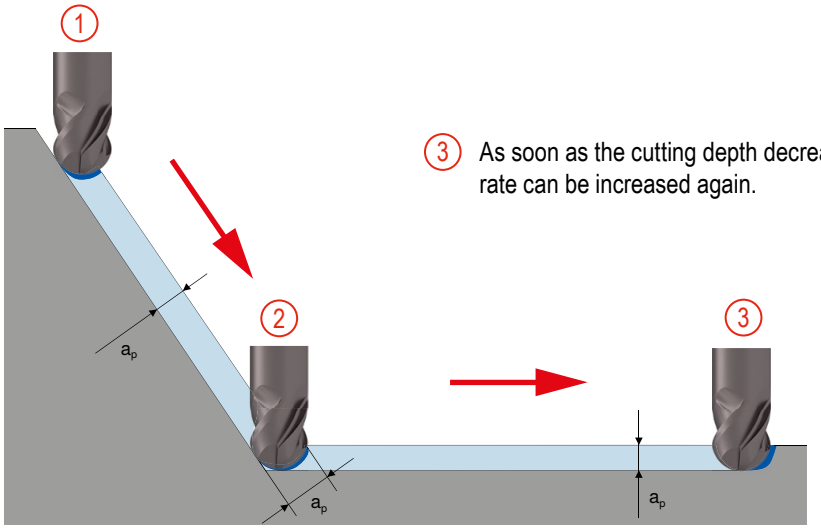
$$d_{eff.} = (DC - 2RE) + 2 \times \sqrt{a_p \times (2RE - a_p)}$$



Information concerning plunge and draw milling

(1) When machining the profile flanks relatively high feed rates are possible as the cutting depth is relatively low (area highlighted in blue).

(2) A large increase in cutting depth occurs when the base of the profile is reached. Here the feed rate must be reduced as othwerwise tool breakage can occur due to vibrations, misalignment or chattering.



(3) As soon as the cutting depth decreases during the machining of the profile base, the feed rate can be increased again.

Rule:
The steeper the angle, the lower the feed rate. The shallower the angle, the larger the feed rate.

When plunge or draw milling dies, the feed rate has to be adapted to the various milling positions. Otherwise the cutting edge can be damaged due to overload (vibrations, misalignment or chattering).

Version description

CCR AL	Circular Cutter – Non-ferrous metals
CCR H	Circular Cutter – Tempered steel
CCR Ti	Circular Cutter – Heat-resistant alloys
CCR UNI	Circular Cutter – Universal
CCR VA	Circular Cutter – stainless steels
H	For high-strength steels and tempered materials
HR	For high-strength steels and tempered materials – with roughing profile
N	For machining steel and cast materials, as well as stainless steels
NR	For machining steel and cast materials, as well as stainless steels – with roughing profile
NTR	For machining steel and cast materials, as well as stainless steels – with trapezoidal chip breakers
SC UNI	Soft Cut – Universal
SC NR	Soft Cut – with round cord profile
W	For soft materials and non-ferrous metals (aluminium, copper, brass)
WF	For soft materials and non-ferrous metals (aluminium, copper, brass) – with roughing-finishing profile
WR	For soft materials and non-ferrous metals (aluminium, copper, brass) – with roughing profile

MonsterMill

FRP	Fibre Cutter
FRP CR	Fibre cutter – with length-independent compression zone
HCR	Hard Cutter
ICR	Inox Cutter
MCR	Multi Cutter
NCR	Nickel Alloy Cutter
PCR ALU	Plunging Cutter – Non-ferrous metals
PCR UNI	Plunging Cutter – Universal
SCR	Steel Cutter
TCR	Titanium Cutter

Deburring cutters

KEL	Round cone (shape L)
KSJ	Conical 60" (shape J)
KSK	Conical 90" (shape K)
KUD	Spherical (shape D)
RBF	Round arch (shape F)
SKM	Tapered cone (shape M)
SPG	Ogival (shape G)
TRE	Droplet (shape E)
WKN	Angular without spur gearing (shape N)
WRC	Round roller (shape C)
ZYA	Cylindrical without spur gearing (shape A)

Coatings

APA72S
- AlCrN multilayer coating
- $HV_{0.05}$ = 3500
- Coefficient of friction (against steel) = 0.35
- Maximum application temperature: 1100 °C

APB72S
- Special nanolayer coating
- $HV_{0.05}$ = 3300
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 900 °C

APX72S
- Special nanolayer coating
- $HV_{0.05}$ = 3800
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 1100 °C

CTC5240
- TiB2-based coating
- HIT 43 GPa ~ 4300 $HV_{0.05}$
- Friction value against steel 0.3
- Maximum application temperature 1000 °C

CTPX225
- AlTiN-based coating
- HIT 35 GPa ~ 3500 $HV_{0.05}$
- Friction value against steel 0.5
- Maximum application temperature 1000 °C

DIAMOND
- Diamond monolayer coating
- $HV_{0.025}$ = 10,000
- Coefficient of friction (against steel) = 0.2
- Maximum application temperature: 700 °C

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

DPA52S
- Special nanolayer coating
- $HV_{0.05}$ = 3400
- Coefficient of friction (against steel) = 0.5
- Maximum application temperature: 1100 °C

DPA72S
- Special nanolayer coating
- $HV_{0.05}$ = 3200
- Coefficient of friction (against steel) = 0.5
- Maximum application temperature: 1000 °C

DPB72S
- TiAlCrN multilayer coating
- $HV_{0.05}$ = 3200
- Coefficient of friction (against steel) = 0.35
- Maximum application temperature: 1000 °C

DPX22S
- TiSiXN multilayer coating
- Layer hardness: H_{IT} [GPa] 38
- Maximum application temperature: 1100 °C

DPX52S
- TiSiN multilayer coating
- $HV_{0.05}$ = 3500
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 1000 °C

DPX62S
- TiAlN multilayer coating
- $HV_{0.05}$ = 3800
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 800 °C

DPX62U
- Special TiAlN coating
- $HV_{0.05}$ = 4000
- Coefficient of friction (against steel) = 0.5
- Maximum application temperature: 1150 °C

DPX72S
- Special multilayer coating
- $HV_{0.05}$ = 3400
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 900 °C

Ti28
- Ti multilayer coating
- $HV_{0.05}$ = 2800
- Coefficient of friction (against steel) = 0.1
- Maximum application temperature: 500 °C

Ti40
- Ti monolayer coating
- $HV_{0.05}$ = 4000
- Maximum application temperature: 900 °C

Ti400
- Ti multilayer coating
- $HV_{0.05}$ = 3500
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 400 °C

Ti1000
- Ti monolayer coating
- $HV_{0.05}$ = 3500
- Coefficient of friction (against steel) = 0.3
- Maximum application temperature: 800 °C

Ti1001
- Ti monolayer coating
- $HV_{0.05}$ = 3500
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 800 °C

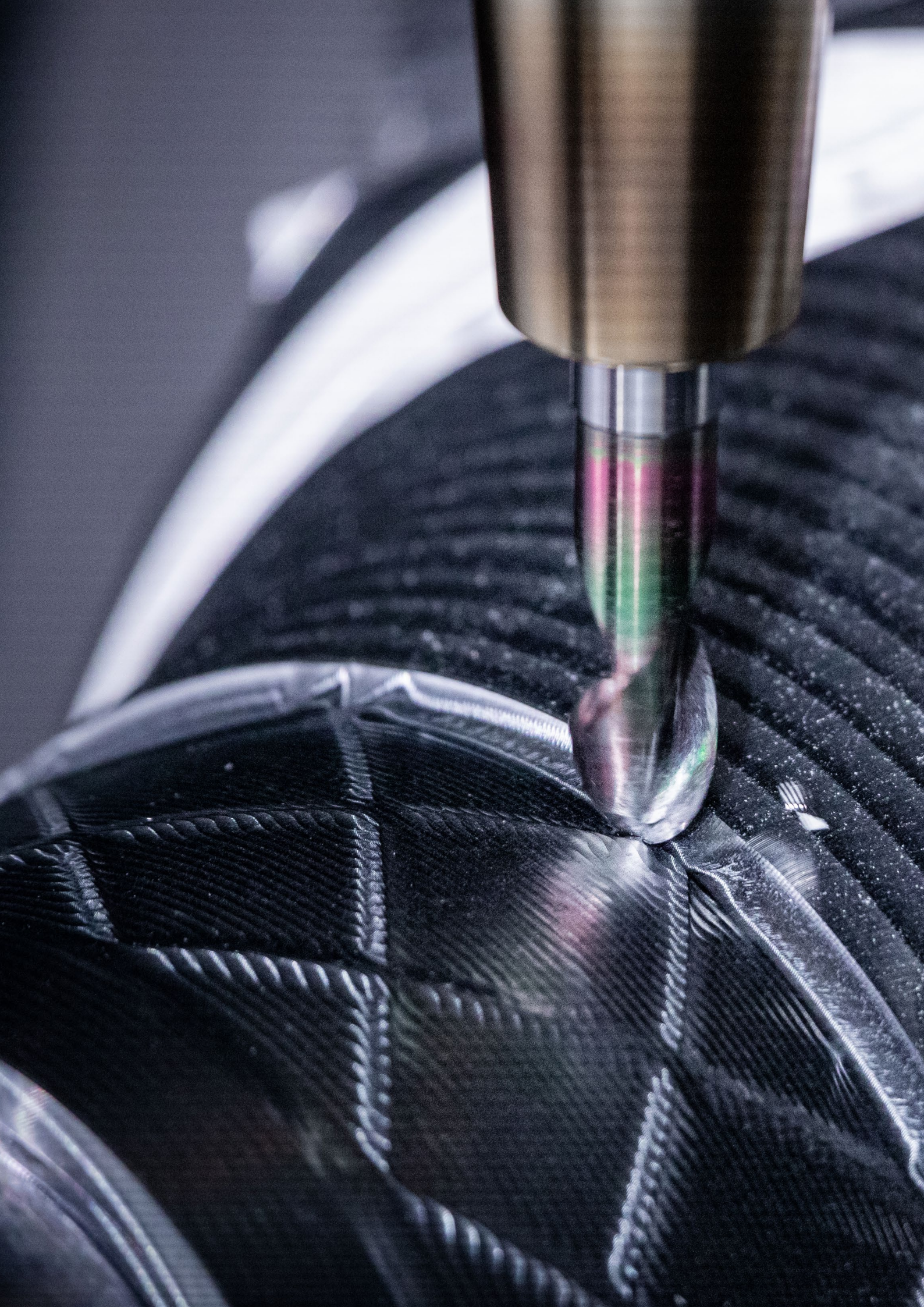
Ti1050
- Ti multilayer coating
- $HV_{0.005}$ = 3300
- Coefficient of friction (against steel) = 0.3-0.5
- Maximum application temperature: 900 °C

Ti1100
- Ti multilayer coating
- $HV_{0.05}$ = 3200
- Coefficient of friction (against steel) = 0.35
- Maximum application temperature: 1100 °C

Ti1200
- Ti nanolayer coating
- Maximum application temperature: 1100-1200 °C

Ti1500
- Ti nanolayer coating
- $HV_{0.05}$ = 3400
- Coefficient of friction (against steel) = 0.7
- Maximum application temperature: 900 °C

Ti2000
- Ti multilayer coating
- $HV_{0.05}$ = 3500
- Coefficient of friction (against steel) = 0.5
- Maximum application temperature: 900 °C



New products for machining technicians

NEW

MaxiMill Slot-SX

→ Page 126–141

New side and face milling system with SX inserts from SX grooving system

---

NEW

MaxiMill 242

→ Page 90

Update to chamfer milling cutter

NEW

MaxiMill 490

→ Page 78+80

Update to adjustable single angle milling cutter

NEW

CTPX715

New multi-range grade

NEW

MaxiMill 273-08

→ Page 35+36

NEW

MaxiMill 252

→ Page 115+116

Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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CERATIZIT \ Performance

Premium quality tools for high performance.

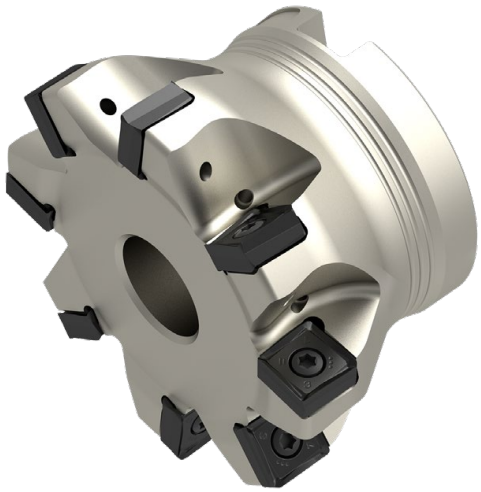
The premium quality tools from the **CERATIZIT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium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

Symbol explanation

central internal coolant

lateral internal coolant

Cutting edge angle



ZNF = Number of flutes

● = **Main Application**

○ = Extended application

Application symbols

Face milling

Angled ramping

Helical plunging

Axial ramping

Plunge milling

Slot milling

Shoulder milling

Slot milling (45°)

Chamfer milling

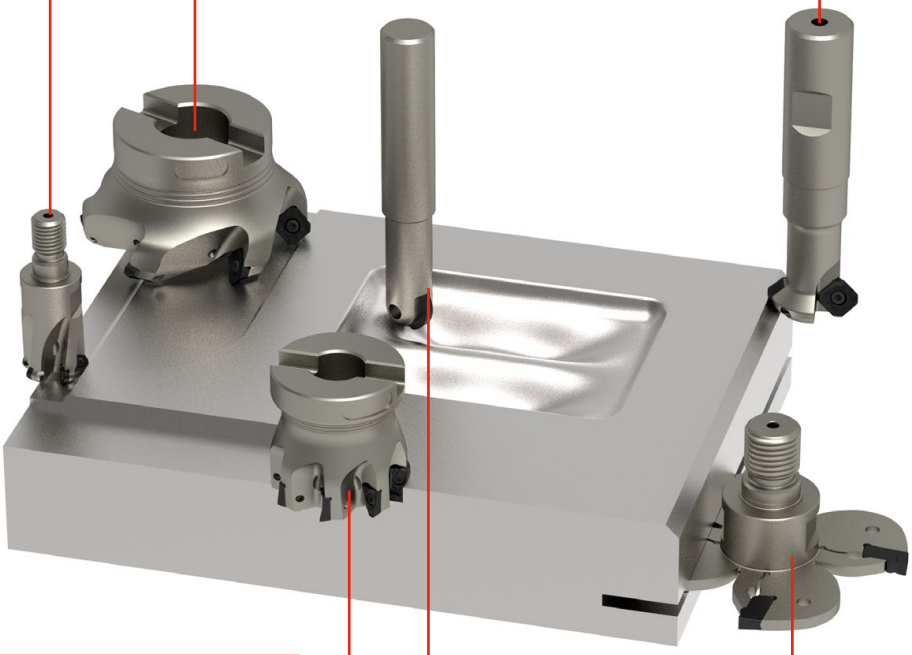
Free form milling

Toolfinder – Application Selection Guide

Form milling
→ System Selection:
10+11

Face milling
→ System Selection:
6+7

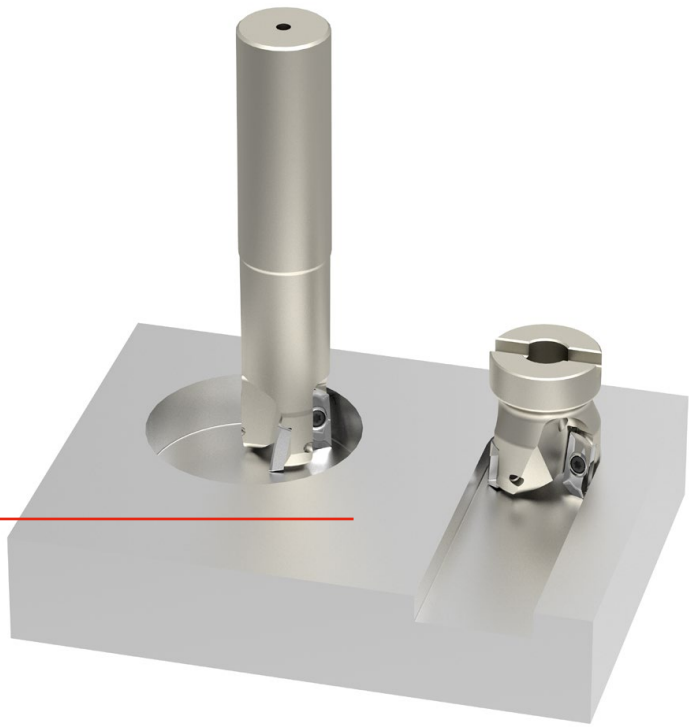
Chamfer/Angle milling cutters
→ System Selection:
12



Shoulder milling
→ System Selection:
8+9

Slot milling and saws
→ System Selection:
12

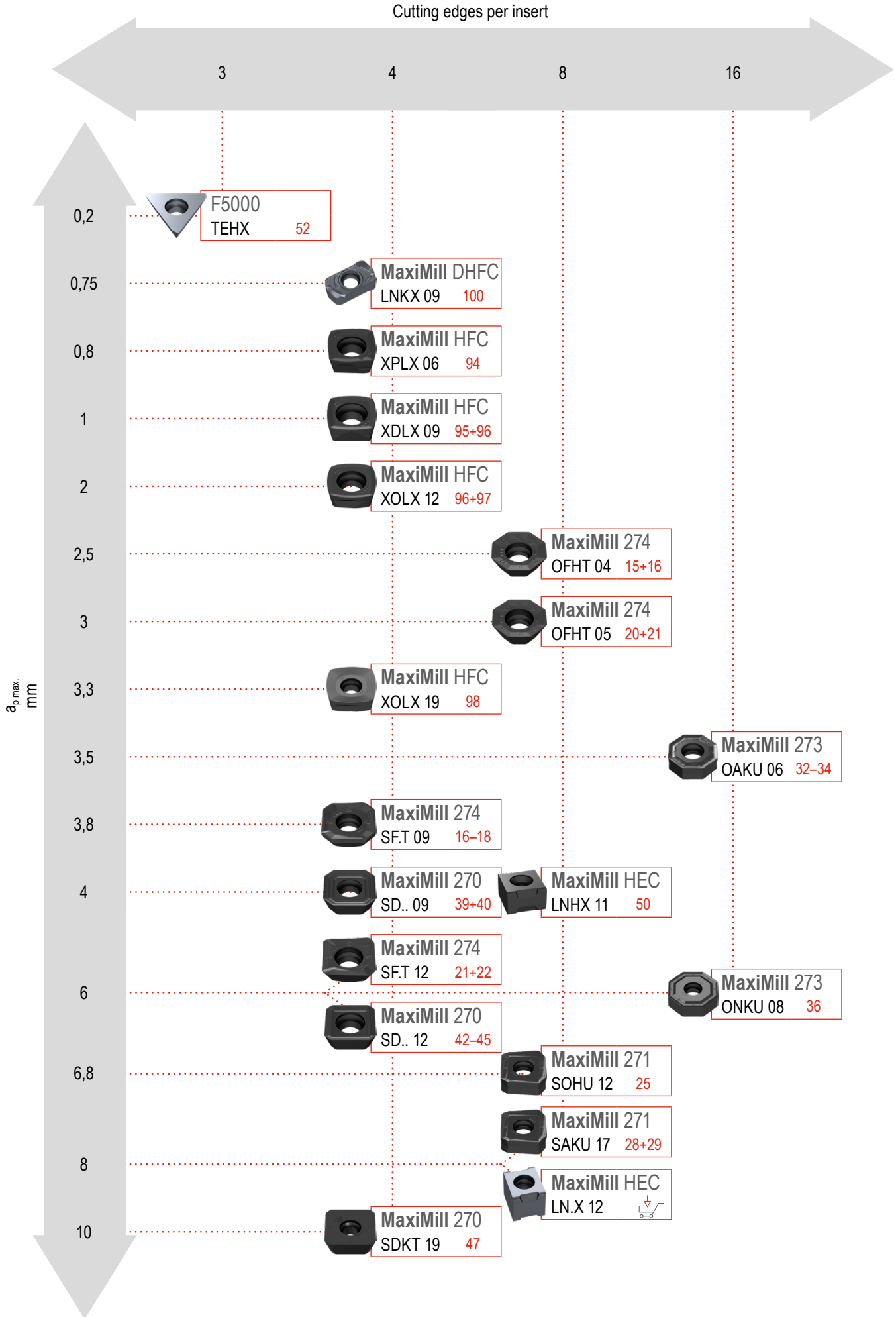
Form milling
→ System Selection:
10+11



HSC-/HPC-milling
→ System Selection:
8+9

15

Toolfinder – Face Milling Cutters



Overview – Face Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.
MaxiMill 274	**OFH.** 04.. / 05.. | **SF.T** 09.. / 12..	8 | 4	2,5–6	Ø 20–32	Ø 20–32	Ø 32–160	●	●	●	●	●		○	13–22
MaxiMill 271	**SOHU** 1204.. | **SAKU** 1706..	8	6,8 | 8,4		Ø 32–40	Ø 40–250	●	●	●		●			23–29
MaxiMill 273	**OAKU** 0605.. | **ONKU** 0806..	16	3,5 | 6			Ø 40–250	●	●	●		●			30–36
MaxiMill 270	**SD..** 0903.. / 1204.. / 19..	4	4–10		Ø 6–32	Ø 32–315	●	●	●	●	●			37–47
MaxiMill HEC	**LNHX** 1106..	8	4–8			Ø 50–160	●		●				○	48–50
MaxiMill HEC	**LN.X** 1210..	8	4–8			Ø 125–160		●						
F 5000	**TEHX** 16T3..	3	0,2			Ø 42–100	●	●	●			●		51+52
MaxiMill HFC	**X..X** 06.. / 09.. / 12.. / 19..	4	0,8–3,3	Ø 16–42	Ø 16–35	Ø 32–160	●	●	●		●			92–98
MaxiMill DHFC	**LNKX** 09..	4	0,75	Ø 16–42	Ø 16–20		●	●	●		○			99+100

Additional diameters are available upon request.

Indexable inserts for systems that are no longer listed here can be found in our online shop at cuttingtools.ceratizit.com

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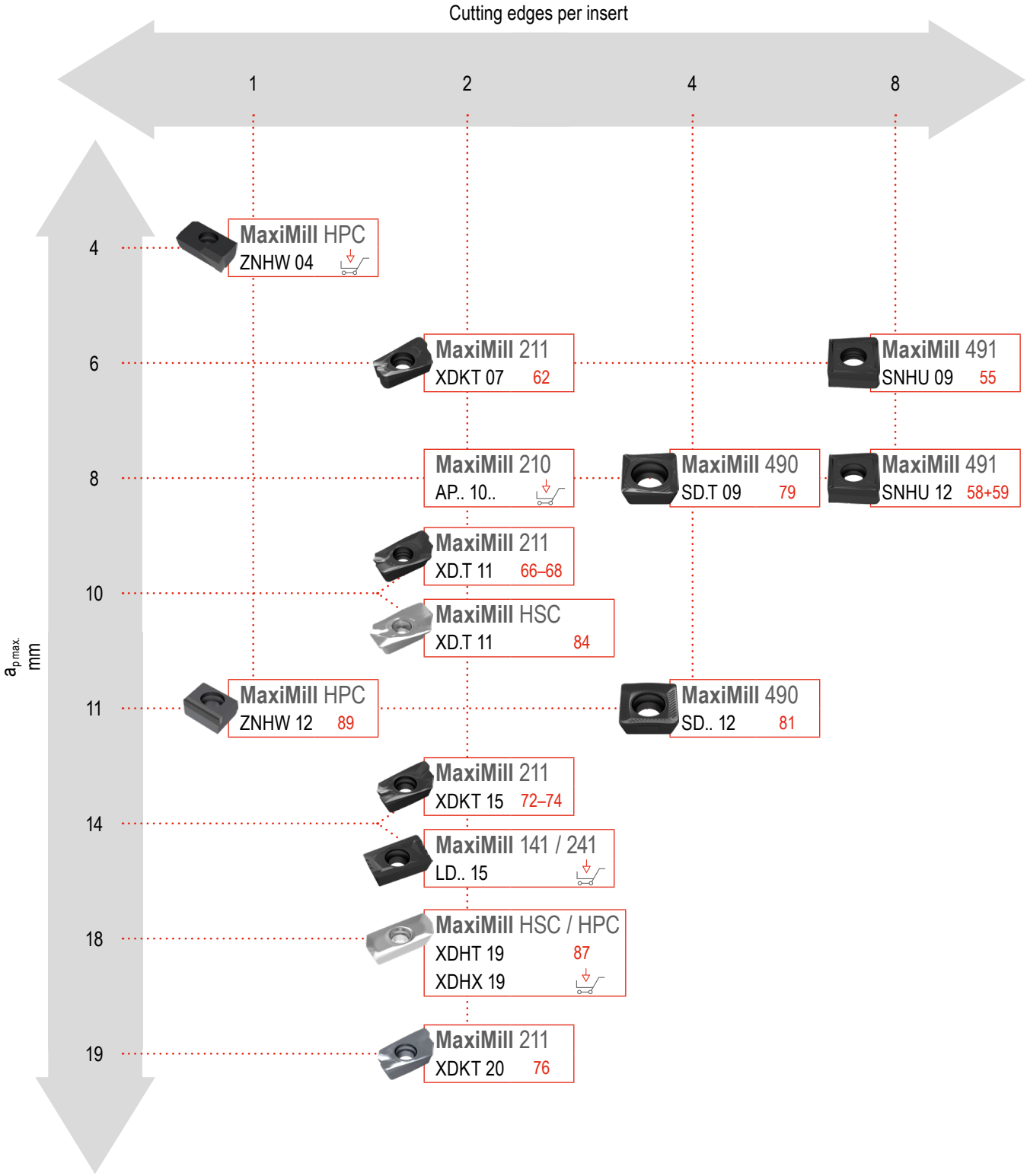
Toolfinder – shoulder milling



Overview – Shoulder Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.
MaxiMill 491	**SNHU** 09T3.. / 1204..	8	6–8	Ø 25–32	Ø 25–32	Ø 40–160	●	●	●	●	●		○	53–59
MaxiMill 211	**XD.T** 0703.. / 11T3.. / 1505.. / 2007..	2	6–19	Ø 16–40	Ø 10–40	Ø 32–160	●	●	●	●	●	●	○	60–76
MaxiMill 211KN	**XD.T** 11T3.. / 1505.. / 2007..	2	27–75,5		Ø 25–50	Ø 40–80	●	●	●	●	●		○	65+71
MaxiMill 490	**SD..** 09T3.. / 1205..	4	8–11	Ø 25–32	Ø 25–32	Ø 40–125	●	●	●	●	●		○	77
MaxiMill 490K	**SD..** 09T3..	4	41			Ø 40–63	●	●	●	●	●		○	78
MaxiMill HSC	**XD..** 11T3.. / 1904..	2	10–18	Ø 16–40	Ø 16–32	Ø 40–125		○	●				○	82–87
MaxiMill HPC	**XD..** 1904..	2	10–18		Ø 22–32	Ø 40–63	Ø 25–50		○	●				○	
MaxiMill HPC	**ZNHW** 1205..	1	4–11			Ø 40–315			●	●		○	○	88+89
MaxiMill HPC	**ZNHW** 04T3..	1	4–11	Ø 20–40	Ø 20–40				●	●		○	○	
MaxiMill 210	**AP..** 1003..	2	8			Ø 40–80	●	●	●	●	●	●	○	

Additional diameters are available upon request.

Indexable inserts for systems that are no longer listed here can be found in our online shop at cuttingtools.ceratizit.com

This article can be found in our online shop at cuttingtools.ceratizit.com

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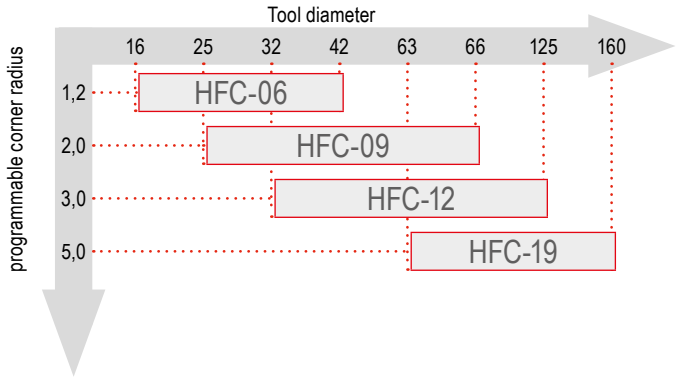
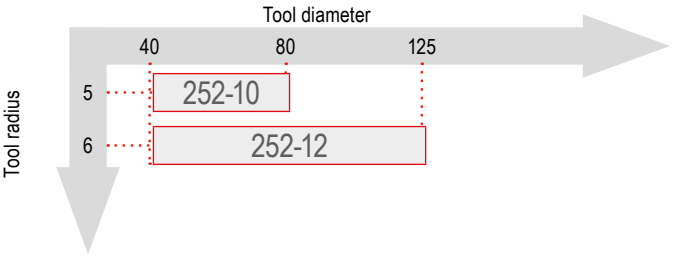
Toolfinder – form milling

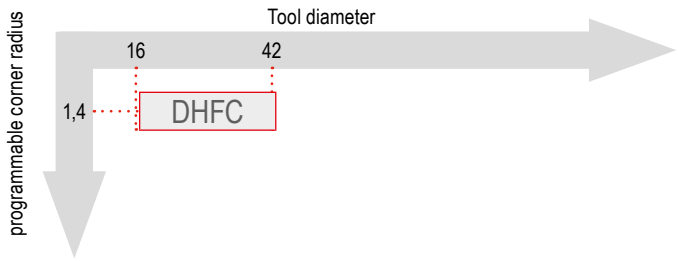
MaxiMill HFC 92–98



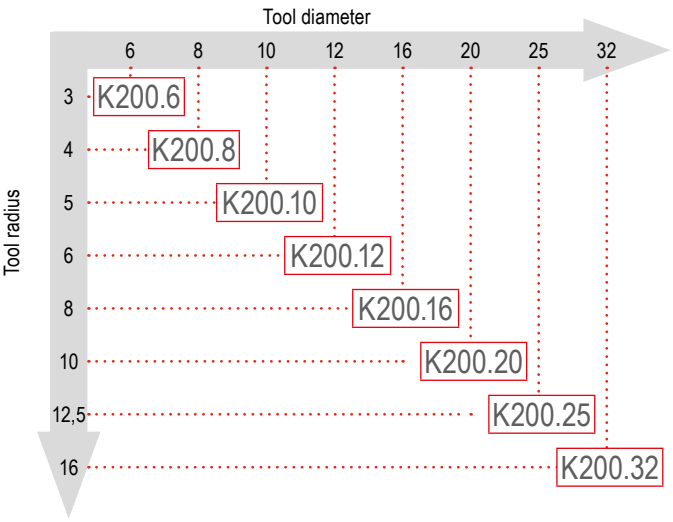
MaxiMill 252 115+116



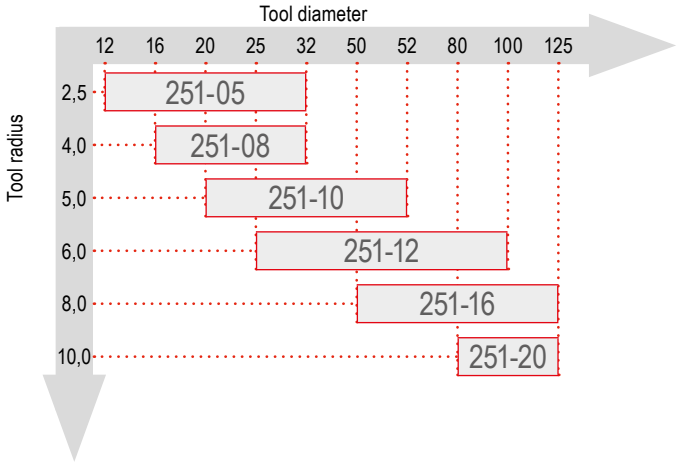
MaxiMill DHFC 99+100



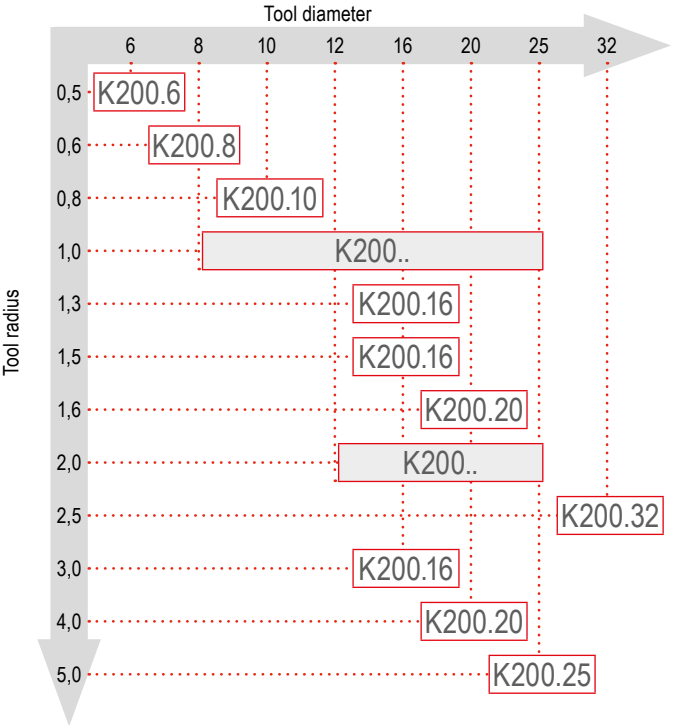
K200. Ball Nosed 117–121



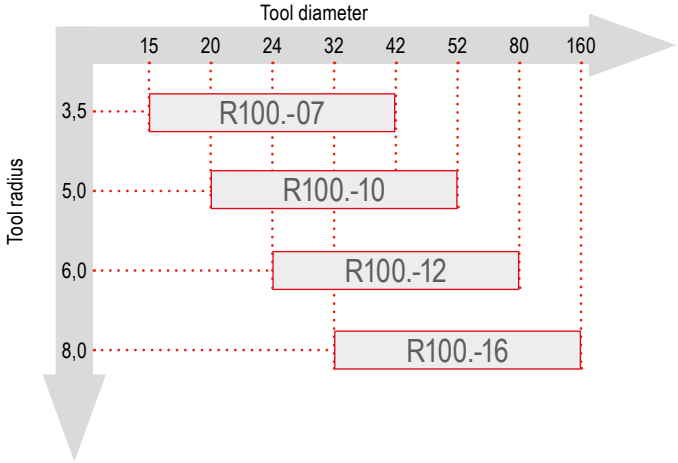
MaxiMill 251 RS 101–109



K200. Torus 122–125



R100. 110–114



Application range

Tool diameter

Overview – form milling

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.
MaxiMill HFC	**X.LX** 06.. / 09.. / 12.. / 19..	4	0,8–3,3	Ø 16–42	Ø 16–35	Ø 32–160	●	●	●		●			92–98
MaxiMill DHFC	**LNKX** 09..	4	0,75	Ø 16–42	Ø 16–20		●	●	●		○			99+100
MaxiMill 251 RS	**R..X** 05.. / 08.. / 10.. / 12.. / 16.. / 20..	8	2,5–10	Ø 10–42	Ø 10–32	Ø 40–125	●	●	●	●	●		●	101–109
R100.	**RD.X** 07.. / 10.. / 12.. / 16..	8	5	Ø 15–42	Ø 15–20	Ø 42–160	●	●	●	●	●	●	○	110–114
MaxiMill 252	**RNHU** 10.. / 12..	8	3			Ø 40–125	●	●	○		●			115+116
K200. Ball Nosed	**RO.X** .... / **XOHX**	1	0,4–8	Ø 8–32	Ø 6–32		●	●	●	●	○	●	●	117–121
K200. Torus	**XO.X**	1	0,5–8	Ø 8–32	Ø 8–32		●	●	●	●	○	○	●	122–125

Additional diameters are available upon request.

Indexable inserts for systems that are no longer listed here can be found in our online shop at cuttingtools.ceratizit.com

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Overview – Chamfer / Angle Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm		Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.
MaxiMill 272	**SD..** 0903..	4	4	Ø 6–25		●	●	○	●	●			38–40
MaxiMill 242	**LD..** 1504..	2			Ø 50–92	●	●	●	●	○		○	90+91
MaxiMill 490	**SD..** 09T3.. / 1205..	4	6–11	Ø 20,1–31,5		●	●	●	●	●		○	78–81

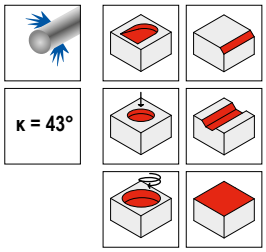
Additional diameters are available upon request.

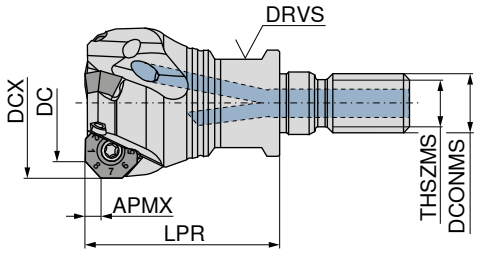
Overview – Saw cutters

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.
MaxiMill Slot-SX	**SX** E...	1	115	Ø 63–100	Ø 80–315		●	●	●	●	●		○	126–141
TX	**TX..** R/L	3	64		Ø 80–160	Ø 100–200	●	●	●	●	○		○	142–144

Additional diameters are available upon request.

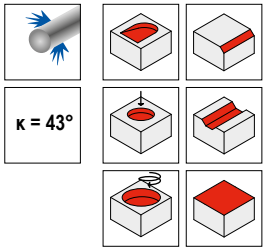
MaxiMill – 274-04/-09 Screw in cutter

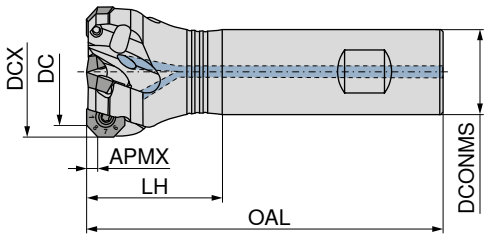




Designation	DC mm	DCX mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 742 ...
G274.20.R.03-09	20	25,8	3	3,8	35	M12	12,5	17	1,2	OF.. 0403 / SF.. 0903	020
G274.25.R.04-09	25	30,8	4	3,8	35	M12	12,5	17	1,2	OF.. 0403 / SF.. 0903	025
G274.32.R.05-09	32	37,9	5	3,8	35	M16	17,0	24	1,2	OF.. 0403 / SF.. 0903	032

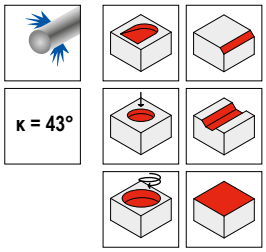
MaxiMill – 274-04/-09 End milling cutter

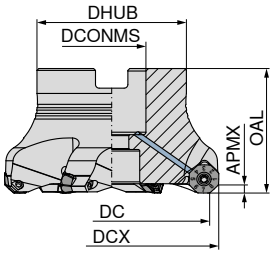


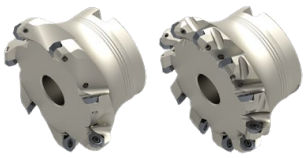


Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	torque moment Nm	Insert	50 743 ...	50 743 ...
C274.20.R.03-09-A/B20-25	20	25,8	3	3,8	77	25	20	1,2	OF.. 0403 / SF.. 0903	020	120
C274.25.R.04-09-A/B20-32	25	30,8	4	3,8	84	32	20	1,2	OF.. 0403 / SF.. 0903	025	125
C274.32.R.05-09-A/B25-40	32	37,9	5	3,8	98	40	25	1,2	OF.. 0403 / SF.. 0903	032	132

MaxiMill – 274-04/-09 Shell mill



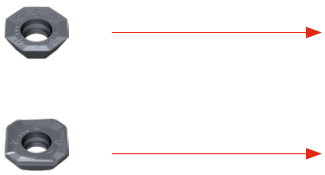


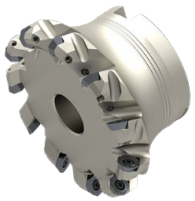


										50 744 ...		50 744 ...	
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	torque moment Nm	Insert				
A274.32.R.05-09	32	37,9	5	3,8	40	38	16	1,6	OF.. 0403 / SF.. 0903				**032**
A274.40.R.04-09	40	46,0	4	3,8	40	38	16	1,6	OF.. 0403 / SF.. 0903		**040**		
A274.40.R.06-09	40	46,0	6	3,8	40	38	16	1,6	OF.. 0403 / SF.. 0903				**140**
A274.50.R.05-09	50	55,9	5	3,8	40	48	22	1,6	OF.. 0403 / SF.. 0903		**050**		
A274.50.R.07-09	50	55,9	7	3,8	40	48	22	1,6	OF.. 0403 / SF.. 0903				**150**
A274.63.R.06-09	63	68,9	6	3,8	40	48	22	1,6	OF.. 0403 / SF.. 0903		**063**		
A274.63.R.09-09	63	68,9	9	3,8	40	48	22	1,6	OF.. 0403 / SF.. 0903				**163**
A274.80.R.07-09	80	85,9	7	3,8	50	58	27	1,6	OF.. 0403 / SF.. 0903		**080**		
A274.80.R.11-09	80	85,9	11	3,8	50	58	27	1,6	OF.. 0403 / SF.. 0903				**180**
A274.100.R.09-09	100	105,9	9	3,8	50	78	32	1,6	OF.. 0403 / SF.. 0903		**100**		
A274.100.R.13-09	100	105,9	13	3,8	50	78	32	1,6	OF.. 0403 / SF.. 0903				**200**
A274.125.R.12-09	125	130,9	12	3,8	63	88	40	1,6	OF.. 0403 / SF.. 0903		**125**		

	TORX® blade	Clamping key – T	Key D	Power Screw	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts							
DC							
20 - 32	**043**		**125**		**303**	**133**	**191**
32 - 40	**043**	**040**	**125**	**151**	**303**	**133**	**191**
50 - 125	**043**		**125**		**303**	**133**	**191**

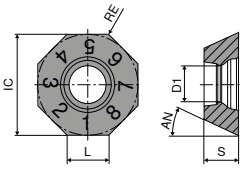
Two insert types – ONE Cutter



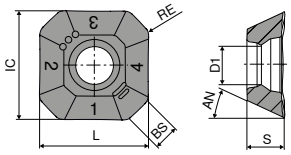


OFHT / OFHW / SFHT / SFKT

Designation	IC	D1	L	BS	S	AN
	mm	mm	mm	mm	mm	°
OFH. 0403..	9,52	3,35	3,94	-	3,18	25
SF.T 0903..	9,80	3,35	9,00	2,25	3,50	25

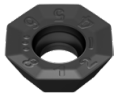
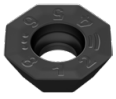
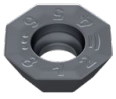


OF..

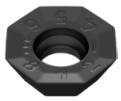
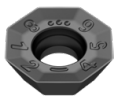


SF.T

OFHT

	-F50 CTCP230 DRAGONSKIN	-M50 CTCP230 DRAGONSKIN	-F50 CTPP235 DRAGONSKIN	-M50 CTPP235 DRAGONSKIN
				
	F	M	F	M
	OFHT	OFHT	OFHT	OFHT
	51 002 ...	51 003 ...	51 002 ...	51 003 ...
ISO / RE mm				
040305SN 0,5	005	005	105	105
P	●	●	●	●
M			○	○
K	○	○	○	○
N				
S				
H				
O				

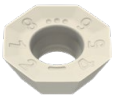
OFHT / OFHW

	-F50 CTCM235 DRAGONSKIN	-F50 CTPM240 DRAGONSKIN	-M50 CTPM240 DRAGONSKIN	-F50 CTPM245 DRAGONSKIN	CTPM245 DRAGONSKIN	-F50 CTCM245 DRAGONSKIN	CTCM245 DRAGONSKIN
							
	F	F	M	F	F	F	F
	OFHT	OFHT	OFHT	OFHT	OFHW	OFHT	OFHW
	51 002 ...	51 002 ...	51 003 ...	51 002 ...	51 105 ...	51 002 ...	51 105 ...
ISO / RE mm							
040302EN 0,2					452		90201
040305SN 0,5	305	405	405	455		90501	
P	●	○	○	●	●	●	●
M	●	●	●	●	●	●	●
K							
N							
S						○	○
H							
O							

15

OFHT / OFHW

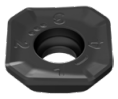
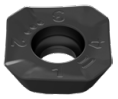
NEW

	-M50 CTCK215	-F10 CTPX715	-F10 CTWN215	-F50 CTC5240	CTC5240	-F50 CTCS245
	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	M	F	F	F	F	F
	OFHT	OFHT	OFHT	OFHT	OFHW	OFHT
	51 003 ...	51 122 ...	50 459 ...	51 002 ...	50 457 ...	51 002 ...
ISO / RE mm						
040302EN 0,2					504	
040305FN 0,5		00502	505			
040305SN 0,5	505			15500		555
P		○				
M		○				
K	●	●	○			
N		●	●			
S		○		●	●	●
H						
O		○	○			

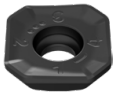
SFHT / SFKT

	-F50 CTPP225	-M50 CTPP225
	DRAGONSKIN	DRAGONSKIN
	F	M
	SFHT	SFKT
	51 012 ...	51 013 ...
ISO / RE mm		
0903AFSR 1	070	070
P	●	●
M		
K		
N		
S		
H		
O		

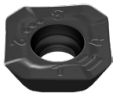
SFHT / SFKT

		-F50 CTCP230 DRAGONSKIN	-M50 CTCP230 DRAGONSKIN	-F50 CTPP235 DRAGONSKIN	-M50 CTPP235 DRAGONSKIN
					
		F	M	F	M
		SFHT	SFKT	SFHT	SFKT
		51 012 ...	51 013 ...	51 012 ...	51 013 ...
ISO	RE mm				
0903AFSR	1	020	020	120	120
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

SFHT / SFKT

		-F50 CTCM235 DRAGONSKIN	-F50 CTPM240 DRAGONSKIN	-M50 CTPM240 DRAGONSKIN	-F50 CTPM245 DRAGONSKIN	-F50 CTCM245 DRAGONSKIN
						
		F	F	M	F	F
		SFHT	SFHT	SFKT	SFHT	SFHT
		51 012 ...	51 012 ...	51 013 ...	51 012 ...	51 012 ...
ISO	RE mm					
0903AFSR	1	320	420	42000	470	92001
P		●	○	○	●	●
M		●	●	●	●	●
K						
N						
S						○
H						
O						

SFKT / SFHT

				NEW					
		-R50 CTCK215		-R50 CTPK220		-F10 CTPX715		-F10 CTWN215	-F40 CTC5240
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN			DRAGONSKIN
									
		R		R		F		F	F
		SFKT		SFKT		SFHT		SFHT	SFHT
		51 065 ...		51 065 ...		51 123 ...		50 514 ...	50 514 ...
ISO	RE mm								
0903AFFR	1						01502		
0903AFSR	1		520		620				504
P							○		
M							○		
K			●		●		●	○	
N							●	●	
S							○		●
H									
O							○	○	

Milling guide

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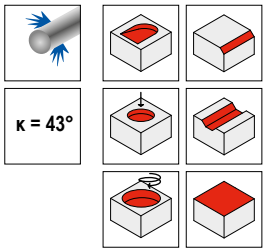
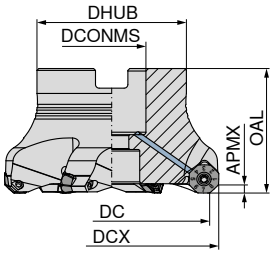
MaxiMill – 274-05/-12 Shell mill





										50 772 ...		50 772 ...	
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	torque moment Nm	Insert				
A274.40.R.03-12	40	48,0	3	6	40	38	16	3,2	OFHT 0504 / SFKT 1204	**24000**			
A274.40.R.04-12	40	48,0	4	6	40	38	16	3,2	OFHT 0504 / SFKT 1204				**04000**
A274.50.R.04-12	50	58,0	4	6	40	43	22	3,2	OFHT 0504 / SFKT 1204	**25000**			
A274.50.R.05-12	50	58,0	5	6	40	43	22	3,2	OFHT 0504 / SFKT 1204				**050**
A274.63.R.05-12	63	71,1	5	6	40	48	22	3,2	OFHT 0504 / SFKT 1204	**26300**			
A274.63.R.06-12	63	71,1	6	6	40	48	22	3,2	OFHT 0504 / SFKT 1204				**063**
A274.80.R.06-12	80	88,0	6	6	50	58	27	3,2	OFHT 0504 / SFKT 1204	**28000**			
A274.80.R.08-12	80	88,0	8	6	50	58	27	3,2	OFHT 0504 / SFKT 1204				**080**
A274.100.R.08-12	100	108,0	8	6	50	78	32	3,2	OFHT 0504 / SFKT 1204	**30000**			
A274.100.R.10-12	100	108,0	10	6	50	78	32	3,2	OFHT 0504 / SFKT 1204				**100**
A274.125.R.09-12	125	133,0	9	6	63	88	40	3,2	OFHT 0504 / SFKT 1204	**32500**			
A274.125.R.12-12	125	133,0	12	6	63	88	40	3,2	OFHT 0504 / SFKT 1204				**125**
A274.160.R.11-12	160	168,0	11	6	63	98	40	3,2	OFHT 0504 / SFKT 1204	**36000**[1)]			
A274.160.R.14-12	160	168,0	14	6	63	98	40	3,2	OFHT 0504 / SFKT 1204				**16000**[1)]

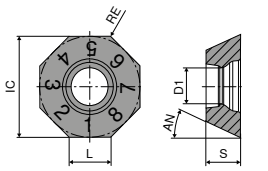
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

	TORX® blade	Key D	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts					
DC					
40 - 160	**054**	**128**	**303**	**340**	**193**

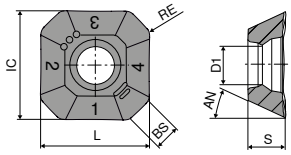
Two insert types – ONE Cutter

OFHT / SFHT / SFKT

Designation	IC	D1	L	BS	S	AN
	mm	mm	mm	mm	mm	°
OFHT 0504..	12,7	4,8	4,5	-	4,76	25
SF.T 1204..	12,7	4,8	12,7	1,42	4,76	25



OF..



SF.T

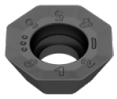
OFHT

	-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	F	M	F	M
	OFHT	OFHT	OFHT	OFHT
	51 002 ...	51 003 ...	51 002 ...	51 003 ...
ISO / RE mm				
050410SN / 1	010	01000	110	11000
P	●	●	●	●
M			○	○
K	○	○	○	○
N				
S				
H				
O				

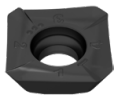
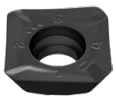
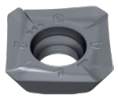
OFHT

	-F50 CTCM235	-F50 CTPM240	-M50 CTPM240	-F50 CTPM245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	F	F	M	F
	OFHT	OFHT	OFHT	OFHT
	51 002 ...	51 002 ...	51 003 ...	51 002 ...
ISO / RE mm				
050410SN / 1	310	410	41000	460
P	●	○	○	●
M	●	●	●	●
K				
N				
S				
H				
O				

OFHT

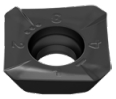
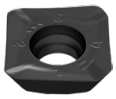
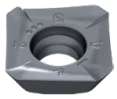
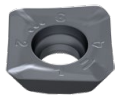
			NEW		
		-F50 CTCM245	-F10 CTPX715	-F10 CTWN215	-F50 CTC5240
		DRAGONSKIN	DRAGONSKIN		DRAGONSKIN
					
		F	F	F	F
		OFHT	OFHT	OFHT	OFHT
		51 002 ...	51 122 ...	51 122 ...	51 002 ...
ISO	RE mm				
050410FN	1		01002	36000	
050410SN	1	91001			16000
P		●	○		
M		●	○		
K			●	○	
N			●	●	
S		○	○		●
H					
O			○	○	

SFHT / SFKT

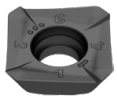
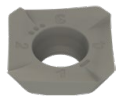
		-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		F	M	F	M
		SFHT	SFKT	SFHT	SFKT
		51 012 ...	51 013 ...	51 012 ...	51 013 ...
ISO	RE mm				
1204AFSR	1	02500	025	12500	125
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

15

SFHT / SFKT

		-F50 CTCM235	-M50 CTCM235	-F50 CTPM240	-M50 CTPM240
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		F	M	F	M
		SFHT	SFKT	SFHT	SFKT
		51 012 ...	51 013 ...	51 012 ...	51 013 ...
ISO	RE mm				
1204AFSR	1	325	325	42500	425
P		●	●	○	○
M		●	●	●	●
K					
N					
S					
H					
O					

SFHT

			-F50 CTPM245	-F50 CTCM245	NEW -F10 CTPX715	-F10 CTWN215	-F40 CTC5240
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN
							
			F	F	F	F	F
			SFHT	SFHT	SFHT	SFHT	SFHT
			51 012 ...	51 012 ...	51 123 ...	51 123 ...	50 514 ...
ISO	RE mm						
1204AFER	1						50900
1204AFFR	1				02502	37000	
1204AFSR	1		47500	92501			
P			●	●	○		
M			●	●	○		
K					●	○	
N					●	●	
S				○	○		●
H							
O					○	○	

Milling guide

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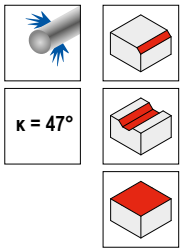
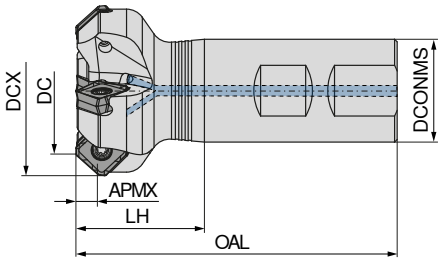
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

MaxiMill – 271-12 End milling cutter





50 786 ...

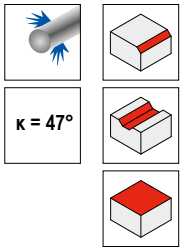
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS $_{h6}$ mm	RPMX 1/min.	torque moment Nm	Insert	
C271.32.R.03-12-B-40	32	45	3	6,8	100	40	32	18400	3,2	SOHU 1204.. / XOHU 1204..	**03203**
C271.40.R.04-12-B32-40	40	53	4	6,8	100	40	32	16800	3,2	SOHU 1204.. / XOHU 1204..	**04004**

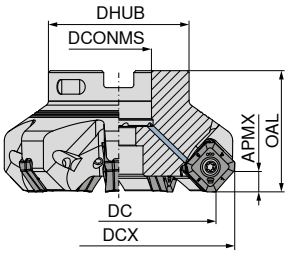
Spare parts DC		TORX® blade	Key D	Molykote	Clamping screw	Torque screwdriver
		80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
32 - 40		**054**	**120**	**303**	**859**	**193**

15

MaxiMill – 271-12 Face mill

▲ 8 cutting edges per insert

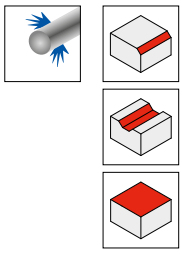


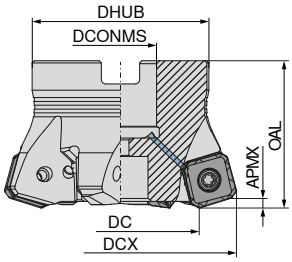


Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	50 787 ...	50 787 ...
A271.40.R.04-12	40	53	4	6,8	40	38	16	17900	3,2	SOHU 1204.. / XOHU 1204..		**04004**
A271.50.R.05-12	50	63	5	6,8	40	43	22	15200	3,2	SOHU 1204.. / XOHU 1204..		**05005**
A271.63.R.07-12	63	76	7	6,8	40	48	22	13100	3,2	SOHU 1204.. / XOHU 1204..		**06307**
A271.80.R.06-12	80	93	6	6,8	50	58	27	11300	3,2	SOHU 1204.. / XOHU 1204..	**08006**	
A271.80.R.08-12	80	93	8	6,8	50	58	27	11300	3,2	SOHU 1204.. / XOHU 1204..		**08008**
A271.100.R.07-12	100	113	7	6,8	63	78	32	9900	3,2	SOHU 1204.. / XOHU 1204..	**10007**	
A271.100.R.10-12	100	113	10	6,8	63	78	32	9900	3,2	SOHU 1204.. / XOHU 1204..		**10010**
A271.125.R.08-12	125	138	8	6,8	63	88	40	8700	3,2	SOHU 1204.. / XOHU 1204..	**12508**	
A271.125.R.12-12	125	138	12	6,8	63	88	40	8700	3,2	SOHU 1204.. / XOHU 1204..		**12512**
A271.160.R.09-12	160	173	9	6,8	63	98	40	7600	3,2	SOHU 1204.. / XOHU 1204..	**16009**[1]	
A271.160.R.14-12	160	173	14	6,8	63	98	40	7600	3,2	SOHU 1204.. / XOHU 1204..		**16014**[1]
A271.200.R.11-12	200	213	11	6,8	63	132	60	6700	3,2	SOHU 1204.. / XOHU 1204..	**20011**[2]	
A271.200.R.17-12	200	213	17	6,8	63	132	60	6700	3,2	SOHU 1204.. / XOHU 1204..		**20017**[2]
A271.250.R.13-12	250	263	13	6,8	63	132	60	6000	3,2	SOHU 1204.. / XOHU 1204..	**25013**[2]	
A271.250.R.21-12	250	263	21	6,8	63	132	60	6000	3,2	SOHU 1204.. / XOHU 1204..		**25021**[2]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
2) With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm / Without Through Coolant

MaxiMill – 271-12 HFC Face mill



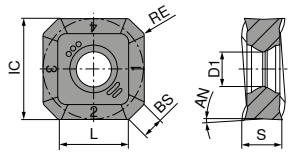


Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	50 788 ...
A271.50.R.04-12-HFC	30	50	4	2,6	40	43	22	14600	3,2	SOHU 1204..	**05004**
A271.63.R.06-12-HFC	43	63	6	2,6	40	48	22	12500	3,2	SOHU 1204..	**06306**
A271.80.R.07-12-HFC	60	80	7	2,6	50	58	27	10800	3,2	SOHU 1204..	**08007**

	TORX® blade	Clamping key – T	Key D	Power Screw	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts							
DC							
40 (5078704004)	**054**	**040**	**120**	**151**	**303**	**859**	**193**
50 - 250	**054**		**120**		**303**	**859**	**193**
50 (5078805004)	**054**	**050**	**120**	**154**	**303**	**859**	**193**

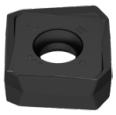
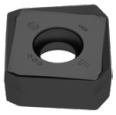
SOHU

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
SOHU 1204..	13,36	4,4	8,8	1,7	5,00	7,4

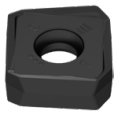
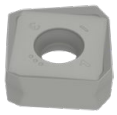


SOHU

SOHU

	-M50 CTCP230	-M50 CTPP235	-M50 CTCM235	-M50 CTPM240	-F50 CTPM245	-F50 CTCM245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	SOHU	SOHU	SOHU	SOHU	SOHU	SOHU
	51 138 ...	51 138 ...	51 138 ...	51 138 ...	51 140 ...	51 140 ...
ISO / RE mm						
1204ABSR 0,8	02000	12000	32000	42000	47000	92001
P	●	●	●	○	●	●
M		○	●	●	●	●
K	○	○				
N						
S						○
H						
O						

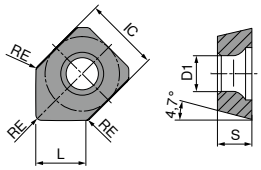
SOHU

	-R50 CTCK215	-R50 CTPK220	-F40 CTC5240	-F50 CTC5240
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	SOHU	SOHU	SOHU	SOHU
	51 139 ...	51 139 ...	51 148 ...	51 140 ...
ISO / RE mm				
1204ABSR 0,8	52000	62000	12001	17000
P				
M				
K	●	●		
N				
S			●	●
H				
O				

15

XOHU

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XOHU 1204..	13,36	4,4	8,8	1,83	5,00



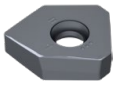
XOHU

XOHU

▲ Masterfinish indexable insert (sweeper insert)

-M50
CTPP235

DRAGONSKIN


XOHU

51 141 ...

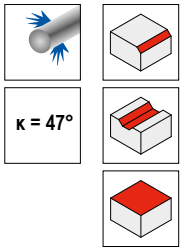
ISO	RE	
	mm	
1204ABSR	0,8	**12000**
P		●
M		○
K		○
N		
S		
H		
O		

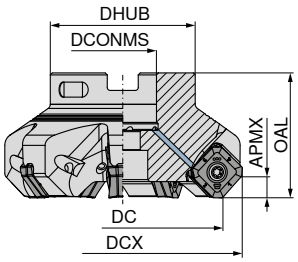
Milling guide

Cutting data standard values	→ 145–148	Starting Parameter	→ 153
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

MaxiMill – 271-17 Face mill

▲ 8 cutting edges per insert





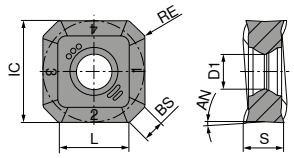
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	50 767 ...
A271.50.R.04-17	50	66,1	4	8,4	40	22	43	5	SAKU 1706	**050**
A271.63.R.06-17	63	79,1	6	8,4	40	22	48	5	SAKU 1706	**063**
A271.80.R.07-17	80	96,1	7	8,4	50	27	58	5	SAKU 1706	**080**
A271.100.R.08-17	100	116,1	8	8,4	50	32	78	5	SAKU 1706	**100**
A271.125.R.10-17	125	141,1	10	8,4	63	40	88	5	SAKU 1706	**125**
A271.160.R.12-17	160	176,1	12	8,4	63	40	104	5	SAKU 1706	**16000**[1]
A271.200.R.13-17	200	216,1	13	8,4	63	60	134	5	SAKU 1706	**20000**[2]
A271.250.R.15-17	250	266,1	15	8,4	63	60	134	5	SAKU 1706	**25000**[2]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
2) With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm / Without Through Coolant

Spare parts DC	TORX® blade	Key D	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
50 - 250	**037**	**114**	**303**	**302**	**193**

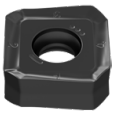
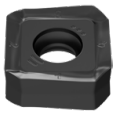
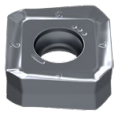
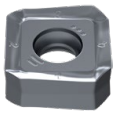
SAKU

Designation	IC	D1	L	BS	S	AN
	mm	mm	mm	mm	mm	°
SAKU 1706..	17	5,8	11,85	3,7	6,35	3



SAKU

SAKU

		-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
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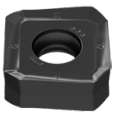
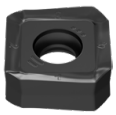
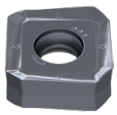
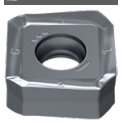
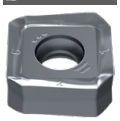
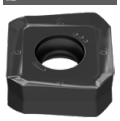
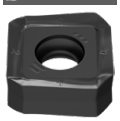
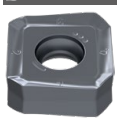
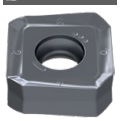
		51 004 ...	51 005 ...	51 004 ...	51 005 ...
ISO	RE mm				
1706ABSR	0,8	270	270	070	070
P		●	●	●	●
M					
K					
N					
S					
H					
O					

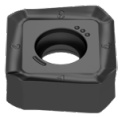
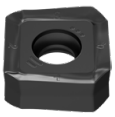
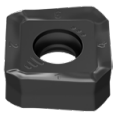
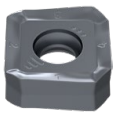
SAKU

		-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		SAKU	SAKU	SAKU	SAKU
		51 004 ...	51 005 ...	51 004 ...	51 005 ...
ISO	RE mm				
1706ABSR	0,8	020	020	120	120
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

SAKU

	-F50 CTPM225	-M50 CTPM225	-F50 CTCM235	-M50 CTCM235	-F50 CTPM240	-M50 CTPM240	-F50 CTPM245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	SAKU	SAKU	SAKU	SAKU	SAKU	SAKU	SAKU
	51 004 ...	51 005 ...	51 004 ...	51 005 ...	51 004 ...	51 005 ...	51 004 ...
ISO / RE mm							
1706ABSR 0,8	220	220	320	320	420	420	470
P	●	●	●	●	○	○	●
M	●	●	●	●	●	●	●
K							
N							
S							
H							
O							

SAKU

	-F50 CTCM245	-M50 CTCK215	-R50 CTCK215	-M50 CTPK220	-R50 CTPK220	-F50 CTC5240	-F50 CTCS245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	SAKU	SAKU	SAKU	SAKU	SAKU	SAKU	SAKU
	51 004 ...	51 005 ...	51 058 ...	51 005 ...	51 058 ...	50 306 ...	51 004 ...
ISO / RE mm							
1706ABSR 0,8	92001	520	520	620	620	520	570
P	●						
M	●						
K		●	●	●	●		
N							
S	○					●	●
H							
O							

Milling guide

Cutting data standard values	→ 145–148	Starting Parameter	→ 153
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

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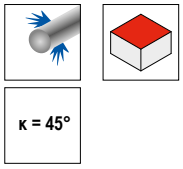
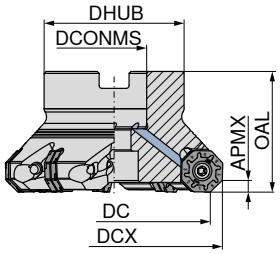
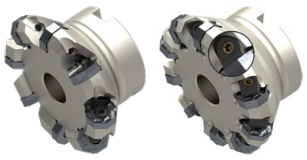
MaxiMill – 273-06 Shell mill

▲ 16 cutting edges per insert







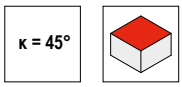
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	50 741 ...	50 741 ...
A273.40.R.03-06	40	50,2	3	3,5	40	16	38	5	OAKU / XAHT 0605	**040**	
A273.40.R.04-06	40	50,2	4	3,5	40	16	38	5	OAKU / XAHT 0605	**140** 5)	
A273.50.R.05-06	50	60,2	5	3,5	40	22	43	5	OAKU / XAHT 0605	**050**	
A273.63.R.07-06	63	73,2	7	3,5	40	22	48	5	OAKU / XAHT 0605	**063**	
A273.80.R.08-06	80	90,2	8	3,5	50	27	58	5	OAKU / XAHT 0605	**080**	
A273.80.R.10-06	80	90,2	10	3,5	50	27	58	4	OAKU / XAHT 0605		**180** 1)
A273.100.R.10-06	100	110,2	10	3,5	50	32	78	5	OAKU / XAHT 0605	**100**	
A273.100.R.14-06	100	110,2	14	3,5	50	32	78	4	OAKU / XAHT 0605		**200** 1)
A273.125.R.12-06	125	135,2	12	3,5	63	40	88	5	OAKU / XAHT 0605	**125**	
A273.125.R.17-06	125	135,2	17	3,5	63	40	88	4	OAKU / XAHT 0605		**225** 1)
A273.160.R.14-06	160	170,2	14	3,5	63	40	104	5	OAKU / XAHT 0605	**160** 4)	
A273.160.R.20-06	160	170,2	20	3,5	63	40	104	4	OAKU / XAHT 0605		**260** 2)
A273.200.R.25-06	200	210,2	25	3,5	63	60	153	4	OAKU / XAHT 0605		**300** 3)
A273.250.R.31-06	250	260,2	31	3,5	63	60	153	4	OAKU / XAHT 0605		**25031** 3)

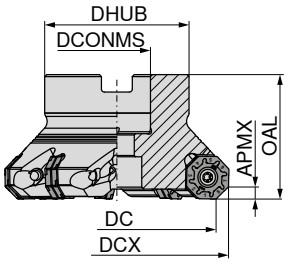
1) Version with Wedge, without internal coolant supply
2) Version with Wedge, without internal coolant supply / With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm
3) Version with Wedge, without internal coolant supply / With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm
4) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
5) Without Through Coolant

Spare parts DC	TORX® blade 80 950 ...	Clamping key – T 80 397 ...	Clamping wedge screw 70 950 ...	Clamping wedge Face mill 70 950 ...	Key D 80 950 ...	Power Screw 70 950 ...	Clamping screw 70 950 ...	Torque screwdriver 80 950 ...
40	**037**	**040**			**114**	**151**	**302**	**193**
50	**037**	**050**			**114**	**154**	**302**	**193**
63 - 80	**037**				**114**		**302**	**193**
80 - 100	**036**		**844**	**845**	**113**			**193**
100 - 125	**037**				**114**		**302**	**193**
125	**036**		**844**	**845**	**113**			**193**
160	**037**				**114**		**302**	**193**
160 - 250	**036**		**844**	**845**	**113**			**193**

MaxiMill – 273-06 Shell mill

▲ 16 cutting edges per indexable insert
▲ Axially adjustable





Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	torque moment Nm	Insert	50 777 ...
A273.80.R.10A10-06	80	90,2	10	3,5	50	27	58	4	OAKU / XAHT 0605	**08010**[1)]
A273.100.R.14A14-06	100	110,2	14	3,5	50	32	78	4	OAKU / XAHT 0605	**10014**[1)]
A273.125.R.17A17-06	125	135,2	17	3,5	63	40	88	4	OAKU / XAHT 0605	**12517**[1)]
A273.160.R.20A20-06	160	170,2	20	3,5	63	40	104	4	OAKU / XAHT 0605	**16020**[2)]
A273.200.R.25A25-06	200	210,2	25	3,5	63	60	153	4	OAKU / XAHT 0605	**20025**[3)]
A273.250.R.31A31-06	250	260,2	31	3,5	63	60	153	4	OAKU / XAHT 0605	**25031**[3)]

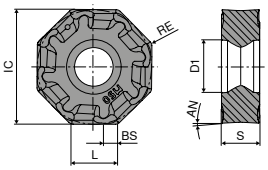
1) Version with Wedge
2) Version with Wedge / With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm
3) Version with Wedge / With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm

Spare parts DC	TORX® blade	Clamping wedge screw	Clamping wedge Face mill	Key D	Molykote	Wedge	Torque screwdriver
	80 950 ...	**70 950 ...**	**70 950 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
80 - 250	**036**	**844**	**845**	**113**	**303**	**199**	**193**

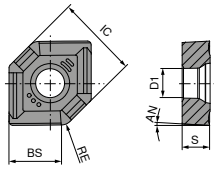
15

OAKU / XAHT

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
XAHT 0605..	17,08	6,0	-	11,95	5,56	3
OAKU 0605..	17,10	5,8	6	2,00	5,66	3

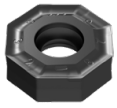
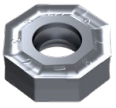


OAKU

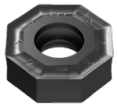
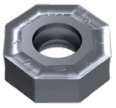


XAHT

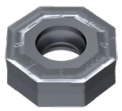
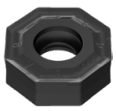
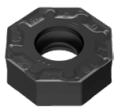
OAKU

ISO	RE mm	-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		OAKU	OAKU	OAKU	OAKU
		51 000 ...	51 001 ...	51 000 ...	51 001 ...
060508SR	0,8	258	258	058	058
P		●	●	●	●
M					
K					
N					
S					
H					
O					

OAKU

ISO	RE mm	-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		OAKU	OAKU	OAKU	OAKU
		51 000 ...	51 001 ...	51 000 ...	51 001 ...
060508SR	0,8	008	008	108	108
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

OAKU

	-F50 CTPM225	-M50 CTPM225	-F50 CTCM235	-M50 CTCM235	-F50 CTPM240	-M50 CTPM240	-F40 CTPM245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	OAKU	OAKU	OAKU	OAKU	OAKU	OAKU	OAKU
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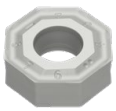
ISO / RE mm							
060508ER 0,8							458
060508SR 0,8	208	208	308	308	408	408	
P	●	●	●	●	○	○	●
M	●	●	●	●	●	●	●
K							
N							
S							
H							
O							

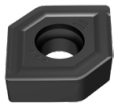
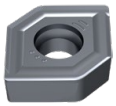
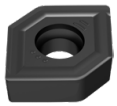
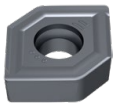
OAKU

	-F40 CTCM245	-M50 CTCK215	-R50 CTCK215	-M50 CTPK220	-R50 CTPK220	-F40 CTC5240	-F40 CTCS245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	OAKU	OAKU	OAKU	OAKU	OAKU	OAKU	OAKU
	51 104 ...	51 001 ...	51 027 ...	51 001 ...	51 027 ...	50 446 ...	51 104 ...
ISO / RE mm							
060508ER 0,8	90801					550	50801
060508SR 0,8		508	508	608	608		
P	●						
M	●						
K		●	●	●	●		
N							
S	○					●	●
H							
O							

15

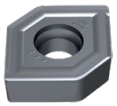
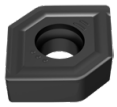
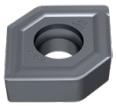
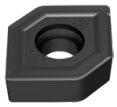
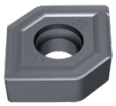
XAHT

▲ Masterfinish indexable insert (sweeper insert)

		-M50 CTCP220 DRAGONSKIN	-M50 CTPP225 DRAGONSKIN	-M50 CTCP230 DRAGONSKIN	-M50 CTPP235 DRAGONSKIN
					
		XAHT	XAHT	XAHT	XAHT
		51 014 ...	51 014 ...	51 014 ...	51 014 ...
ISO	RE mm				
060525SR	2,5	275	075	025	125
P		●	●	●	●
M					○
K				○	○
N					
S					
H					
O					

XAHT

▲ Masterfinish indexable insert (sweeper insert)

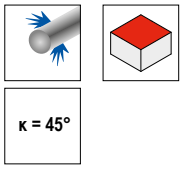
		-M50 CTPM225 DRAGONSKIN	-M50 CTCM235 DRAGONSKIN	-M50 CTPM240 DRAGONSKIN	-M50 CTCK215 DRAGONSKIN	-M50 CTPK220 DRAGONSKIN
						
		XAHT	XAHT	XAHT	XAHT	XAHT
		51 014 ...	51 014 ...	51 014 ...	51 014 ...	51 014 ...
ISO	RE mm					
060525SR	2,5	225	325	425	525	625
P		●	●	○		
M		●	●	●		
K					●	●
N						
S						
H						
O						

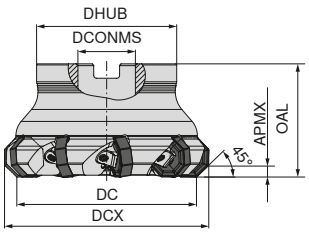
Milling guide

Cutting data standard values	→ 145–148	Starting Parameter	→ 154
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

MaxiMill – 273-08 Shell mill

▲ 16 cutting edges per insert





NEW NEW

Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	torque moment Nm	Insert	50 779 ...	50 779 ...
A273.63.R.05-08	63	76,7	5	5	50	22	48	5	ONKU 0806	**06300**	
A273.63.R.06-08	63	76,7	6	5	50	22	48	5	ONKU 0806		**16300**[1]
A273.80.R.06-08	80	93,7	6	5	50	27	58	5	ONKU 0806	**08000**	
A273.80.R.08-08	80	93,7	8	5	50	27	58	4	ONKU 0806		**18000**[1]
A273.100.R.07-08	100	113,7	7	5	63	32	78	5	ONKU 0806	**10000**	
A273.100.R.09-08	100	113,7	9	5	63	32	78	4	ONKU 0806		**20000**[1]
A273.125.R.08-08	125	138,7	8	5	63	40	88	5	ONKU 0806	**12500**	
A273.125.R.11-08	125	138,7	11	5	63	40	88	4	ONKU 0806		**22500**[1]
A273.160.R.10-08	160	173,7	10	5	63	40	98	5	ONKU 0806	**16000**[3]	
A273.160.R.14-08	160	173,7	14	5	63	40	98	4	ONKU 0806		**26000**[2]

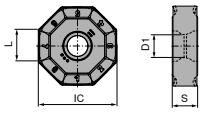
1) Version with Wedge
2) Version with Wedge, without internal coolant supply / With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm
3) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

Spare parts for Article no.	TORX® blade	Clamping wedge screw	Clamping wedge Face mill	Key D	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**70 950 ...**	**70 950 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
50 779 06300	**055**			**129**	**303**	**821**	**193**
50 779 16300	**036**	**844**	**845**	**113**	**303**		**193**
50 779 08000	**055**			**129**	**303**	**821**	**193**
50 779 18000	**036**	**844**	**845**	**113**	**303**		**193**
50 779 10000	**055**			**129**	**303**	**821**	**193**
50 779 20000	**036**	**844**	**845**	**113**	**303**		**193**
50 779 12500	**055**			**129**	**303**	**821**	**193**
50 779 22500	**036**	**844**	**845**	**113**	**303**		**193**
50 779 16000	**055**			**129**	**303**	**821**	**193**
50 779 26000	**036**	**844**	**845**	**113**	**303**		**193**

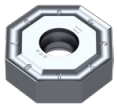
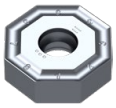
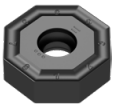
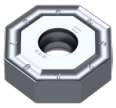
15

ONKU

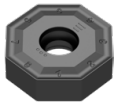
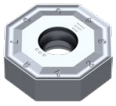
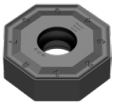
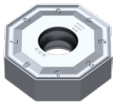
Designation	IC mm	D1 mm	L mm	S mm
ONKU 0806..	22	5,8	8,45	6,45



ONKU

		NEW	NEW	NEW	NEW	NEW
		-M50 CTCP230	-M50 CTPP235	-M50 CTPM240	-M50 CTCK215	-M50 CTPK220
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		ONKU	ONKU	ONKU	ONKU	ONKU
		51 163 ...	51 163 ...	51 163 ...	51 163 ...	51 163 ...
ISO	RE mm					
080608SN	0,8	00800	10800	20800	50800	60800
P		●	●	○		
M			○	●		
K		○	○		●	●
N						
S						
H						
O						

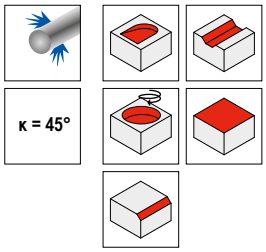
ONKU

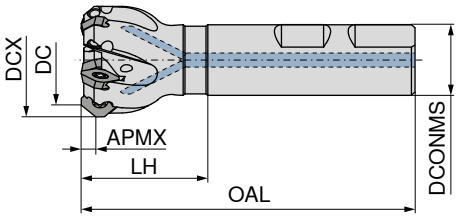
		NEW	NEW	NEW	NEW
		-R50 CTCP230	-R50 CTPP235	-R50 CTCK215	-R50 CTPK220
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		ONKU	ONKU	ONKU	ONKU
		51 164 ...	51 164 ...	51 164 ...	51 164 ...
ISO	RE mm				
080608SN	0,8	00800	10800	50800	60800
P		●	●		
M			○		
K		○	○	●	●
N					
S					
H					
O					

Milling guide

Cutting data standard values	→ 145–148	Starting Parameter	→ 155
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

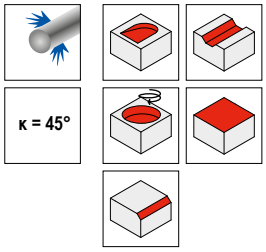
MaxiMill – 270-09 End milling cutter

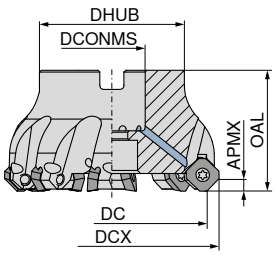




Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	torque moment Nm	Insert	50 666 ...
C270.06.R.01-09	6	14,4	1	4	80	32	16	1,2	SD.. 0903..	006
C270.12.R.01-09	12	20,4	1	4	80	32	16	1,2	SD.. 0903..	012
C270.16.R.02-09	16	24,4	2	4	90	40	20	1,8	SD.. 0903..	016
C270.20.R.03-09	20	28,4	3	4	90	40	20	1,8	SD.. 0903..	020
C270.25.R.04-09	25	33,4	4	4	100	44	25	1,8	SD.. 0903..	025
C270.32.R.05-09	32	40,4	5	4	95	36	25	1,8	SD.. 0903..	032

MaxiMill – 270-09 Shell mill



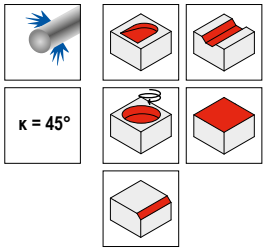


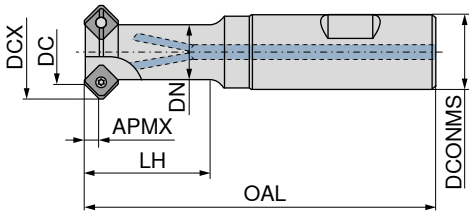
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	torque moment Nm	Insert	50 705 ...	50 706 ...
A270.32.R.05-09	32	40,4	5	4	40	34	16	1,8	SD../XD.. 0903..		532
A270.40.R.04-09	40	48,4	4	4	40	38	16	1,8	SD../XD.. 0903..	540	
A270.40.R.06-09	40	48,4	6	4	40	38	16	1,8	SD../XD.. 0903..		540
A270.50.R.06-09	50	58,4	6	4	40	43	22	1,8	SD../XD.. 0903..	550	
A270.50.R.08-09	50	58,4	8	4	40	43	22	1,8	SD../XD.. 0903..		550
A270.63.R.08-09	63	71,4	8	4	40	48	22	1,8	SD../XD.. 0903..	563	
A270.63.R.10-09	63	71,4	10	4	40	48	22	1,8	SD../XD.. 0903..		563
A270.80.R.10-09	80	88,4	10	4	50	58	27	1,8	SD../XD.. 0903..	580	
A270.80.R.12-09	80	88,4	12	4	50	58	27	1,8	SD../XD.. 0903..		580
A270.100.R.12-09	100	108,4	12	4	50	78	32	1,8	SD../XD.. 0903..	600	
A270.100.R.14-09	100	108,4	14	4	50	78	32	1,8	SD../XD.. 0903..		600
A270.125.R.12-09	125	133,4	12	4	63	88	40	1,8	SD../XD.. 0903..	625	

▲ 50 705 ... Normal pitch for a broad spectrum of use on aluminum alloys, non-ferrous metals, and soft steel materials
▲ 50 706 ... Fine pitch for highest feed rates, predominantly used on steel and cast materials

MaxiMill – 272-09 Chamfer milling cutter

▲ Usable on front and rear cutting edges





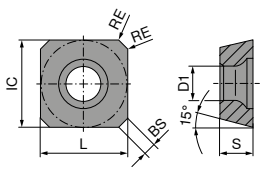
50 669 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	DN mm	OAL mm	LH mm	DCONMS mm	torque moment Nm	Insert	
C272.06.R.01-09	6	14,4	1	4	10	91	24,0	16	1,2	SD.. 0903..	**10600**
C272.08.R.01-09	8	16,4	1	4	10	91	25,5	16	1,2	SD.. 0903..	**008**
C272.12.R.01-09	12	20,4	1	4	12	91	26,0	16	1,2	SD.. 0903..	**012**
C272.16.R.02-09	16	24,4	2	4	15	97	30,0	20	1,8	SD.. 0903..	**016**
C272.18.R.02-09	18	26,4	2	4	16	97	30,0	20	1,8	SD.. 0903..	**018**
C272.25.R.03-09	25	33,4	3	4	21	109	35,0	25	1,8	SD.. 0903..	**025**

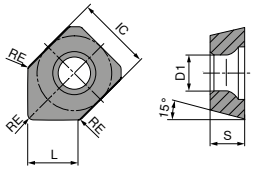
	TORX® blade	Key D	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC					
6 - 12	**033**	**110**	**303**	**365**	**191**
16 - 25	**033**	**110**	**303**	**115**	**191**

SDHW / SDNT / SDHT / XDHW

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDHW 0903..	9,52	3,4	5,50	1,68	3,18
SD.. 0903..	9,52	3,4	9,52	1,68	3,18

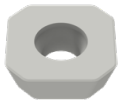
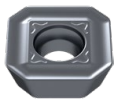
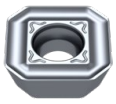
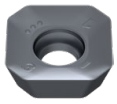


SD..

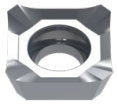
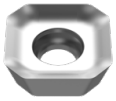
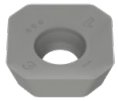


XDHW

SDHW / SDNT / SDHT

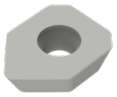
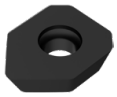
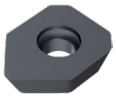
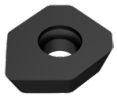
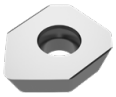
	TCM10	-29 CTCP230	-29 CTPP235	-33 CTPM240	-33P CTPM240	-F50 CTPM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	CERMET						
	SDHW	SDNT	SDNT	SDHT	SDHT	SDHT	SDHT
	50 428 ...	51 011 ...	51 011 ...	51 028 ...	51 086 ...	51 109 ...	51 109 ...
ISO / RE mm							
0903AESN / 1	898	020	120	420	420	470	92001
P	●	●	●	○	○	●	●
M			○	●	●	●	●
K	○	○	○				
N							
S							○
H							
O							

SDNT / SDHT

		NEW				
	-31 CTCK215	-F10 CTPX715	-27P H216T	-M31 CTC5240	-F50 CTCS245
	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN
					
	SDNT	SDHT	SDHT	SDHT	SDHT
	51 029 ...	51 160 ...	50 426 ...	50 421 ...	51 109 ...
ISO / RE mm					
0903AEFN / 1		02002	548		
0903AESN / 1	520			509	57100
P		○			
M		○			
K	●	●	○		
N		●	●		
S		○		●	●
H					
O		○	○		

XDHW

▲ Masterfinish indexable insert (sweeper insert)

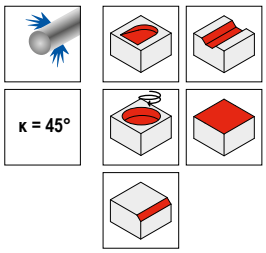
		TCM10	CTCP230	CTPP235	CTCK215	H216T
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
						
		CERMET XDHW	XDHW	XDHW	XDHW	XDHW
		50 449 ...	**51 015 ...**	**51 015 ...**	**51 015 ...**	**50 449 ...**
ISO	RE mm					
0903AEEN	1				**520**	
0903AEFN	1					**548**
0903AESN	1	**898**	**020**	**120**		
P		●	●	●		
M				○		
K		○	○	○	●	○
N						●
S						
H						
O						○

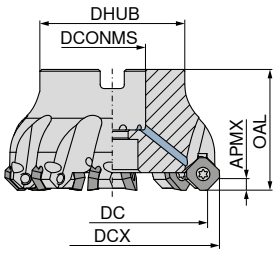
Milling guide

Cutting data standard values	→ 145–148	Machining strategy	→ 156
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

MaxiMill – 270-12 Shell mill

▲ 50 705 ... Normal pitch for a broad spectrum of use on aluminum alloys, non-ferrous metals, up to soft steel materials
▲ 50 706 ... Predominantly fine pitch for highest feed rates, use on steel and cast materials





Designation	DC mm	DCX mm	ZNF	APMX mm	DCONMS H6 mm	OAL mm	DHUB mm	torque moment Nm	Insert	50 705 ...	50 706 ...
A270.40.R.03-12	40	54	3	6	16	40	38	5	SD../XD.. 1204..	**040**	
A270.40.R.04-12	40	54	4	6	16	40	38	5	SD../XD.. 1204..		**040**
A270.50.R.04-12	50	64	4	6	22	40	43	5	SD../XD.. 1204..	**050**	
A270.50.R.05-12	50	64	5	6	22	40	43	5	SD../XD.. 1204..		**050**
A270.63.R.04-12	63	77	4	6	22	40	48	5	SD../XD.. 1204..	**063**	
A270.63.R.06-12	63	77	6	6	22	40	48	5	SD../XD.. 1204..		**063**
A270.80.R.05-12	80	94	5	6	27	50	58	5	SD../XD.. 1204..	**080**	
A270.80.R.08-12	80	94	8	6	27	50	58	5	SD../XD.. 1204..		**080**
A270.100.R.06-12	100	114	6	6	32	50	78	5	SD../XD.. 1204..	**100**	
A270.100.R.10-12	100	114	10	6	32	50	78	5	SD../XD.. 1204..		**100**
A270.125.R.07-12	125	139	7	6	40	63	88	5	SD../XD.. 1204..	**125**	
A270.125.R.12-12	125	139	12	6	40	63	88	5	SD../XD.. 1204..		**125**
A270.160.R.08-12	160	174	8	6	40	63	94	5	SD../XD.. 1204..	**160** [1]	

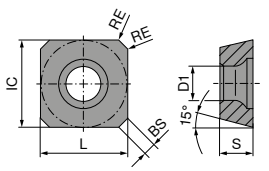
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

Spare parts DC	TORX® blade 80 950 ...	Clamping key – T 80 397 ...	Key D 80 950 ...	Power Screw 70 950 ...	Molykote 70 950 ...	Clamping screw 70 950 ...	Torque screwdriver 80 950 ...
40	**037**	**040**	**114**	**151**	**303**	**01200**	**193**
50 - 160	**037**		**114**		**303**	**01200**	**193**

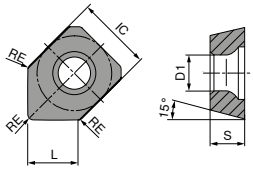
15

SDHT / SDHW / SDMT / XDHW

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDHW 1204..	12,7	5,5	7,5	1,74	4,76
SD.. 1204..	12,7	5,5	12,7	1,74	4,76



SD..

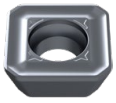


XDHW

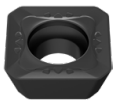
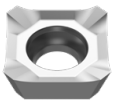
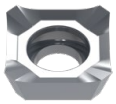
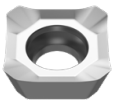
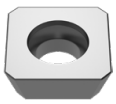
SDHT / SDHW / SDMT

	TCM10	-R TCM10	-29R CTCP230	-R CTCP230	CTCP230
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	CERMET	**CERMET**			
	SDHT	SDHW	SDMT	SDHT	SDHW
	50 426 ...	**50 428 ...**	**51 010 ...**	**51 006 ...**	**51 008 ...**
ISO RE mm					
1204AESN 0,2	**900**				
1204AESN 1,0		**899**	**020**	**020**	**020**
P	●	●	●	●	●
M					
K	○	○	○	○	○
N					
S					
H					
O					

SDMT / SDHT / SDHW

	-29R CTPP235	-R CTPP235	-R CTPP235	-33 CTPM240	-F50 CTPM245	-F50 CTCM245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	SDMT	SDHT	SDHW	SDHT	SDHT	SDHT
	51 010 ...	**51 006 ...**	**51 008 ...**	**51 028 ...**	**51 109 ...**	**51 109 ...**
ISO RE mm						
1204AESN 1	**120**	**120**	**120**	**425**	**475**	**92501**
P	●	●	●	○	●	●
M	○	○	○	●	●	●
K	○	○	○			
N						
S						○
H						
O						

SDMT / SDHW / SDHT

		NEW				
		-31 CTCK215 DRAGONSKIN	-R CTCK215 DRAGONSKIN	-27 H216T	-F10 CTPX715 DRAGONSKIN	-27P H216T	H216T
							
		SDMT	SDHW	SDHT	SDHT	SDHT	SDHW
		51 059 ...	51 008 ...	50 426 ...	51 160 ...	50 426 ...	50 428 ...
ISO	RE mm						
1204AEEN	1,0	520	520				
1204AEFN	0,2			504	02502		
1204AEFN	1,0					554	
1204AESN	0,2						600
P					○		
M					○		
K		●	●	○	●	○	○
N				●	●	●	●
S					○		
H							
O				○	○	○	○

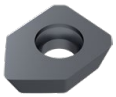
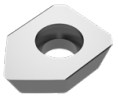
SDHT

		-M31 CTC5240 DRAGONSKIN	-F50 CTCS245 DRAGONSKIN
		SDHT	SDHT
		50 421 ...	51 109 ...
ISO	RE mm		
1204AESN	1	512	57600
P			
M			
K			
N			
S		●	●
H			
O			

15

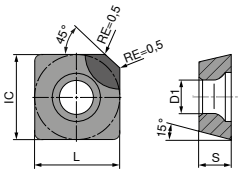
XDHW

▲ Masterfinish indexable insert (sweeper insert)

		TCM10	CTCP230 DRAGONSKIN	CTPP235 DRAGONSKIN	CTCK215 DRAGONSKIN	H216T
						
		CERMET				
		XDHW	XDHW	XDHW	XDHW	XDHW
		50 449 ...	51 015 ...	51 015 ...	51 015 ...	50 449 ...
ISO	RE mm	900	025	125	525	600
1204AEEN	1					
1204AEFN	1					
1204AESN	1					
P		●	●	●		
M				○		
K		○	○	○	●	○
N						●
S						
H						
O						○

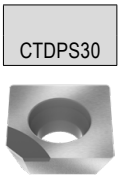
SDHW

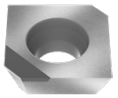
Designation	IC	D1	L	S
	mm	mm	mm	mm
SDHW 1204..	12,7	5,5	12,7	4,76



SDHW

SDHW


CTDPS30


CTBS10U

DIAMOND
SDHW
51 900 ...

CBN
SDHW
51 900 ...

ISO		
1204AEFN-2	100 [1]	
1204AEFN-3	102 [2]	
1204AETN-2		300 [1]
P		
M		
K		●
N	●	
S		
H		○
O		

1) $a_{p\,max.}$ = 2.0 mm
2) $a_{p\,max.}$ = 3,5 mm

Milling guide

Cutting data standard values	→ 145–148	Machining strategy	→ 156
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

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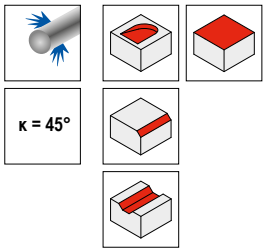
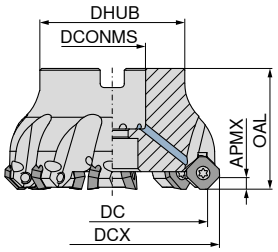
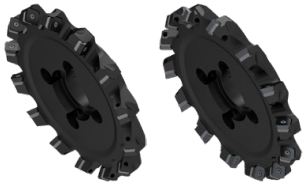
MaxiMill – 270-19 Shell mill







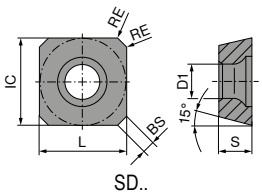
										Left-hand	Right-hand
										50 698 ...	**50 698 ...**
Designation	DC mm	DCX mm	ZNF	APMX mm	DCONMS $_{H6}$ mm	OAL mm	DHUB mm	torque moment Nm	Insert		
A270.125.R.07-19	125	146,4	7	10	40	63	88	5	SD.. 1907..		**12507**
A270.160.R.09-19	160	181,4	9	10	40	63	104	5	SD.. 1907..		**16009**[1)]
A270.200.R.11-19	200	221,1	11	10	60	63	134	5	SD.. 1907..		**20011**[2)]
A270.250.L.14-19	250	271,4	14	10	60	63	134	5	SD.. 1907..	**75014**[2)]	
A270.250.R.14-19	250	271,4	14	10	60	63	134	5	SD.. 1907..		**25014**[2)]
A270.315.L.17-19	315	336,4	17	10	60	63	226	5	SD.. 1907..	**81517**[4)]	
A270.315.R.17-19	315	336,4	17	10	60	63	226	5	SD.. 1907..		**31517**[3)]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
2) With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm / Without Through Coolant
3) With 4 threaded holes M16 on the front face, pitch circle diameter = 101.6 mm and with 4 threaded holes M20 on the front face, pitch circle diameter = 177.8 mm / Without Through Coolant
4) With 4 threaded holes M16 on the front face, pitch circle diameter = 101.6 mm and with 4 threaded holes M20 on the front face, pitch circle diameter = 177.8 mm

	TORX® blade	Key D	Molykote	Clamping screw	Solid Carbide support S	Threaded sleeve	Torque screwdriver
	80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC							
125 - 315	**037**	**114**	**303**	**302**	**01500**	**01400**	**193**

SDKT

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
SDKT 1907..	19,15	6	19,15	1,5	7,15	15



SDKT

		-M50 CTCP220	-R50 CTPP225	-R50 CTCP230	-M50 CTPP235	-R50 CTPP235	-R50 CTPM225	-R50 CTCK215
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		SDKT	SDKT	SDKT	SDKT	SDKT	SDKT	SDKT
		51 131 ...	51 132 ...	51 132 ...	51 131 ...	51 132 ...	51 132 ...	51 132 ...
ISO	RE mm							
1907AESN	1,6	22001	07000	02100	12000	12300	22200	52000
P		●	●	●	●	●	●	
M					○	○	●	
K				○	○	○		●
N								
S								
H								
O								

Milling guide

Cutting data standard values	→ 145–148	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

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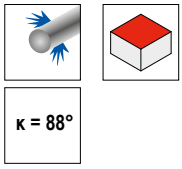
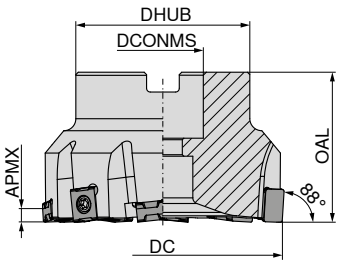
MaxiMill – HEC 11 Shell mill

▲ not adjustable





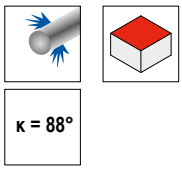
50 725 ...

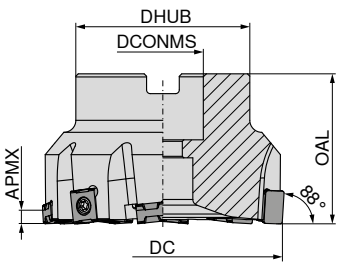
Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	
AHEC.50.R.06-11	50	6	6	40	48	22	12700	3,2	LNHX 1106	**050**
AHEC.63.R.08-11	63	8	6	40	48	22	10100	3,2	LNHX 1106	**063**
AHEC.80.R.10-11	80	10	6	50	58	27	8000	3,2	LNHX 1106	**080**
AHEC.100.R.12-11	100	12	6	50	78	32	6400	3,2	LNHX 1106	**100**
AHEC.125.R.12-11	125	12	6	63	88	40	5100	3,2	LNHX 1106	**125**
AHEC.125.R.16-11	125	16	6	63	88	40	5100	3,2	LNHX 1106	**12516**
AHEC.160.R.20-11	160	20	6	63	100	40	4000	3,2	LNHX 1106	**160** [1)]

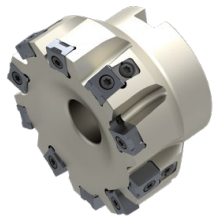
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

MaxiMill – HEC 11 Shell mill

▲ Axially adjustable with same tooth pitch







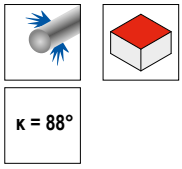
50 733 ...

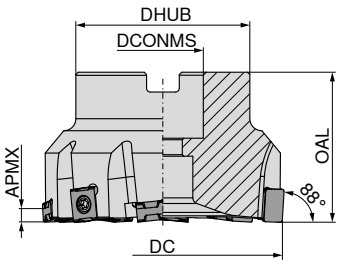
Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	
AHEC.50.R.06A03-11	50	6	6	40	48	22	12700	3,2	LNHX 1106	**050**
AHEC.63.R.08A04-11	63	8	6	40	48	22	10100	3,2	LNHX 1106	**063**
AHEC.80.R.10A05-11	80	10	6	50	58	27	8000	3,2	LNHX 1106	**080**
AHEC.100.R.12A06-11	100	12	6	50	78	32	6400	3,2	LNHX 1106	**100**
AHEC.125.R.16A08-11	125	16	6	63	88	40	5100	3,2	LNHX 1106	**125**
AHEC.160.R.20A10-11	160	20	6	63	100	40	4000	3,2	LNHX 1106	**160** [1)]

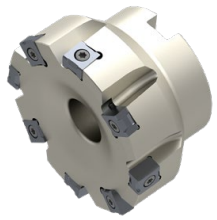
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

MaxiMill – HEC 11 Shell mill

▲ with irregular pitch, non adjustable







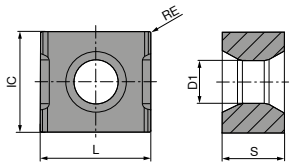
Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 733 ...
AHEC.50.R.04B-11	50	4	6	40	48	22	12700	3,2	LNHX 1106	**550**
AHEC.63.R.06B-11	63	6	6	40	48	22	10100	3,2	LNHX 1106	**563**
AHEC.80.R.08B-11	80	8	6	50	58	27	8000	3,2	LNHX 1106	**580**
AHEC.100.R.10B-11	100	10	6	50	78	32	6400	3,2	LNHX 1106	**600**
AHEC.125.R.12B-11	125	12	6	63	88	40	5100	3,2	LNHX 1106	**625**
AHEC.160.R.14B-11	160	14	6	63	100	40	4000	3,2	LNHX 1106	**660** [1]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

	TORX® blade	Molykote	Coolant Disc	Clamping screw	Wedge	Torque screwdriver
	80 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC						
50 - 63	**036**	**303**	**852**	**113**		**193**
80	**036**	**303**	**853**	**113**	**199**	**193**
100	**036**	**303**	**854**	**113**		**193**
125	**036**	**303**	**855**	**113**		**193**
160	**036**	**303**		**113**		**193**

LNHX

Designation	IC mm	D1 mm	L mm	S mm
LNHX 1106..	10	4,27	11	6,35



LNHX

LNHX

ISO	RE mm	CTEP210 DRAGONSKIN CERMET LNHX 51 046 ...	CTCK215 DRAGONSKIN LNHX 51 046 ...	-R50 CTCK215 DRAGONSKIN LNHX 51 024 ...	-Q CTCK215 DRAGONSKIN LNHX 51 045 ...
1106PNER	0,5		520	520	
1106ZZER	0,5				520 [1]
1106PNER	0,8	820			
110616EN	1,6		51600		
P		●			
M					
K		●	●	●	●
N					
S					
H					
O					

1) -Q = trailing edge insert

LNHX

ISO	RE mm	CTPK220 DRAGONSKIN LNHX 51 046 ...	-R50 CTPK220 DRAGONSKIN LNHX 51 024 ...	CTN3105 CERAMIC LNHX 50 500 ...	CTL3215 CBN LNHX 51 046 ...	-Q CTL3215 CBN LNHX 51 045 ...
110608EN	0,8		608			
1106PNER	0,5	620	620			
1106PNSR	0,5			904		
1106PNSR					87200	
1106ZZER						87000 [1]
P						
M						
K		●	●	●	●	●
N						
S						
H					○	○
O						

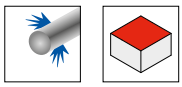
1) -Q = trailing edge insert

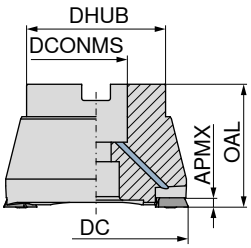
Milling guide

Cutting data standard values	→ 145–148	Assembly instructions	→ 157
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

Finishing cutter F 5000 A

▲ With µm-adjustable inserts
▲ Adjust with screw (56 950 017) and set with Torx 20 key (80 950 114)





Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	56 511 ...
F5000A.42.2.43.IK	42	2	0,2	43	16	35	3,2	TEHX 16T3..	**421**
F5000A.52.2.43.IK	52	2	0,2	43	22	48	3,2	TEHX 16T3..	**521**
F5000A.66.2.53.IK	66	2	0,2	53	27	60	3,2	TEHX 16T3..	**661**
F5000A.80.2.53.IK	80	2	0,2	53	27	60	3,2	TEHX 16T3..	**801**
F5000A.100.2.53	100	2	0,2	53	32	70	3,2	TEHX 16T3..	**910** [1]

1) Without Through Coolant

Spare parts DC	TORX® blade 80 950 ...	Key-T 80 950 ...	Key D 80 950 ...	Power Screw 56 950 ...	Axial runout adjustment screw 56 950 ...	Molykote 70 950 ...	Clamping screw 56 950 ...	Torque screwdriver 80 950 ...
42	**036**	**088**	**114**	**121**	**017**	**303**	**028**	**193**
52	**036**	**088**	**113**		**017**	**303**	**028**	**193**
66	**036**	**088**	**113**		**017**	**303**	**028**	**193**
80	**036**	**088**	**113**		**017**	**303**	**028**	**193**
100	**036**	**088**	**113**	**121**	**017**	**303**	**028**	**193**

Description of article

▲ Tightening torque of the indexable insert clamping screw 56 950 028 is 3.2 Nm.
▲ This tool produces surfaces with excellent surface quality Rz ≤ 2.5 µm with high axial run-out precision.
▲ The two precision adjustment screws make adjustment to µm accuracy possible.
▲ Additional grinding is therefore avoided, so machining time and costs are reduced.
▲ The tool is also well-suited for unstable workpieces and low power machines.

The screws for the adjustment of the axial run-out are mounted on every milling cutter and have to be tightened to a preset value. Otherwise there is the danger that the screws loosen during the machining operation. This can result in damage of the workpiece or tool and also cause danger for the machine operator. Should the screws for fine adjustment not be needed we recommend to remove them from the tool.

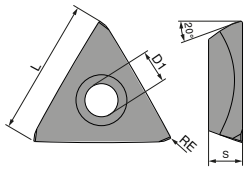
Material	v_c m/min	f_z mm	a_p mm
Steel	150–250*)	0,5–2	0,05–0,2
Cast iron	150–250*)	0,5–2	0,05–0,2
Hardened materials ≤ 56 HRC	35–200*)	0,2–1	0,05–0,1

*) Depending on the machining and structural state of the processed workpiece.

15

TEHX

Designation	L mm	S mm	D1 mm
TEHX 16T3..	14,32	4,00	3,9



TEHX

WTN1205

TEHX

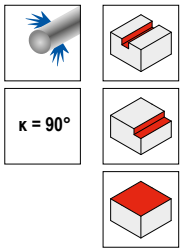
56 327 ...

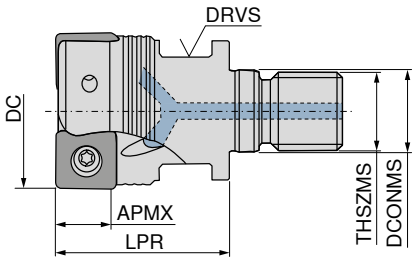
ISO	RE mm	
16T3ZF	0,2	**151**
P		●
M		●
K		●
N		
S		
H		●
O		

Milling guide

Cutting data standard values	→ 145–148	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

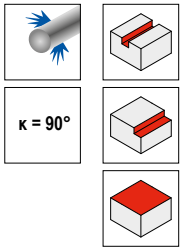
MaxiMill – 491-09 Screw in cutter

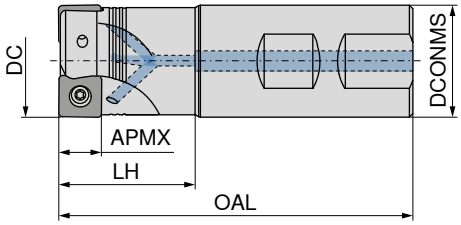




Designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 773 ...
G491.25.R.03-09	25	3	6	35	M12	12,5	17	2	SNHU 09T3	125
G491.32.R.03-09	32	3	6	35	M16	17,0	24	2	SNHU 09T3	132
G491.32.R.04-09	32	4	6	35	M16	17,0	24	2	SNHU 09T3	232

MaxiMill – 491-09 End milling cutter





Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS $_{h6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 774 ...	50 774 ...
C491.25.R.03-09-B-32	25	3	6	89	32	25	23500	2	SNHU 09T3		425
C491.25.R.03-09-A-50-225	25	3	6	225	50	25	23500	2	SNHU 09T3	325	
C491.32.R.03-09-B-40	32	3	6	101	40	32	19600	2	SNHU 09T3		632
C491.32.R.04-09-B-40	32	4	6	101	40	32	19600	2	SNHU 09T3		432
C491.32.R.03-09-A-63-250	32	3	6	250	63	32	19600	2	SNHU 09T3	532	
C491.32.R.04-09-A-63-250	32	4	6	250	63	32	19600	2	SNHU 09T3	332	

TORX® blade

Key D

Molykote

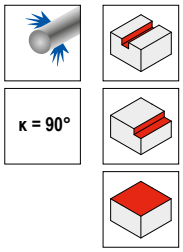
Clamping screw

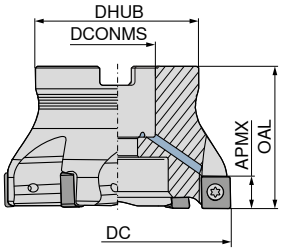
Torque screwdriver

Spare parts DC	80 950 ...	80 950 ...	70 950 ...	70 950 ...	80 950 ...
25 - 32	053	119	303	710	193

15

MaxiMill – 491-09 Shell mill



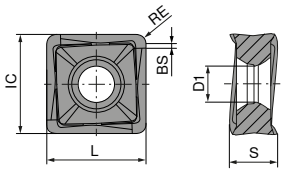


										50 776 ...		50 775 ...	
Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert				
A491.40.R.03-09	40	3	6	40	38	16	16800	2	SNHU 09T3				**240**
A491.40.R.05-09	40	5	6	40	38	16	16800	2	SNHU 09T3	**240**			
A491.50.R.04-09	50	4	6	40	43	22	14600	2	SNHU 09T3				**250**
A491.50.R.06-09	50	6	6	40	43	22	14600	2	SNHU 09T3	**250**			
A491.63.R.05-09	63	5	6	40	48	22	12700	2	SNHU 09T3				**263**
A491.63.R.08-09	63	8	6	40	48	22	12700	2	SNHU 09T3	**263**			
A491.80.R.06-09	80	6	6	50	58	27	11100	2	SNHU 09T3				**280**
A491.80.R.10-09	80	10	6	50	58	27	11100	2	SNHU 09T3	**280**			
A491.100.R.07-09	100	7	6	50	78	32	9800	2	SNHU 09T3				**300**
A491.100.R.12-09	100	12	6	50	78	32	9800	2	SNHU 09T3	**300**			
A491.125.R.08-09	125	8	6	63	88	40	8700	2	SNHU 09T3				**325**
A491.125.R.15-09	125	15	6	63	88	40	8700	2	SNHU 09T3	**325**			

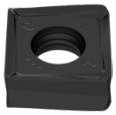
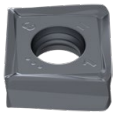
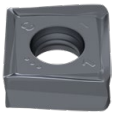
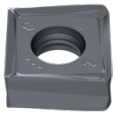
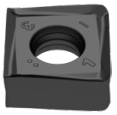
	TORX® blade		Clamping key – T		Key D		Power Screw		Molykote		Clamping screw		Torque screwdriver	
	80 950 ...		**80 397 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts														
DC														
40		**053**		**040**		**119**		**151**		**303**		**710**		**193**
50 - 125		**053**				**119**				**303**		**710**		**193**

SNHU

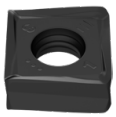
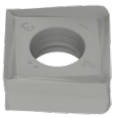
Designation	IC	L	S	D1
	mm	mm	mm	mm
SNHU 09T3..	9,15	9,15	3,70	3,85



SNHU

		-M50 CTCP230	-M50 CTPP235	-F50 CTPM240	-M50 CTPM240	-F40 CTPM245	-F40 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SNHU	SNHU	SNHU	SNHU	SNHU	SNHU
		51 120 ...	51 120 ...	51 119 ...	51 120 ...	51 126 ...	51 126 ...
ISO	RE mm						
09T308ER	0,8					45800	90801
09T308SR	0,8	008	108	408	408		
09T312SR	1,2	01200	11200	41200	41200		
09T316SR	1,6	01600	11600	41600	41600		
P		●	●	○	○	●	●
M			○	●	●	●	●
K		○	○				
N							
S							○
H							
O							

SNHU

		-R50 CTCK215	-R50 CTPK220	NEW -F10 CTPX715	-F10 CTWN215	-F40 CTC5240	-F40 CTCS245
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	DRAGONSKIN
							
		SNHU	SNHU	SNHU	SNHU	SNHU	SNHU
		51 121 ...	51 121 ...	51 118 ...	51 118 ...	51 126 ...	51 126 ...
ISO	RE mm						
09T308ER	0,8					15800	55800
09T308FR	0,8			00802	358		
09T308SR	0,8	508	60800				
09T312FR	1,2				36200		
09T312SR	1,2	51200					
09T316FR	1,6				36600		
09T316SR	1,6	51600					
P				○			
M				○			
K		●	●	●	○		
N				●	●		
S				○		●	●
H							
O				○	○		

Milling guide

Cutting data standard values	→ 145–148	Starting Parameter	→ 159
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

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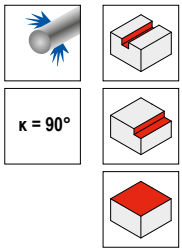
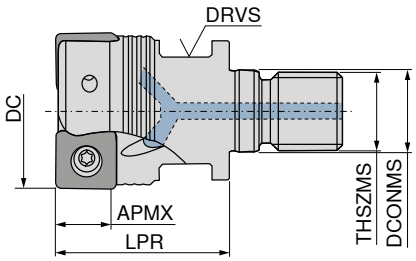
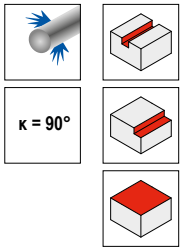
MaxiMill – 491-12 Screw in cutter

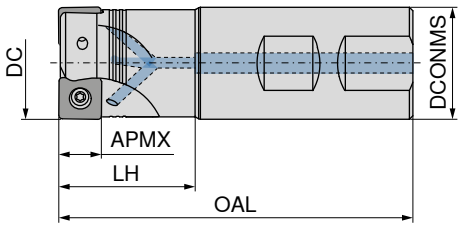




Designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 773 ...
G491.32.R.02-12	32	2	8	35	M16	17	24	3,2	SNHU 1204	**032**

MaxiMill – 491-12 End milling cutter

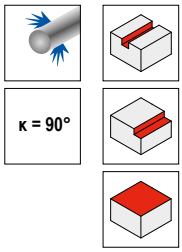


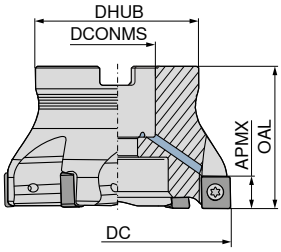


Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS $_{h6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 774 ...	50 774 ...
C491.32.R.02-12-B-40	32	2	8	102	40	32	13600	3,2	SNHU 1204		**032**
C491.32.R.02-12-A-63-250	32	2	8	250	63	32	10200	3,2	SNHU 1204	**232**	

Spare parts DC	TORX® blade	Key D	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
32	**054**	**128**	**303**	**859**	**193**

MaxiMill – 491-12 Shell mill





										50 776 ...		50 775 ...
Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert			
A491.40.R.03-12	40	3	8	40	38	16	11500	3,2	SNHU 1204			**040**
A491.40.R.04-12	40	4	8	40	38	16	11500	3,2	SNHU 1204	**040**		
A491.50.R.04-12	50	4	8	40	43	22	9800	3,2	SNHU 1204			**050**
A491.50.R.05-12	50	5	8	40	43	22	9800	3,2	SNHU 1204	**050**		
A491.63.R.05-12	63	5	8	40	48	22	8500	3,2	SNHU 1204			**063**
A491.63.R.06-12	63	6	8	40	48	22	8500	3,2	SNHU 1204	**063**		
A491.80.R.06-12	80	6	8	50	58	27	7400	3,2	SNHU 1204			**080**
A491.80.R.08-12	80	8	8	50	58	27	7400	3,2	SNHU 1204	**080**		
A491.100.R.07-12	100	7	8	50	78	32	6500	3,2	SNHU 1204			**100**
A491.100.R.10-12	100	10	8	50	78	32	6500	3,2	SNHU 1204	**100**		
A491.125.R.08-12	125	8	8	63	88	40	5700	3,2	SNHU 1204			**125**
A491.125.R.12-12	125	12	8	63	88	40	5700	3,2	SNHU 1204	**125**		
A491.160.R.09-12	160	9	8	63	98	40	5000	3,2	SNHU 1204			**160** [1]
A491.160.R.14-12	160	14	8	63	98	40	5000	3,2	SNHU 1204	**160** [1]		

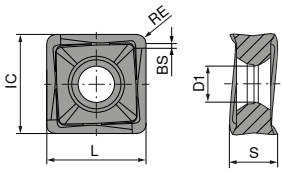
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

	TORX® blade	Clamping key – T	Key D	Power Screw	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts							
DC							
40	**054**	**040**	**128**	**151**	**303**	**859**	**193**
50 - 160	**054**		**128**		**303**	**859**	**193**

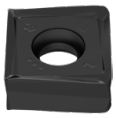
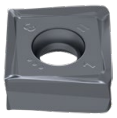
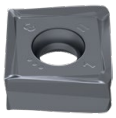
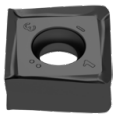
15

SNHU

Designation	IC	L	S	D1
	mm	mm	mm	mm
SNHU 1204..	12,2	12,2	5,00	4,4

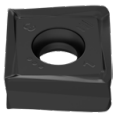
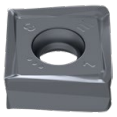
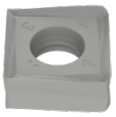


SNHU

		-M50 CTCP230	-M50 CTPP235	-F50 CTPM240	-M50 CTPM240	-F40 CTPM245	-F40 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SNHU	SNHU	SNHU	SNHU	SNHU	SNHU
		51 100 ...	51 100 ...	51 102 ...	51 100 ...	51 128 ...	51 128 ...
ISO	RE mm						
120408ER	0,8					45800	90801
120408SR	0,8	008	108	408	408		
120412SR	1,2		112	412			
120416SR	1,6		116	416			
120420SR	2,0		120	420			
P		●	●	○	○	●	●
M			○	●	●	●	●
K		○	○				
N							
S							○
H							
O							

SNHU

NEW

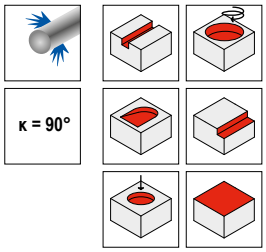
	-R50 CTCK215	-R50 CTPK220	-F10 CTPX715	-F10 CTWN215	-F40 CTC5240	-F40 CTCS245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN
						
	SNHU	SNHU	SNHU	SNHU	SNHU	SNHU
	51 103 ...	51 103 ...	51 101 ...	51 101 ...	51 128 ...	51 128 ...
ISO / RE mm						
120408ER 0,8					15800	55800
120408FR 0,8			00802	358		
120408SR 0,8	508	608				
120412FR 1,2				362		
120412SR 1,2	512					
120416FR 1,6				366		
120416SR 1,6	516					
120420FR 2,0				370		
120420SR 2,0	520					
P			○			
M			○			
K	●	●	●	○		
N			●	●		
S			○		●	●
H						
O			○	○		

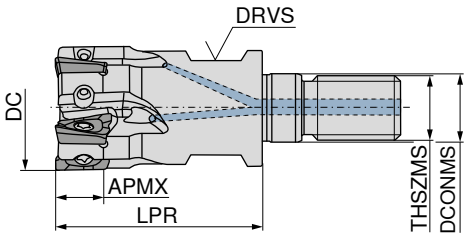
Milling guide

Cutting data standard values	→ 145–148	Starting Parameter	→ 159
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

15

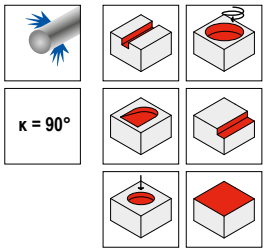
MaxiMill – 211-07 Screw in cutter

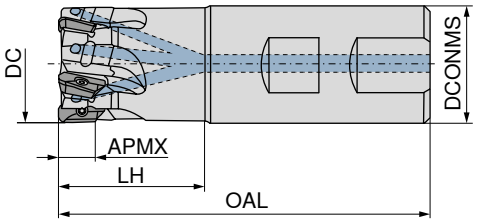




										50 751 ...
Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	
G211.16.R.04-07	16	4	6	27	8,5	M8	10	50400	1	XD.T 0703	**016**
G211.20.R.05-07	20	5	6	33	10,5	M10	15	44280	1	XD.T 0703	**020**
G211.25.R.06-07	25	6	6	35	12,5	M12	17	39480	1	XD.T 0703	**025**
G211.32.R.08-07	32	8	6	35	17,0	M16	24	36240	1	XD.T 0703	**032**

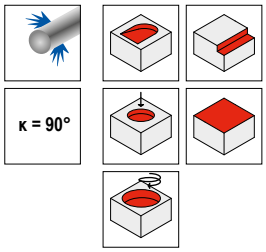
MaxiMill – 211-07 End milling cutter

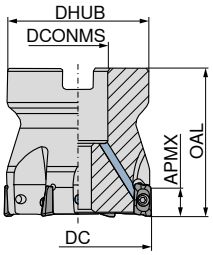


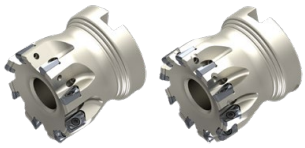


										50 752 ...	50 752 ...
Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	RPMX 1/min.	torque moment Nm	Insert		
C211.10.R.01-07-A-20	10	1	6	61,0	20	10	72000	1	XD.T 0703	**010**	
C211.12.R.02-07-A-20	12	2	6	66,5	20	12	66600	1	XD.T 0703	**012**	
C211.16.R.04-07-A/B-25	16	4	6	74,5	25	16	50400	1	XD.T 0703	**016**	**216**
C211.16.R.03-07-A-32-165	16	3	6	165,0	32	16	17760	1	XD.T 0703	**116**	
C211.20.R.05-07-A/B-25	20	5	6	77,0	25	20	44280	1	XD.T 0703	**020**	**220**
C211.20.R.04-07-A-40-200	20	4	6	200,0	40	20	12600	1	XD.T 0703	**120**	
C211.25.R.06-07-A/B20-32	25	6	6	84,0	32	20	39840	1	XD.T 0703	**025**	**225**
C211.25.R.05-07-A20-50-225	25	5	6	225,0	50	20	11280	1	XD.T 0703	**125**	
C211.32.R.08-07-A/B25-40	32	8	6	98,0	40	25	36240	1	XD.T 0703	**032**	**232**

MaxiMill – 211-07 Shell mill





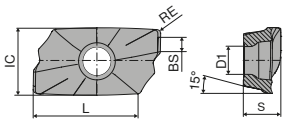


										50 753 ...		50 754 ...	
Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert				
A211.32.R.06-07	32	6	6	40	16	38	36240	1	XD.T 0703		**032**		
A211.32.R.08-07	32	8	6	40	16	38	36240	1	XD.T 0703				**032**
A211.40.R.08-07	40	8	6	40	16	38	33240	1	XD.T 0703		**040**		
A211.40.R.10-07	40	10	6	40	16	38	33240	1	XD.T 0703				**040**
A211.50.R.10-07	50	10	6	40	22	43	30480	1	XD.T 0703		**050**		
A211.50.R.12-07	50	12	6	40	22	43	30480	1	XD.T 0703				**050**

	TORX® blade		Clamping key – T		Key D		Power Screw		Molykote		Clamping screw		Torque screwdriver	
	80 950 ...		**80 397 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts **DC**														
10 - 32		**051**				**124**				**303**		**137**		**191**
32		**051**		**040**		**124**		**151**		**303**		**137**		**191**
40 - 50		**051**				**124**				**303**		**137**		**191**

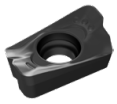
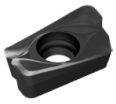
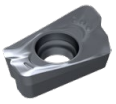
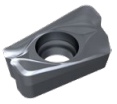
XDKT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDKT 0703..	4,9	2,5	7,8	1,2	3,18

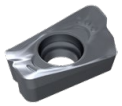
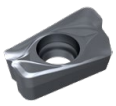
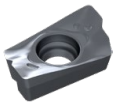
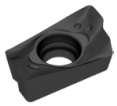
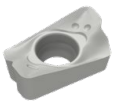


XDKT

XDKT

		-F50 CTCP230 DRAGONSKIN	-M50 CTCP230 DRAGONSKIN	-F50 CTPP235 DRAGONSKIN	-M50 CTPP235 DRAGONSKIN
					
		F XDKT	M XDKT	F XDKT	M XDKT
		51 033 ...	51 036 ...	51 033 ...	51 036 ...
ISO	RE mm				
070304SR	0,4	004	004	104	104
070308SR	0,8	008	008	108	108
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

XDKT

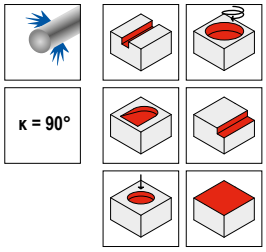
		-F50 CTPM240 DRAGONSKIN	-M50 CTPM240 DRAGONSKIN	-F40 CTPM245 DRAGONSKIN	-F40 CTCM245 DRAGONSKIN	-F20 CTWN215	-F40 CTC5240 DRAGONSKIN	-F40 CTCS245 DRAGONSKIN
								
		F XDKT	M XDKT	F XDKT	F XDKT	F XDKT	F XDKT	F XDKT
		51 033 ...	51 036 ...	51 112 ...	51 112 ...	50 507 ...	50 498 ...	51 112 ...
ISO	RE mm							
070304ER	0,4			454	90401		544	
070304FR	0,4					504		
070304SR	0,4	404	404					
070308ER	0,8			458	90801		548	558
070308FR	0,8					508		
070308SR	0,8	408	408					
P		○	○	●	●			
M		●	●	●	●			
K						○		
N						●		
S					○		●	●
H								
O						○		

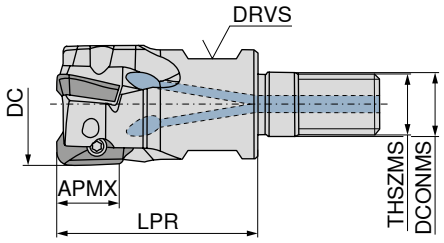
Milling guide

Cutting data standard values	→ 145–148	Machining strategy	→ 160
Starting Parameter	→ 160	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

MaxiMill – 211-11 Screw in cutter

▲ Insert radius >1,6 mm: Modify cutter body

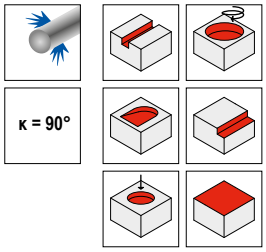


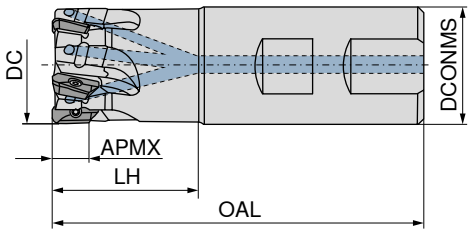


Designation	DC	ZNF	APMX	LPR	DCONMS	THSZMS	DRVS	RPMX	torque moment	Insert	50 736 ...
	mm		mm	mm	mm		mm	1/min.	Nm		
G211.16.R.02-11	16	2	10	27	8,5	M8	10	42000	1,6	XD.T 11T3	016
G211.20.R.03-11	20	3	10	33	10,5	M10	15	36900	1,6	XD.T 11T3	020
G211.25.R.03-11	25	3	10	35	12,5	M12	17	33200	1,6	XD.T 11T3	12500
G211.25.R.04-11	25	4	10	35	12,5	M12	17	33200	1,6	XD.T 11T3	025
G211.32.R.04-11	32	4	10	35	17,0	M16	24	30200	1,6	XD.T 11T3	13200
G211.32.R.05-11	32	5	10	35	17,0	M16	24	30200	1,6	XD.T 11T3	032
G211.40.R.06-11	40	6	10	35	17,0	M16	27	27700	1,6	XD.T 11T3	040

MaxiMill – 211-11 End milling cutter

▲ Insert radius >1,6 mm: Modify cutter body

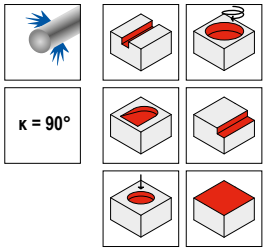


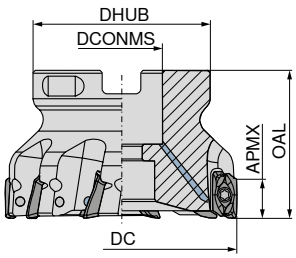


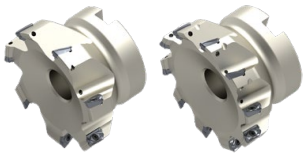
Designation	DC	ZNF	APMX	OAL	LH	DCONMS h6	RPMX	torque moment	Insert	50 737 ...	50 737 ...
	mm		mm	mm	mm	mm	1/min.	Nm			
C211.12.R.01-11-B-20	12	1	10	75	20	16	55000	1,6	XD.T 11T3		012
C211.16.R.02-11-A/B-25	16	2	10	75	25	16	42000	1,6	XD.T 11T3	116	016
C211.16.R.02-11-A15-32-165	16	2	10	165	32	15	14800	1,6	XD.T 11T3	316	
C211.16.R.02-11-A-32-165	16	2	10	165	32	16	14800	1,6	XD.T 11T3	216	
C211.20.R.03-11-A-25	20	3	10	77	25	20	36900	1,6	XD.T 11T3	120	
C211.20.R.03-11-B-25	20	3	10	77	25	20	36900	1,6	XD.T 11T3		020
C211.20.R.02-11-B-25	20	2	10	77	25	20	36900	1,6	XD.T 11T3		02002
C211.20.R.02-11-A-25	20	2	10	77	25	20	36900	1,6	XD.T 11T3	12002	
C211.20.R.03-11-A-32-165	20	3	10	165	32	20	15800	1,6	XD.T 11T3	320	
C211.20.R.02-11-A-40-200	20	2	10	200	40	20	10500	1,6	XD.T 11T3	420	
C211.20.R.02-11-A19-40-200	20	2	10	200	40	19	10500	1,6	XD.T 11T3	620	
C211.25.R.03-11-A/B-32	25	3	10	90	32	25	33200	1,6	XD.T 11T3	625	725
C211.25.R.04-11-A/B-32	25	4	10	90	32	25	33200	1,6	XD.T 11T3	125	025
C211.25.R.04-11-A-40-165	25	4	10	165	40	25	19900	1,6	XD.T 11T3	325	
C211.25.R.03-11-A-50-225	25	3	10	225	50	25	9400	1,6	XD.T 11T3	425	
C211.25.R.03-11-A24-50-225	25	3	10	225	50	24	9400	1,6	XD.T 11T3	825	
C211.25.R.02-11-A-50-225	25	2	10	225	50	25	9400	1,6	XD.T 11T3	02502	
C211.32.R.04-11-A-40	32	4	10	102	40	32	30200	1,6	XD.T 11T3	13204	
C211.32.R.05-11-A/B-40	32	5	10	102	40	32	30200	1,6	XD.T 11T3	132	032
C211.32.R.04-11-B-25	32	4	10	102	40	32	30200	1,6	XD.T 11T3		83200
C211.32.R.05-11-B25-40	32	5	10	102	40	25	30200	1,6	XD.T 11T3		73200
C211.32.R.04-11-A25-40	32	4	10	102	40	25	30200	1,6	XD.T 11T3	53204	
C211.32.R.05-11-A-50-165	32	5	10	165	50	32	20900	1,6	XD.T 11T3	332	
C211.32.R.04-11-A-64-250	32	4	10	250	64	32	8500	1,6	XD.T 11T3	432	
C211.40.R.06-11-B32-50	40	6	10	110	50	32	27700	1,6	XD.T 11T3		04000
C211.40.R.06-11-B-50	40	6	10	122	50	40	27700	1,6	XD.T 11T3		14000

MaxiMill – 211-11 Shell mill

▲ Insert radius >1,6 mm: Modify cutter body





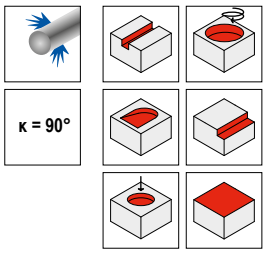


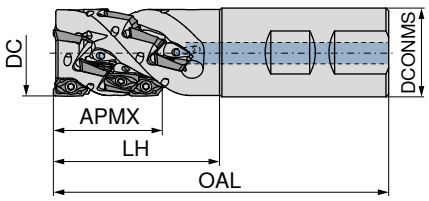
										50 738 ...		**50 739 ...**	
Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert				
A211.40.R.04-11	40	4	10	40	16	38	27700	1,6	XD.T 11T3	**040**			
A211.40.R.06-11	40	6	10	40	16	38	27700	1,6	XD.T 11T3			**040**	
A211.50.R.05-11	50	5	10	40	22	43	25400	1,6	XD.T 11T3	**050**			
A211.50.R.08-11	50	8	10	40	22	43	25400	1,6	XD.T 11T3			**050**	
A211.63.R.06-11	63	6	10	40	22	48	23300	1,6	XD.T 11T3	**063**			
A211.63.R.10-11	63	10	10	40	22	48	23300	1,6	XD.T 11T3			**063**	
A211.80.R.07-11	80	7	10	50	27	58	21300	1,6	XD.T 11T3	**080**			
A211.80.R.10-11	80	10	10	50	27	58	21300	1,6	XD.T 11T3			**180**	
A211.80.R.12-11	80	12	10	50	27	58	21300	1,6	XD.T 11T3			**08012**	
A211.100.R.08-11	100	8	10	50	32	78	19600	1,6	XD.T 11T3	**10000**			
A211.100.R.14-11	100	14	10	50	32	78	19600	1,6	XD.T 11T3			**10014**	
A211.125.R.10-11	125	10	10	63	40	88	17900	1,6	XD.T 11T3	**12500**			

	TORX® blade		Clamping key – T		Key D		Power Screw		Molykote		Clamping screw		Torque screwdriver	
	80 950 ...		**80 397 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts **DC**														
12		**043**				**125**				**303**		**92000**		**191**
16 - 32		**043**				**125**				**303**		**128**		**191**
40		**043**		**040**		**125**		**151**		**303**		**131**		**191**
50		**043**		**050**		**125**		**154**		**303**		**131**		**191**
63 - 125		**043**				**125**				**303**		**131**		**191**

MaxiMill – 211-11KN shell end mill shank

▲ ZEFP = Number of inserts
▲ ZNP = Number of teeth



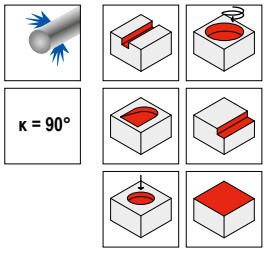


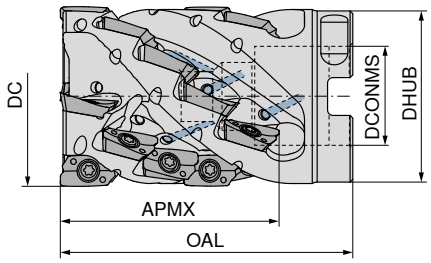
50 784 ...

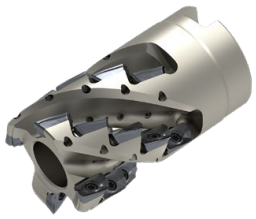
Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	ZEFP	ZNP	torque moment Nm	Insert	
C211.25.R.02KN3-11-B-40	25	2	28	97	40	25	6	3	1,6	XD.T 11T3	**02523**
C211.25.R.02KN4-11-B-50	25	2	37	107	50	25	8	4	1,6	XD.T 11T3	**02524**
C211.25.R.02KN5-11-B-60	25	2	46	117	60	25	10	5	1,6	XD.T 11T3	**02525**
C211.32.R.02KN4-11-B-50	32	2	37	111	50	32	8	4	1,6	XD.T 11T3	**03224**
C211.32.R.03KN5-11-B-60	32	3	46	121	60	32	15	5	1,6	XD.T 11T3	**03235**
C211.40.R.03KN4-11-B32-50	40	3	37	111	50	32	12	4	1,6	XD.T 11T3	**04034**
C211.40.R.04KN5-11-B32-60	40	4	46	121	60	32	20	5	1,6	XD.T 11T3	**04045**

MaxiMill – 211-11KN shell end face mill

▲ ZEFP = Number of inserts
▲ ZNP = Number of teeth







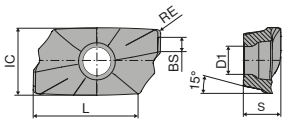
50 794 ...

Designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	torque moment Nm	Insert	
A211.40.R.03KN4-11	40	3	37	12	4	65	22	38	1,6	XD.T 11T3	**04034**
A211.40.R.04KN4-11	40	4	37	16	4	65	22	38	1,6	XD.T 11T3	**04044**
A211.40.R.04KN5-11	40	4	46	20	5	74	22	38	1,6	XD.T 11T3	**04045**
A211.50.R.04KN5-11	50	4	46	20	5	75	27	48	1,6	XD.T 11T3	**05045**
A211.50.R.05KN5-11	50	5	46	25	5	75	27	48	1,6	XD.T 11T3	**05055**
A211.50.R.05KN6-11	50	5	55	30	6	85	27	48	1,6	XD.T 11T3	**05056**

	Cylindrical screw	TORX® blade	Key D	Molykote	Clamping screw	Socket head screw	Torque screwdriver
	70 950 ...	**80 950 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts Designation							
A211.40.R.03KN4-11		**043**	**125**	**303**	**20400**	**20900**	**191**
A211.40.R.04KN4-11		**043**	**125**	**303**	**20400**	**20900**	**191**
A211.40.R.04KN5-11		**043**	**125**	**303**	**20400**	**21000**	**191**
A211.50.R.04KN5-11	**002**	**043**	**125**	**303**	**20400**	**181**	**191**
A211.50.R.05KN5-11	**002**	**043**	**125**	**303**	**20400**	**181**	**191**
A211.50.R.05KN6-11	**002**	**043**	**125**	**303**	**20400**	**181**	**191**
C211.25.R.02KN3-11-B-40		**043**	**125**	**303**	**20700**		**191**
C211.25.R.02KN4-11-B-50		**043**	**125**	**303**	**20700**		**191**
C211.25.R.02KN5-11-B-60		**043**	**125**	**303**	**20700**		**191**
C211.32.R.02KN4-11-B-50		**043**	**125**	**303**	**20700**		**191**
C211.32.R.03KN5-11-B-60		**043**	**125**	**303**	**20700**		**191**
C211.40.R.03KN4-11-B32-50		**043**	**125**	**303**	**20400**		**191**
C211.40.R.04KN5-11-B32-60		**043**	**125**	**303**	**20400**		**191**

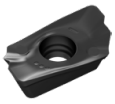
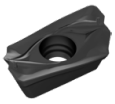
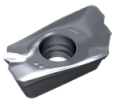
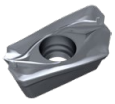
XDKT / XDHT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XD.T 11T302..	6,8	2,8	10,6	2	3,80
XD.T 11T304..	6,8	2,8	10,6	1,8	3,80
XD.T 11T308..	6,8	2,8	10,6	1,4	3,80
XD.T 11T312..	6,8	2,8	10,6	1,4	3,80
XD.T 11T316..	6,8	2,8	10,6	1,4	3,80
XD.T 11T320..	6,8	2,8	10,6	1,4	3,80
XD.T 11T325..	6,8	2,8	10,6	1,4	3,80
XD.T 11T332..	6,8	2,8	10,6	0,8	3,80
XD.T 11T340..	6,8	2,8	10,6	-	3,80
XDHT 11T350..	6,8	2,8	10,6	-	3,80
XDKT 11T332..	6,8	2,8	10,6	1,4	3,80

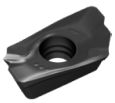
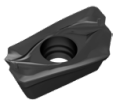
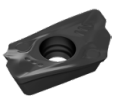
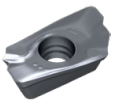
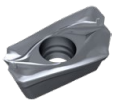
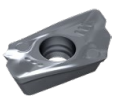


XDKT

XDKT

		-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		F	M	F	M
		XDKT	XDKT	XDKT	XDKT
		51 034 ...	51 037 ...	51 034 ...	51 037 ...
ISO	RE mm				
11T308SR	0,8	258	258	058	058
P		●	●	●	●
M					
K					
N					
S					
H					
O					

XDKT

		-F50 CTCP230	-M50 CTCP230	-R50 CTCP230	-F50 CTPP235	-M50 CTPP235	-R50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
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		XDKT	XDKT	XDKT	XDKT	XDKT	XDKT
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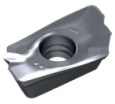
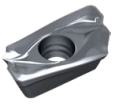
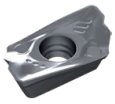
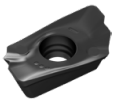
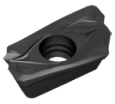
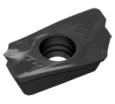
ISO	RE mm						
11T304SR	0,4	004	004	004	104	104	104
11T308SR	0,8	008	008	008	108	108	108
11T312SR	1,2		012			112	
11T320SR	2,0	020 1)	020 1)	020 1)	120 1)	120 1)	120 1)
11T325SR	2,5	025 1)	025 1)	025 1)	125 1)	125 1)	125 1)
P		●	●	●	●	●	●
M					○	○	○
K		○	○	○	○	○	○
N							
S							
H							
O							

1) Insert radius >1.6 mm: Modify cutter body

XDKT

		-F50 CTPM225 DRAGONSKIN	-M50 CTPM225 DRAGONSKIN	-R50 CTPM225 DRAGONSKIN	-F50 CTCM235 DRAGONSKIN	-M50 CTCM235 DRAGONSKIN	-R50 CTCM235 DRAGONSKIN
							
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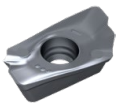
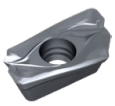
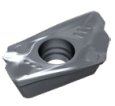
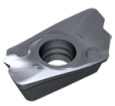
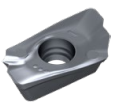
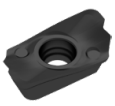
		51 034 ...	51 037 ...	51 039 ...	51 034 ...	51 037 ...	51 039 ...
ISO	RE mm						
11T308SR	0,8	208	208	208	308	308	308
P		●	●	●	●	●	●
M		●	●	●	●	●	●
K							
N							
S							
H							
O							

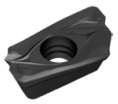
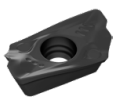
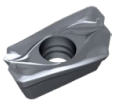
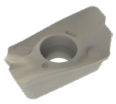
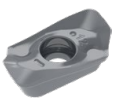
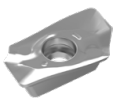
XDKT

		-F50 CTPM240 DRAGONSKIN	-M50 CTPM240 DRAGONSKIN	-R50 CTPM240 DRAGONSKIN	-F40 CTPM245 DRAGONSKIN	-F50 CTPM245 DRAGONSKIN	-F40 CTCM245 DRAGONSKIN	-F50 CTCM245 DRAGONSKIN
								
		F XDKT	M XDKT	R XDKT	F XDKT	F XDKT	F XDKT	F XDKT
		51 034 ...	51 037 ...	51 039 ...	51 113 ...	51 034 ...	51 113 ...	51 034 ...
ISO	RE mm							
11T304ER	0,4				454		90401	
11T304SR	0,4		404					
11T308ER	0,8				458		90801	
11T308SR	0,8	408	408	408		458		90801
11T312ER	1,2				462		91201	
11T312SR	1,2	412	412	412				
11T316ER	1,6				466		91601	
11T320ER	2,0				470 [1)]		92001 [1)]	
11T320SR	2,0	420 [1)]	420 [1)]	420 [1)]				
11T325ER	2,5				475 [1)]		92501 [1)]	
11T332ER	3,2				482 [1)]		93201 [1)]	
11T332SR	3,2	432 [1)]	432 [1)]	432 [1)]				
11T340ER	4,0				490 [1)]		94001 [1)]	
P		○	○	○	●	●	●	●
M		●	●	●	●	●	●	●
K								
N								
S							○	○
H								
O								

1) Insert radius >1.6 mm: Modify cutter body

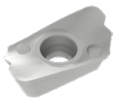
15

XDKT / XDHT

	-M50 CTCK215	-R50 CTCK215	-M50 CTPK220	-F20 CTWN215	NEW -F10 CTPX715	-27P H216T
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	
						
	M	R	M	F	F	F
	XDKT	XDKT	XDKT	XDKT	XDHT	XDHT
	51 037 ...	51 039 ...	51 037 ...	50 478 ...	51 155 ...	50 477 ...
ISO / RE mm						
11T302FR 0,2				502	00202	502
11T304FR 0,4				504	00402	504
11T304SR 0,4	504					
11T308FR 0,8				508	00802	508
11T308SR 0,8	508	508	608			
11T312FR 1,2					01202	512
11T316FR 1,6					01602	516
11T320FR 2,0				520 1)	02002 1)	520 1)
11T325FR 2,5				525 1)	02502 1)	525 1)
11T332FR 3,2					03202 1)	532 1)
11T340FR 4,0					04002 1)	540 1)
11T350FR 5,0					05002 1)	550 1)
P					○	
M					○	
K	●	●	●	○	●	○
N				●	●	●
S					○	
H						
O				○	○	○

1) Insert radius >1.6 mm: Modify cutter body

XDKT

	-F40 CTC5240	-F40 CTCS245	-R60 CTP6215
	DRAGONSKIN	DRAGONSKIN	
			
	F	F	R
	XDKT	XDKT	XDKT
	50 463 ...	51 113 ...	50 464 ...
ISO / RE mm			
11T304ER 0,4	504		
11T308ER 0,8	500	558	
11T308SR 0,8			300
11T312ER 1,2	512	562	
11T316ER 1,6	516	566	
11T320ER 2,0	520 1)	570	
11T325ER 2,5	525 1)	57500 1)	
11T332ER 3,2	532 1)	582	
11T340ER 4,0	540 1)	59000 1)	
P			
M			
K			●
N			
S	●	●	
H			●
O			

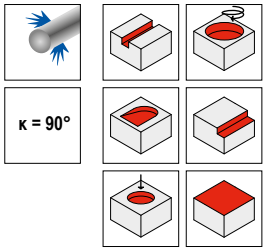
1) Insert radius >1.6 mm: Modify cutter body

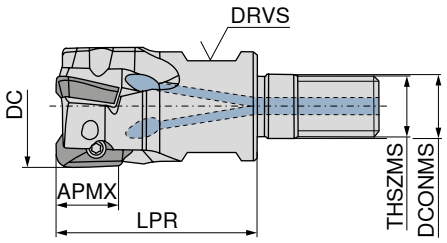
Milling guide

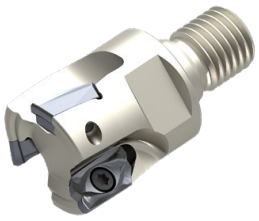
Cutting data standard values	→ 145–148	Machining strategy	→ 161
Starting Parameter	→ 161	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

MaxiMill – 211-15 Screw in cutter

▲ Insert radius >2,5 mm: Modify cutter body



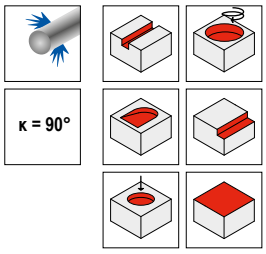


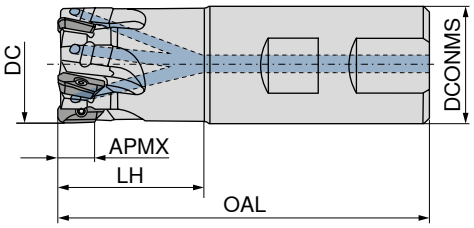


Designation	DC	ZNF	APMX	LPR	DCONMS	THSZMS	DRVS	RPMX	torque moment	Insert	50 746 ...
	mm		mm	mm	mm		mm	1/min.	Nm		
G211.25.R.02-15	25	2	14	35	12,5	M12	17	26560	3,2	XD.T 1505	**025**
G211.32.R.03-15	32	3	14	35	17,0	M16	24	30200	3,2	XD.T 1505	**032**
G211.40.R.04-15	40	4	14	40	17,0	M16	27	27700	3,2	XD.T 1505	**040**

MaxiMill – 211-15 End milling cutter

▲ Insert radius >2,5 mm: Modify cutter body

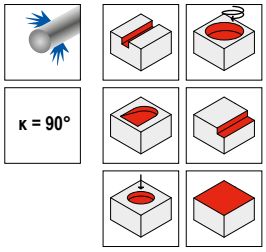


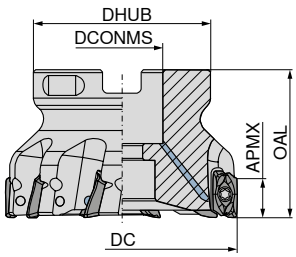


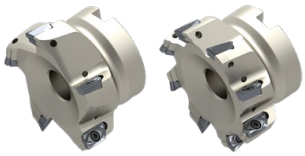
Designation	DC	ZNF	APMX	OAL	LH	DCONMS	RPMX	torque moment	Insert	50 747 ...	50 747 ...
	mm		mm	mm	mm	mm	1/min.	Nm			
C211.25.R.02-15-B20-32	25	2	14	83	32	20	26560	3,2	XD.T 1505		**125**
C211.25.R.02-15-B/A-32	25	2	14	90	32	25	26560	3,2	XD.T 1505	**225**	**025**
C211.25.R.02-15-A-50-225	25	2	14	225	50	25	7520	3,2	XD.T 1505	**325**	
C211.32.R.03-15-B25-40	32	3	14	96	40	25	22160	3,2	XD.T 1505		**132**
C211.32.R.03-15-A-40	32	3	14	103	40	32	24160	3,2	XD.T 1505	**232**	
C211.32.R.03-15-B-40	32	3	14	103	40	32	24160	3,2	XD.T 1505		**032**
C211.32.R.03-15-A-63-250	32	3	14	250	63	32	6800	3,2	XD.T 1505	**332**	
C211.40.R.04-15-A-50	40	4	14	110	50	32	22160	3,2	XD.T 1505	**240**	
C211.40.R.04-15-B32-50	40	4	14	110	50	32	22160	3,2	XD.T 1505		**040**
C211.40.R.03-15-A-50-275	40	3	14	275	50	32	6120	3,2	XD.T 1505	**340**	

MaxiMill – 211-15 Shell mill

▲ Insert radius >2,5 mm: Modify cutter body







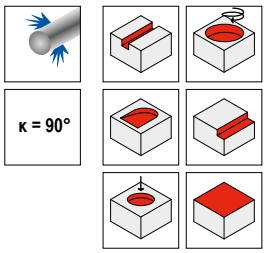
Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	50 748 ...	50 749 ...
A211.40.R.03-15	40	3	14	40	16	38	22160	3,2	XD.T 1505	**040**	
A211.40.R.04-15	40	4	14	40	16	38	22160	3,2	XD.T 1505		**040**
A211.50.R.03-15	50	3	14	40	22	43	20320	3,2	XD.T 1505	**050**	
A211.50.R.05-15	50	5	14	40	22	43	20320	3,2	XD.T 1505		**050**
A211.63.R.04-15	63	4	14	45	22	48	18640	3,2	XD.T 1505	**063**	
A211.63.R.06-15	63	6	14	45	22	48	18640	3,2	XD.T 1505		**063**
A211.80.R.05-15	80	5	14	50	27	58	17040	3,2	XD.T 1505	**080**	
A211.80.R.08-15	80	8	14	50	27	58	17040	3,2	XD.T 1505		**080**
A211.100.R.06-15	100	6	14	50	32	78	15680	3,2	XD.T 1505	**100**	
A211.100.R.10-15	100	10	14	50	32	78	15680	3,2	XD.T 1505		**100**
A211.125.R.07-15	125	7	14	63	40	88	14320	3,2	XD.T 1505	**125**	
A211.125.R.11-15	125	11	14	63	40	88	14320	3,2	XD.T 1505		**125**
A211.160.R.08-15	160	8	14	63	40	93	13200	3,2	XD.T 1505	**160** [1]	
A211.160.R.12-15	160	12	14	63	40	93	13200	3,2	XD.T 1505		**160** [1]

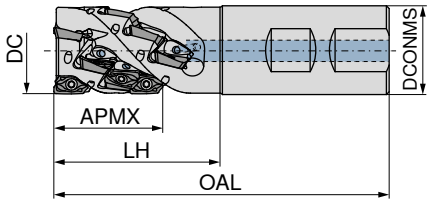
1) Without Through Coolant

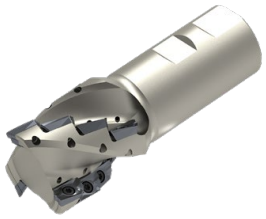
Spare parts DC	TORX® blade		Clamping key – T		Key D		Power Screw		Molykote		Clamping screw		Torque screwdriver	
	80 950 ...		**80 397 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
25 - 32	**054**				**128**				**303**		**839**		**193**	
40	**054**		**040**		**128**		**151**		**303**		**839**		**193**	
50	**054**		**050**		**128**		**154**		**303**		**839**		**193**	
63 - 160	**054**				**128**				**303**		**839**		**193**	

MaxiMill – 211-15KN shell end mill shank

▲ ZEFP = Number of Inserts
▲ ZNP = Number of rows





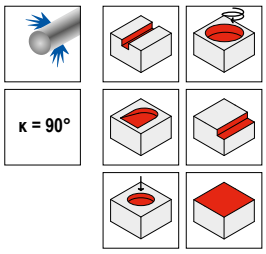


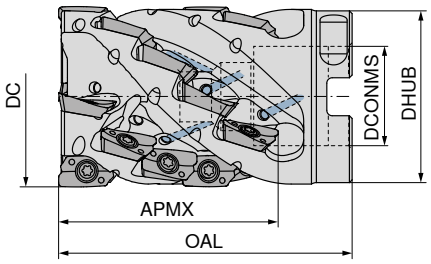
50 783 ...

Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	ZEFP	ZNP	torque moment Nm	Insert	
C211.40.R.03KN3-15-B32-60	40	3	39,6	121	60	32	9	3	3,2	XD.T 1505	04033
C211.50.R.03KN4-15-B40-68	50	3	52,6	138	67	40	12	4	3,2	XD.T 1505	05034

MaxiMill – 211-15KN shell end face mill

▲ ZEFP = Number of Inserts
▲ ZNP = Number of rows





50 781 ...

Designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	
A211.50.R.03KN4-15	50	3	52,6	12	4	87	27	48	3,2	XD.T 1505	05034
A211.50.R.03KN5-15	50	3	65,8	15	5	100	27	48	3,2	XD.T 1505	05035
A211.50.R.04KN5-15	50	4	65,8	20	5	100	27	48	3,2	XD.T 1505	05045
A211.63.R.03KN4-15	63	3	52,6	12	4	76	27	58	3,2	XD.T 1505	06334
A211.63.R.03KN5-15	63	3	65,8	15	5	90	27	58	3,2	XD.T 1505	06335
A211.63.R.04KN6-15	63	4	78,5	24	6	102	27	58	3,2	XD.T 1505	06346
A211.63.R.05KN5-15	63	5	65,8	25	5	90	27	58	3,2	XD.T 1505	06355
A211.80.R.04KN5-15	80	4	65,8	20	5	90	32	78	3,2	XD.T 1505	08045
A211.80.R.05KN6-15	80	5	78,5	30	6	102	32	78	3,2	XD.T 1505	08056

Cylindrical screw

TORX® blade

Key D

Molykote

Clamping screw

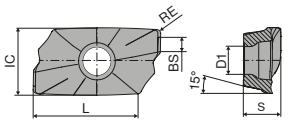
Socket head screw

Torque screwdriver

	70 950 ...	80 950 ...	80 950 ...	70 950 ...	70 950 ...	70 950 ...	80 950 ...
Spare parts Designation							
A211.50.R.03KN4-15	002	054	128	303	20800	181	193
A211.50.R.03KN5-15	002	054	128	303	20800	181	193
A211.50.R.04KN5-15	002	054	128	303	20800	181	193
A211.63.R.03KN4-15	002	054	128	303	20500	181	193
A211.63.R.03KN5-15	002	054	128	303	20500	181	193
A211.63.R.04KN6-15	002	054	128	303	20500	181	193
A211.63.R.05KN5-15	002	054	128	303	20500	181	193
A211.80.R.04KN5-15	004	054	128	303	20500	234	193
A211.80.R.05KN6-15	004	054	128	303	20500	234	193
C211.40.R.03KN3-15-B32-60		054	128	303	20800		193
C211.50.R.03KN4-15-B40-68		054	128	303	20800		193

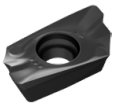
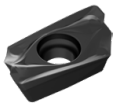
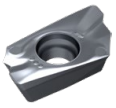
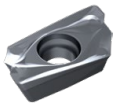
XDKT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDKT 150508..	9,3	4,4	14,8	1,6	5,56
XDKT 150512..	9,3	4,4	14,8	1,6	5,56
XDKT 150516..	9,3	4,4	14,8	1,6	5,56
XDKT 150520..	9,3	4,4	14,8	1,6	5,56
XDKT 150525..	9,3	4,4	14,8	1,6	5,56
XDKT 150530..	9,3	4,4	14,8	1,6	5,56
XDKT 150532..	9,3	4,4	14,8	1,9	5,56
XDKT 150540..	9,3	4,4	14,8	1,2	5,56
XDKT 150560..	9,3	4,4	14,8	-	5,56

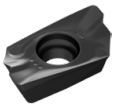
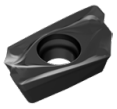
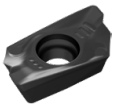
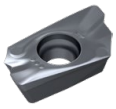
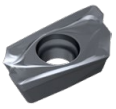
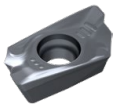


XDKT

XDKT

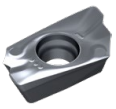
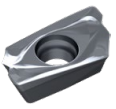
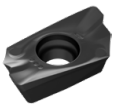
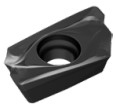
		-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		F	M	F	M
		XDKT	XDKT	XDKT	XDKT
		51 035 ...	51 038 ...	51 035 ...	51 038 ...
ISO	RE mm				
150508SR	0,8	258	258	058	058
P		●	●	●	●
M					
K					
N					
S					
H					
O					

XDKT

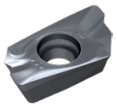
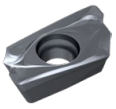
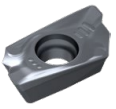
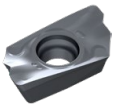
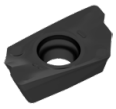
		-F50 CTCP230	-M50 CTCP230	-R50 CTCP230	-F50 CTPP235	-M50 CTPP235	-R50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		F	M	R	F	M	R
		XDKT	XDKT	XDKT	XDKT	XDKT	XDKT
		51 035 ...	51 038 ...	51 040 ...	51 035 ...	51 038 ...	51 040 ...
ISO	RE mm						
150508SR	0,8	008	008	008	108	108	108
150512SR	1,2		012			112	
150516SR	1,6		016			116	
150520SR	2,0			020		120	120
150530SR	3,0		030 1)			130 1)	
150540SR	4,0		040 1)			140 1)	
P		●	●	●	●	●	●
M					○	○	○
K		○	○	○	○	○	○
N							
S							
H							
O							

1) Insert radius >2.5 mm: Modify cutter body

XDKT

		-F50 CTPM225 DRAGONSKIN	-M50 CTPM225 DRAGONSKIN	-F50 CTCM235 DRAGONSKIN	-M50 CTCM235 DRAGONSKIN
					
		F XDKT	M XDKT	F XDKT	M XDKT
		51 035 ...	51 038 ...	51 035 ...	51 038 ...
ISO	RE mm				
150508SR	0,8	208	208	308	308
P		●	●	●	●
M		●	●	●	●
K					
N					
S					
H					
O					

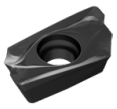
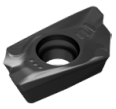
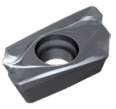
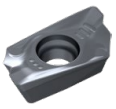
XDKT

		-F50 CTPM240 DRAGONSKIN	-M50 CTPM240 DRAGONSKIN	-R50 CTPM240 DRAGONSKIN	-F40 CTPM245 DRAGONSKIN	-F40 CTCM245 DRAGONSKIN
						
		F XDKT	M XDKT	R XDKT	F XDKT	F XDKT
		51 035 ...	51 038 ...	51 040 ...	51 114 ...	51 114 ...
ISO	RE mm					
150508ER	0,8				458	90801
150508SR	0,8	408	408	408		
150512ER	1,2					91201
150512SR	1,2		412			
150516ER	1,6					91601
150516SR	1,6		416			
150520ER	2,0					92001
150525ER	2,5					92501
150530SR	3,0		430 [1)]			
150532ER	3,2				482 [1)]	93201 [1)]
150540ER	4,0				490 [1)]	94001 [1)]
150540SR	4,0		440 [1)]			
150560ER	6,0					96001 [1)]
P		○	○	○	●	●
M		●	●	●	●	●
K						
N						
S						○
H						
O						

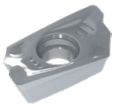
1) Insert radius >2.5 mm: Modify cutter body

15

XDKT

	-M50 CTCK215	-R50 CTCK215	-M50 CTPK220	-R50 CTPK220	-F20 CTWN215
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
					
	M	R	M	R	F
	XDKT	XDKT	XDKT	XDKT	XDKT
	51 038 ...	51 040 ...	51 038 ...	51 040 ...	50 479 ...
ISO / RE mm					
150508FR 0,8					508
150508SR 0,8	508	508	608	608	
P					
M					
K	●	●	●	●	○
N					●
S					
H					
O					○

XDKT

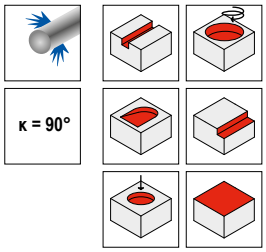
	-F40 CTC5240	-F40 CTCS245	-R60 CTP6215
	DRAGONSKIN	DRAGONSKIN	
			
	F	F	R
	XDKT	XDKT	XDKT
	50 473 ...	51 114 ...	50 469 ...
ISO / RE mm			
150508ER 0,8	508	558	
150508SR 0,8			300
150532ER 3,2	532 [1]	58201[1]	
150540ER 4,0	540 [1]	59000[1]	
P			
M			
K			●
N			
S	●	●	
H			●
O			

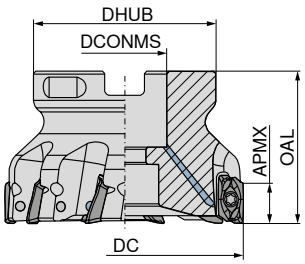
1) Insert radius >2.5 mm: Modify cutter body

Milling guide

Cutting data standard values	→ 145–148	Machining strategy	→ 162
Starting Parameter	→ 162	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

MaxiMill – 211-20 Shell mill



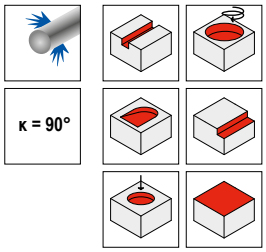


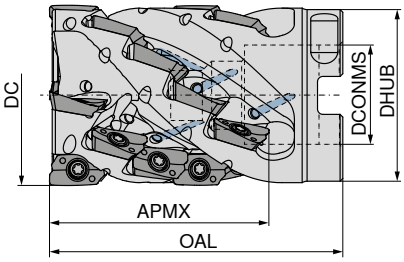
50 778 ...

Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS H6 mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	
A211.63.R.05-20	63	5	19	45	22	48	14400	5	XD.. 2007..	**06305**
A211.80.R.06-20	80	6	19	50	27	58	12400	5	XD.. 2007..	**08006**
A211.100.R.07-20	100	7	19	50	32	78	10900	5	XD.. 2007..	**10007**

MaxiMill – 211-20K shell end face mill

▲ ZEFP = Number of Inserts
▲ ZNP = Number of rows





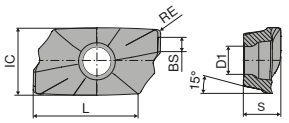
50 780 ...

Designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	
A211.63.R.04K4-20	63	4	68	16	4	92	27	58	5	XD.. 2007..	**06304**
A211.80.R.05K4-20	80	5	68	20	4	92	32	76	5	XD.. 2007..	**08005**

	Cylindrical screw		TORX® blade		Key D		Molykote		Clamping screw		Socket head screw		Torque screwdriver	
	70 950 ...		**80 950 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts														
DC														
63				**037**		**106**		**303**		**01200**		**180**		**193**
80				**037**		**106**		**303**		**01200**		**181**		**193**
63		**003**		**037**		**106**		**303**		**01200**		**181**		**193**
80		**004**		**037**		**106**		**303**		**01200**		**234**		**193**
100				**037**		**106**		**303**		**01200**				**193**

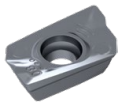
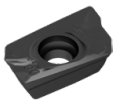
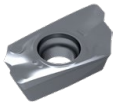
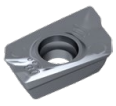
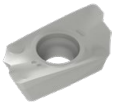
XDKT

Designation	IC	D1	L	S
	mm	mm	mm	mm
XDKT 200708..	12,5	5,5	18,8	6,93
XDKT 200716..	12,5	5,5	18,8	6,89
XDKT 200732..	12,5	5,5	18,8	6,82
XDKT 200740..	12,5	5,5	18,8	6,80
XDKT 200760..	12,5	5,5	18,8	6,80



XDKT

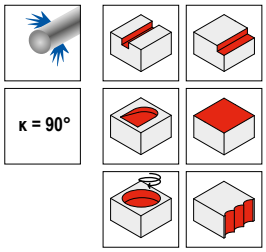
XDKT

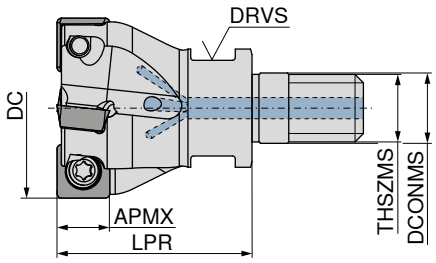
		-M50 CTPP235	-M50 CTCP230	-F40 CTPM245	-F40 CTCM245	-M50 CTPK220	-F40 CTC5240	-F40 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	F	F	M	F	F
		XDKT	XDKT	XDKT	XDKT	XDKT	XDKT	XDKT
		51 145 ...	51 145 ...	51 127 ...	51 127 ...	51 145 ...	51 127 ...	51 127 ...
ISO	RE mm							
200708ER	0,8	10800	00800	45800	90801	60800	15800	55800
200716ER	1,6	11600	01600	46600	91601	61600	16600	56600
200732ER	3,2			48200	93201		18200	58200
200740ER	4,0				94001		19000	
200760ER	6,0				96001		19200	
P		●	●	●	●			
M		○		●	●			
K		○	○			●		
N								
S					○		●	●
H								
O								

Milling guide

Cutting data standard values	→ 145–148	Machining strategy	→ 163
Starting Parameter	→ 163	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

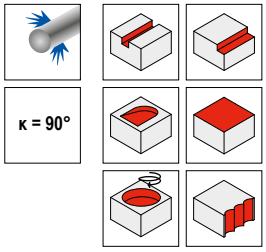
MaxiMill – 490-09 Screw in cutter

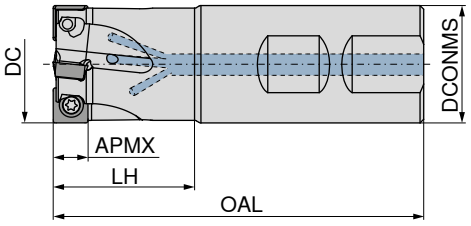




Designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 726 ...
G490.25.R.03-09	25	3	8	35	M12	12,5	17	3,2	SD.. 09T3..	025
G490.32.R.04-09	32	4	8	35	M16	17,0	24	3,2	SD.. 09T3..	032

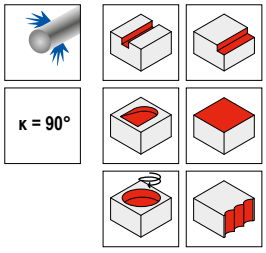
MaxiMill – 490-09 End milling cutter

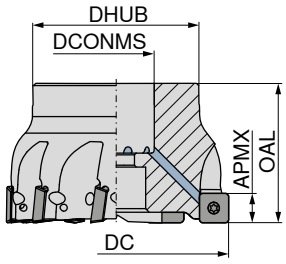


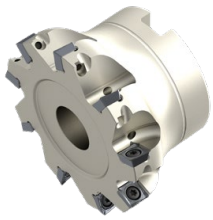


Designation	DC mm	ZNF	APMX mm	DCONMS mm	OAL mm	LH mm	torque moment Nm	Insert	50 727 ...	50 727 ...
C490.25.R.03-09-B-32	25	3	8	25	88	32	3,2	SD.. 09T3..		025
C490.25.R.02-09-A-20	25	2	8	20	165	40	3,2	SD.. 09T3..	225	
C490.25.R.02-09-A-40-165	25	2	8	25	165	40	3,2	SD.. 09T3..	125	
C490.32.R.04-09-B-25	32	4	8	25	100	40	3,2	SD.. 09T3..		132
C490.32.R.04-09-B-40	32	4	8	32	100	40	3,2	SD.. 09T3..		032

MaxiMill – 490-09 Shell mill



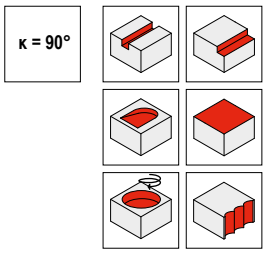


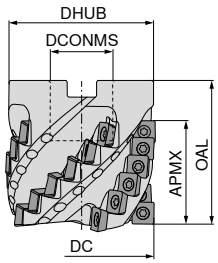


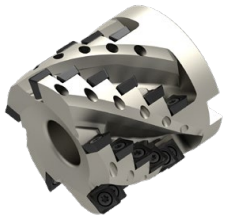
Designation	DC mm	ZNF	APMX mm	DHUB mm	DCONMS H6 mm	OAL mm	torque moment Nm	Insert	50 728 ...
A490.40.R.05-09	40	5	8	38	16	40	3,2	SD.. 09T3..	040
A490.42.R.06-09	42	6	8	38	16	40	3,2	SD.. 09T3..	042
A490.50.R.06-09	50	6	8	43	22	40	3,2	SD.. 09T3..	050
A490.52.R.07-09	52	7	8	43	22	40	3,2	SD.. 09T3..	052
A490.63.R.07-09	63	7	8	48	22	40	3,2	SD.. 09T3..	063
A490.66.R.08-09	66	8	8	48	22	40	3,2	SD.. 09T3..	066
A490.80.R.09-09	80	9	8	58	27	50	3,2	SD.. 09T3..	080
A490.100.R.10-09	100	10	8	78	32	50	3,2	SD.. 09T3..	100

MaxiMill – 490-09K shell end face mill

▲ ZEFP = Number of Inserts
▲ ZNP = Number of rows





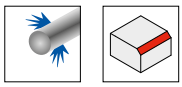


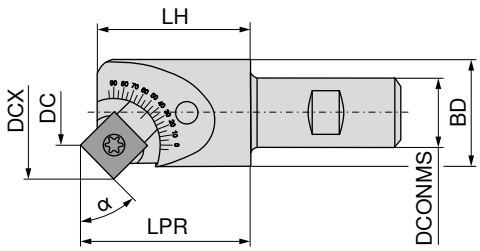
50 761 ...

Designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	
A490.40.R.03K6-09	40	3	41	18	6	55	16	38	3,2	SD.. 09T3..	**040**
A490.50.R.04K6-09	50	4	41	24	6	55	22	48	3,2	SD.. 09T3..	**050**
A490.63.R.05K6-09	63	5	41	30	6	60	27	61	3,2	SD.. 09T3..	**063**

	TORX® blade	Clamping key – T	Key D	Power Screw	Molykote	Clamping screw	Torque screwdriver	
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**	
Spare parts DC								
25 - 32	**036**		**113**		**303**	**110**	**192**	
40 - 42	**036**	**040**	**113**	**151**	**303**	**110**	**192**	
50 - 100	**036**		**113**		**303**	**110**	**192**	

MaxiMill – 490-09 Adjustable single angle milling cutter





NEW

50 690 ...

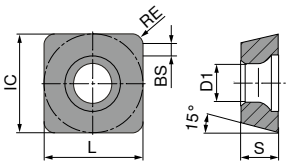
Designation	DC mm	DCX mm	LH mm	BD mm	LPR mm	ZNF	DCONMS mm	torque moment Nm	Insert	
C490.20.R.01	1,6 - 11,1	20,1 - 23,6	32	18,65	32,9 - 34,6	1	16	3,2	SD.. 09T3..	**01600**

	Cylindrical screw	Adjustment wedge	TORX® blade	Key D	Molykote	Clamping screw	Torque screwdriver	
	70 950 ...	**70 950 ...**	**80 950 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**	
Spare parts for Article no.								
50 690 01600	**87500**	**87200**	**036**	**113**	**303**	**110**	**192**	

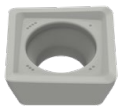
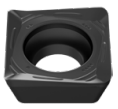
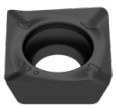
Angle-dependent dimensions can be found on → **Page 164**

SDHT / SDNT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
SD.T 09T3..	9,52	4,4	9,52	2,5	3,97

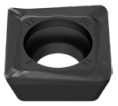
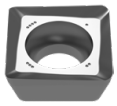


SDHT / SDNT

	TCM10	-29 CTCP230	CTPP235	-29 CTPP235	-33 CTPM240	-F50 CTPM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	CERMET						
	SDHT	SDNT	SDNT	SDNT	SDNT	SDNT	SDNT
	50 424 ...	51 011 ...	51 082 ...	51 011 ...	51 030 ...	51 111 ...	51 111 ...
ISO / RE mm							
09T308ER 0,8			108			458	90801
09T308SR 0,8	900	008		108	408		
P	●	●	●	●	○	●	●
M			○	○	●	●	●
K	○	○	○	○			
N							
S							○
H							
O							

SDNT / SDHT

NEW

	-31 CTCK215	-F10 CTPX715	-27P H216T	-27 CTC5240	-M31 CTC5240	-F10 CTCS245
	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	SDNT	SDHT	SDHT	SDHT	SDNT	SDHT
	51 029 ...	51 125 ...	50 424 ...	50 496 ...	50 425 ...	51 125 ...
ISO / RE mm						
09T308ER 0,8				508	508	55800
09T308FR 0,8		00802	550			
09T308SR 0,8	508					
P		○				
M		○				
K	●	●	○			
N		●	●			
S		○		●	●	●
H						
O		○	○			

Milling guide

Cutting data standard values	→ 145–148	Starting Parameter	→ 164
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

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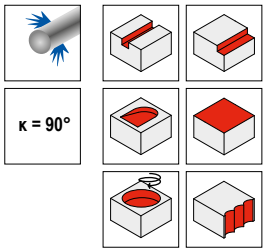
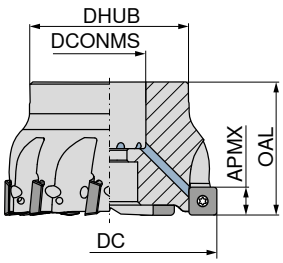
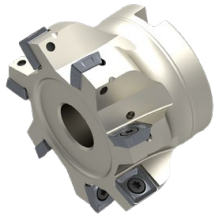
MaxiMill – 490-12 Shell mill





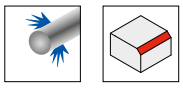


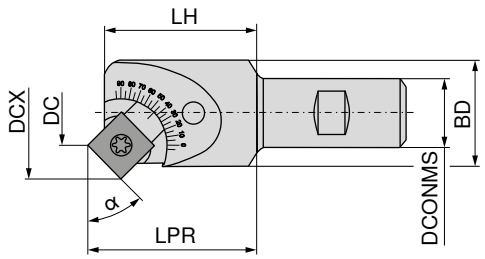
50 703 ...

Designation	DC mm	ZNF	APMX mm	DHUB mm	DCONMS mm	OAL mm	torque moment Nm	Insert	
A490.40.R.04-12	40	4	11	38	16	40	5	SD.. 1205..	**54000**
A490.50.R.05-12	50	5	11	43	22	40	5	SD.. 1205..	**550**
A490.63.R.06-12	63	6	11	48	22	40	5	SD.. 1205..	**563**
A490.80.R.07-12	80	7	11	58	27	50	5	SD.. 1205..	**580**
A490.100.R.08-12	100	8	11	75	32	50	5	SD.. 1205..	**600**
A490.125.R.10-12	125	10	11	88	40	63	5	SD.. 1205..	**625**

	TORX® blade	Clamping key – T	Key D	Power Screw	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC							
40	**037**	**040**	**114**	**151**	**303**	**01200**	**193**
50	**037**	**040**	**114**	**154**	**303**	**01200**	**193**
63 - 125	**037**	**040**	**114**		**303**	**01200**	**193**

MaxiMill – 490-12 Adjustable single angle milling cutter





NEW

50 690 ...

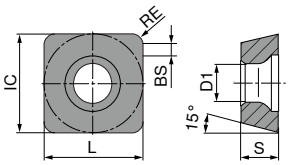
Designation	DC mm	DCX mm	LH mm	BD mm	LPR mm	ZNF	DCONMS mm	torque moment Nm	Insert	
C490.26.R.01	1,1 - 14,1	26,6 - 31,5	37	25	38,2 - 40,6	1	20	5	SD.. 1205..	**02000**

	Cylindrical screw	Adjustment wedge	TORX® blade	Key D	Molykote	Clamping screw	Torque screwdriver
	70 950 ...	**70 950 ...**	**80 950 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts for Article no.							
50 690 02000	**87400**	**87300**	**037**	**114**	**303**	**01200**	**193**

Angle-dependent dimensions can be found on → **Page 165**

SDHW / SDMT / SDHT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
SDH. 120508..	12,7	5,5	12,7	2,2	5,00
SDHT 120512..	12,7	5,5	12,7	1,8	5,00
SDHT 120520..	12,7	5,5	12,7	1,0	5,00
SDHT 120525..	12,7	5,5	12,7	1,5	5,00
SDMT 120508..	12,7	5,5	12,7	3,0	5,00
SDMT 1205ZZ..	12,7	5,5	12,7	0,9	5,00

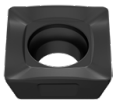
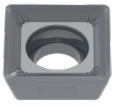
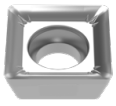
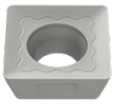


SDHW / SDMT / SDHT

	TCM10	-29 CTCP230	-29 CTPP235	-29 CTPM240	-33 CTPM240	-F50 CTPM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	CERMET						
	SDHW	SDMT	SDMT	SDMT	SDHT	SDMT	SDMT
	50 428 ...	51 081 ...	51 081 ...	51 081 ...	51 028 ...	51 110 ...	51 110 ...
ISO / RE mm							
120508ER 0,8						458	90801
120508SR 0,8	901						
120512SR 1,2					412		
120520SR 2,0					421		
1205ZZSN 0,8		020	120	420			
P	●	●	●	○	○	●	●
M			○	●	●	●	●
K	○	○	○				
N							
S							○
H							
O							

SDMT / SDHT

NEW

	-31 CTCK215	-F10 CTPX715	-27P H216T	-M31 CTC5240	-F50 CTCS245
	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN
					
	SDMT	SDHT	SDHT	SDMT	SDMT
	51 059 ...	51 161 ...	50 426 ...	50 580 ...	51 110 ...
ISO / RE mm					
120508ER 0,8				508	55800
120508FR 0,8		00802	555		
120525FR 2,5			559		
1205ZZSN 0,8	521				
P		○			
M		○			
K	●	●	○		
N		●	●		
S		○		●	●
H					
O		○	○		

Milling guide

Cutting data standard values	→ 145–148	Starting Parameter	→ 165
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

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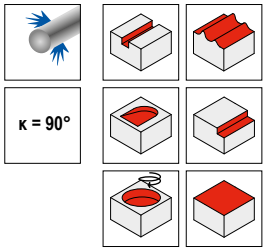
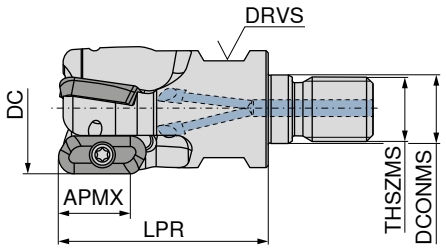
MaxiMill – HSC-11 Screw in cutter

▲ Insert radius >3.2 mm: Modify cutter body

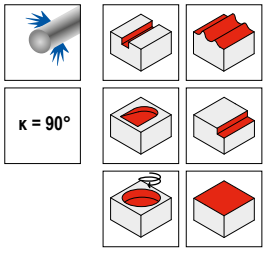


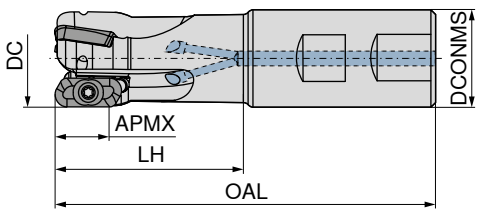


Designation	DC mm	ZNF	APMX mm	DCONMS mm	LPR mm	THSZMS	RPMX 1/min.	DRVS mm	torque moment Nm	Insert	55 107 ...
GHSC.16.R.02-11	16	2	10	8,5	27	M8	56000	10	1,8	XDHT 11T3..	**016**
GHSC.20.R.02-11	20	2	10	10,5	33	M10	50100	15	1,8	XDHT 11T3..	**020**
GHSC.25.R.03-11	25	3	10	12,5	35	M12	45000	17	1,8	XDHT 11T3..	**025**
GHSC.32.R.03-11	32	3	10	17,0	35	M16	39800	24	1,8	XDHT 11T3..	**032**
GHSC.40.R.03-11	40	3	10	17,0	35	M16	35500	24	1,8	XDHT 11T3..	**040**

MaxiMill – HSC-11 End milling cutter

▲ Insert radius >3.2 mm: Modify cutter body

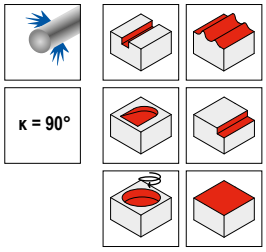


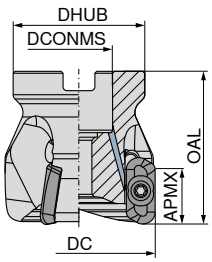


Designation	DC mm	ZNF	APMX mm	DCONMS h6 mm	OAL mm	LH mm	RPMX 1/min.	torque moment Nm	Insert	50 675 ...	50 675 ...
CHSC.16.R.02-11-B/A-25	16	2	10	16	75	25	56200	1,8	XDHT 11T3..	**016**	**416**
CHSC.16.R.02-11-A-32	16	2	10	16	165	32	18800	1,8	XDHT 11T3..	**116**	
CHSC.20.R.02-11-A-32	20	2	10	20	84	32	50100	1,8	XDHT 11T3..	**020**	
CHSC.20.R.03-11-B-32	20	3	10	20	84	32	50100	1,8	XDHT 11T3..		**420**
CHSC.20.R.02-11-A-40	20	2	10	20	165	40	26700	1,8	XDHT 11T3..	**120**	
CHSC.25.R.03-11-A-40	25	3	10	25	98	40	45000	1,8	XDHT 11T3..	**225**	
CHSC.25.R.04-11-B-40	25	4	10	25	98	40	45000	1,8	XDHT 11T3..		**425**
CHSC.25.R.02-11-A-50	25	2	10	25	165	50	31700	1,8	XDHT 11T3..	**125**	
CHSC.25.R.03-11-A-50	25	3	10	25	165	50	31700	1,8	XDHT 11T3..	**325**	

MaxiMill – HSC-11 Shell mill

▲ Insert radius >3.2 mm: Modify cutter body



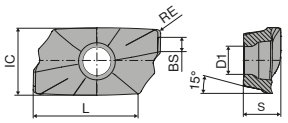


Designation	DC mm	ZNF	APMX mm	DCONMS $_{H6}$ mm	DHUB mm	OAL mm	RPMX 1/min.	torque moment Nm	Insert	50 718 ...
AHSC.40.R.04-11	40	4	10	16	38	50	35500	1,8	XDHT 11T3..	**040**
AHSC.50.R.04-11	50	4	10	22	43	50	31800	1,8	XDHT 11T3..	**050**
AHSC.63.R.05-11	63	5	10	22	43	50	28300	1,8	XDHT 11T3..	**063**
AHSC.80.R.05-11	80	5	10	27	58	50	25100	1,8	XDHT 11T3..	**080**
AHSC.100.R.05-11	100	5	10	32	78	50	22400	1,8	XDHT 11T3..	**100**

	TORX® blade	Clamping key – T	Key D	Power Screw	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC							
16 - 25	**043**		**125**		**303**	**128**	**192**
32	**043**		**125**		**303**	**131**	**192**
40	**043**	**040**	**125**	**151**	**303**	**131**	**192**
50 - 63	**043**	**050**	**125**	**154**	**303**	**131**	**192**
80 - 100	**043**		**125**		**303**	**131**	**192**

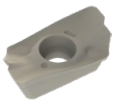
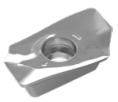
XDKT / XDHT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XD.T 11T302FR	6,8	2,8	10,6	2	3,80
XD.T 11T304FR	6,8	2,8	10,6	1,8	3,80
XD.T 11T308FR	6,8	2,8	10,6	1,4	3,80
XD.T 11T320FR	6,8	2,8	10,6	1,4	3,80
XD.T 11T325FR	6,8	2,8	10,6	1,4	3,80
XDHT 11T312FR	6,8	2,8	10,6	1,4	3,80
XDHT 11T316FR	6,8	2,8	10,6	1,4	3,80
XDHT 11T332FR	6,8	2,8	10,6	0,8	3,80
XDHT 11T340FR	6,8	2,8	10,6	-	3,80
XDHT 11T350FR	6,8	2,8	10,6	-	3,80



XDKT

XDKT / XDHT

	-F20 CTWN215	-27P H216T
		
	F	F
	XDKT	XDHT
	50 478 ...	50 477 ...

ISO	RE		
	mm		
11T302FR	0,2	502	502
11T304FR	0,4	504	504
11T308FR	0,8	508	508
11T312FR	1,2		512
11T316FR	1,6		516
11T320FR	2,0	520 1)	520 1)
11T325FR	2,5	525 1)	525 1)
11T332FR	3,2		532 1)
11T340FR	4,0		540 1)
11T350FR	5,0		550 1)
P			
M			
K		○	○
N		●	●
S			
H			
O		○	○

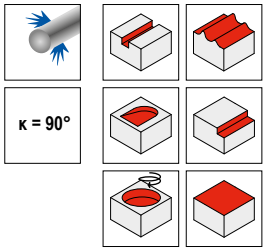
1) Insert radius >1.6 mm: Modify cutter body

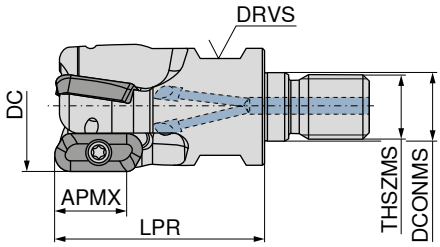
Milling guide

Safety advice	→ 166	Cutting data standard values	→ 167
Machining strategy	→ 168+169	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

MaxiMill – HSC-19 Screw-in cutter

▲ Insert radius >4.0 mm: Modify cutter body

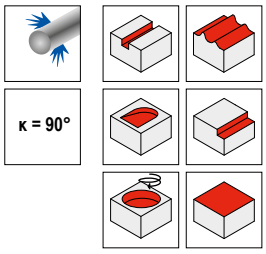


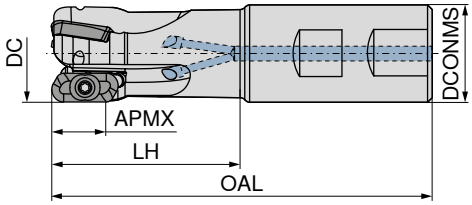


Designation	DC mm	ZNF	APMX mm	DCONMS mm	LPR mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	55 108 ...
GHSC.25.R.02-19	25	2	18	12,5	45	M12	17	34400	5	XDHT 1904..	**025**
GHSC.32.R.03-19	32	3	18	17,0	52	M16	24	29100	5	XDHT 1904..	**032**
GHSC.40.R.03-19	40	3	18	17,0	52	M16	24	24900	5	XDHT 1904..	**040**

MaxiMill – HSC-19 End milling cutter

▲ Insert radius >4.0 mm: Modify cutter body

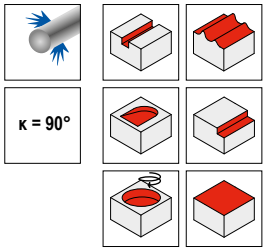


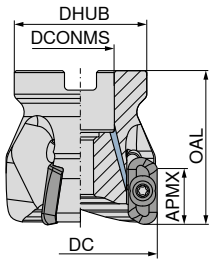


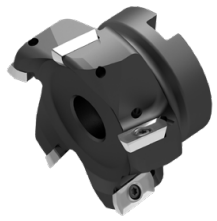
Designation	DC mm	ZNF	APMX mm	DCONMS $_{h5}$ mm	OAL mm	LH mm	RPMX 1/min.	torque moment Nm	Insert	50 679 ...	50 679 ...
CHSC.25.R.02-19-A-50	25	2	18	25	121	50	32400	5	XDHT 1904..	**225**	
CHSC.25.R.02-19	25	2	18	25	121	65	32400	5	XDHT 1904..		**025**
CHSC.25.R.02-19-A-63	25	2	18	25	165	63	24700	5	XDHT 1904..	**325**	
CHSC.32.R.02-19-A-63	32	2	18	32	125	63	28900	5	XDHT 1904..	**232**	
CHSC.32.R.03-19-A-63	32	3	18	32	125	63	28900	5	XDHT 1904..	**432**	
CHSC.32.R.03-19	32	3	18	32	125	65	28900	5	XDHT 1904..		**033**
CHSC.32.R.02-19	32	2	18	32	125	65	28900	5	XDHT 1904..		**032**
CHSC.32.R.02-19-A-80	32	2	18	32	165	80	24400	5	XDHT 1904..	**332**	
CHSC.32.R.03-19-A-80	32	3	18	32	165	80	24400	5	XDHT 1904..	**532**	

MaxiMill – HSC-19 Shell mill

▲ Insert radius >4.0 mm: Modify cutter body







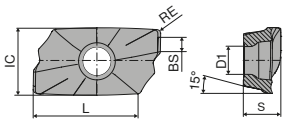
50 716 ...

Designation	DC mm	ZNF	APMX mm	DCONMS $_{H6}$ mm	DHUB mm	OAL mm	RPMX 1/min.	torque moment Nm	Insert	
AHSC.40.R.03-19	40	3	18	16	38	50	24900	5	XDHT 1904..	**040**
AHSC.50.R.04-19	50	4	18	22	43	50	21600	5	XDHT 1904..	**050**
AHSC.63.R.04-19	63	4	18	22	48	50	18800	5	XDHT 1904..	**163**
AHSC.63.R.05-19	63	5	18	22	48	50	18800	5	XDHT 1904..	**063**
AHSC.80.R.04-19	80	4	18	27	58	50	16400	5	XDHT 1904..	**180**
AHSC.80.R.05-19	80	5	18	27	58	50	16400	5	XDHT 1904..	**080**
AHSC.100.R.04-19	100	4	18	32	78	50	14500	5	XDHT 1904..	**200**
AHSC.100.R.05-19	100	5	18	32	78	50	14500	5	XDHT 1904..	**100**
AHSC.125.R.05-19	125	5	18	40	88	63	12800	5	XDHT 1904..	**125**
AHSC.125.R.06-19	125	6	18	40	88	63	12800	5	XDHT 1904..	**225**

	TORX® blade		Clamping key – T		Key D		Power Screw		Molykote		Clamping screw		Torque screwdriver	
	80 950 ...		**80 397 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts														
DC														
25		**036**				**113**				**303**		**172**		**193**
32		**036**				**113**				**303**		**173**		**193**
40		**036**		**040**		**113**		**151**		**303**		**173**		**193**
50 - 63		**036**		**050**		**113**		**154**		**303**		**174**		**193**
80 - 125		**036**				**113**				**303**		**174**		**193**

XDHT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDHT 190402..	9,52	4,65	19	2	4,76
XDHT 190404..	9,52	4,65	19	2	4,76
XDHT 190408..	9,52	4,65	19	2	4,76
XDHT 190412..	9,52	4,65	19	2	4,76
XDHT 190416..	9,52	4,65	19	2	4,76
XDHT 190420..	9,52	4,65	19	2	4,76
XDHT 190425..	9,52	4,65	19	1,4	4,76
XDHT 190432..	9,52	4,65	19	1	4,76
XDHT 190440..	9,52	4,65	19	1	4,76
XDHT 190450..	9,52	4,65	19	-	4,76

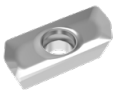


XDKT

XDHT

NEW

-F10	-27P
CTPX715	H216T
DRAGONSKIN	



F	F
XDHT	XDHT
51 159 ...	50 487 ...

ISO	RE		
	mm		
190402FR	0,2	00202	552
190404FR	0,4	00402	554
190408FR	0,8	00802	556
190412FR	1,2	01202	557
190416FR	1,6	01602	558
190420FR	2,0	02002	560
190425FR	2,5	02502	562
190432FR	3,2	03202	564
190440FR	4,0	04002	566
190450FR	5,0	05002[1)]	568 [1)]
P		○	
M		○	
K		●	○
N		●	●
S		○	
H			
O		○	○

1) Insert radius > 4.0 mm: Modify cutter body

Milling guide

Cutting data standard values	→ 145–148	Safety advice	→ 166
Machining strategy	→ 170–172	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

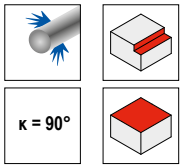
15

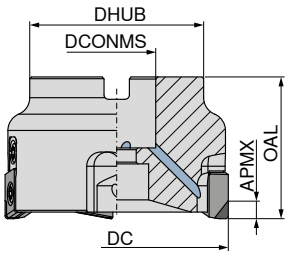
MaxiMill – HPC 12 Shell mill

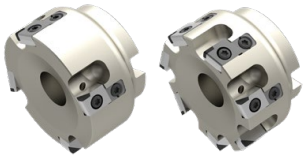
▲ 50 723 ... normal pitch
▲ 50 724 ... fine pitch

Scope of supply:

Tool, adjustment wedges and setting key; incl. wooden box







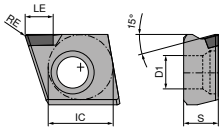
Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 723 ...	50 724 ...
AHPC.40.R.04-12	40	4	11	40	34	16	32000	5	ZNHW 1205..	**040**	
AHPC.50.R.04-12	50	4	11	40	49	22	32000	5	ZNHW 1205..	**050**	
AHPC.50.R.05-12	50	5	11	40	49	22	32000	5	ZNHW 1205..		**050**
AHPC.63.R.04-12	63	4	11	40	49	22	29000	5	ZNHW 1205..	**063**	
AHPC.63.R.07-12	63	7	11	40	49	22	29000	5	ZNHW 1205..		**063**
AHPC.80.R.05-12	80	5	11	50	60	27	26000	5	ZNHW 1205..	**080**	
AHPC.80.R.09-12	80	9	11	50	60	27	26000	5	ZNHW 1205..		**080**
AHPC.100.R.06-12	100	6	11	50	70	32	24000	5	ZNHW 1205..	**100**	
AHPC.100.R.12-12	100	12	11	50	70	32	24000	5	ZNHW 1205..		**100**
AHPC.125.R.08-12	125	8	11	63	72	40	22000	5	ZNHW 1205..	**125**	
AHPC.125.R.14-12	125	14	11	63	72	40	22000	5	ZNHW 1205..		**12514**
AHPC.160.R.10-12	160	10	11	63	118	40	18000	5	ZNHW 1205..	**16010**[1)]	
AHPC.160.R.16-12	160	16	11	63	118	40	18000	5	ZNHW 1205..		**16016**[1)]
AHPC.200.R.12-12	200	12	11	63	153	60	16000	5	ZNHW 1205..	**20000**[1)]	
AHPC.250.R.14-12	250	14	11	63	200	60	14000	5	ZNHW 1205..	**25014**[1)]	
AHPC.315.R.18-12	315	18	11	80	265	60	12000	5	ZNHW 1205..	**31518**[1)]	

1) Without Through Coolant

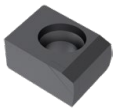
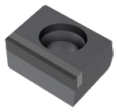
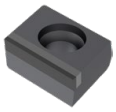
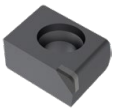
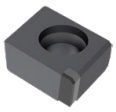
Spare parts DC	TORX® blade	Molykote	Clamping screw	Wedge	Torque screwdriver
	80 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
40 - 315	**036**	**303**	**174**	**199**	**193**

ZNHW

Designation	LE mm	D1 mm	IC mm	S mm
ZNHW 120504ER-1503	3	4,85	10	5,40
ZNHW 120504FR-0007	7	4,85	10	5,40
ZNHW 120508ER-1503	3	4,85	10	5,40
ZNHW 120508SR-0003	3	4,85	10	5,40
ZNHW 1205EOER-1002	2	4,85	10	5,40
ZNHW 1205POER-1511	11	4,85	10	5,40
ZNHW 1205POFR-1003	3	4,85	10	5,40
ZNHW 1205POSR-1503	3	4,85	10	5,40
ZNHW 1205POSR-1506	6	4,85	10	5,40
ZNHW 1205POSR-3003	3	4,85	10	5,40
ZNHW 1205ZZSR-5003	3	4,85	10	5,40



ZNHW

	CTL3215	CTD4205	-R CTD4205	CTD4205	-Q CTD4205
					
	CBN ZNHW	**DIAMOND** ZNHW	**DIAMOND** ZNHW	**DIAMOND** ZNHW	**DIAMOND** ZNHW
	50 515 ...	**50 467 ...**	**50 517 ...**	**50 468 ...**	**50 466 ...**
ISO	RE mm				
120504ER-1503	0,4			**906**	
120504FR-0007	0,4			**904**	
120508ER-1503	0,8			**910**	
120508SR-0003	0,8			**908**	
1205EOER-1002		**952**			
1205POER-1511			**902**		
1205POFR-1003			**90600**		
1205POSR-1503			**900**		
1205POSR-1506			**90800**	**90800**	
1205POSR-3003			**904**		
1205ZZSR-5003					**900** 1)
P					
M					
K	●				
N		●	●	●	●
S					
H	○				
O		○	○	○	○

1) -Q = trailing edge insert

Milling guide

Cutting data standard values	→ 145–148	Machining strategy	→ 173
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

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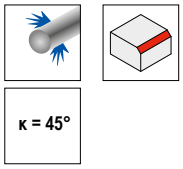
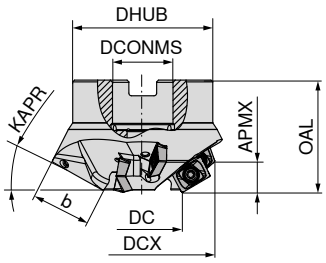
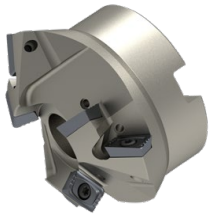
MaxiMill – 242 Chamfer Cutter

▲ Caution: Use only inserts with a corner radius of less than 1.6 mm
▲ ZEFP = number of inserts
▲ ZNP = tooth rows







NEW

50 768 ...

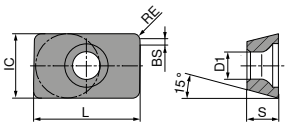
KAPR	DC mm	DCX mm	ZNF	APMX mm	ZEFP	b ±0,3 mm	OAL mm	DCONMS mm	DHUB mm	ZNP	torque moment Nm	Insert	
15°	35	89,60	3	7,0	6	27,6	50	27	62,5	2	3,2	LD.. 15...	**11503**
30°	35	83,60	3	13,6	6	27,6	50	27	62,5	2	3,2	LD.. 15...	**13003**
45°	35	74,60	3	19,3	6	27,6	50	27	62,5	2	3,2	LD.. 15...	**14503**
60°	35	62,70	3	23,6	6	27,6	50	22	49,0	2	3,2	LD.. 15...	**16003**
75°	35	49,48	3	26,7	6	27,6	60	22	49,0	2	3,2	LD.. 15...	**17503**[1)]

1) Version with Powerscrew

	TORX® blade	Clamping key – T	Key D	Power Screw	Molykote	Clamping screw	Torque screwdriver	clamping screw
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**	**83 950 ...**
Spare parts KAPR								
15 - 60	**036**		**113**		**303**	**304**	**192**	**125**
75	**036**	**050**	**113**	**154**	**303**	**304**	**192**	

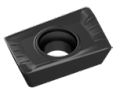
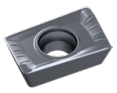
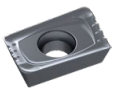
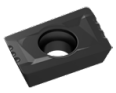
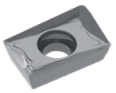
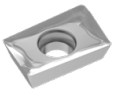
LDFT / LDFW / LDMT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
LD.. 1504PD..	9,52	4,4	15	1,2	4,76
LDFT 150408..	9,52	4,4	15	1,2	4,76
LDFT 1504PD..	9,52	4,4	15	0,8	4,76



L...

LDMT / LDFT / LDFW

ISO	RE	-29 CTCP230 DRAGONSKIN	-29 CTPP235 DRAGONSKIN	-33 CTPM240 DRAGONSKIN	CTCK215 DRAGONSKIN	NEW -F10 CTPX715 DRAGONSKIN	-27P H216T
							
		LDMT	LDMT	LDFT	LDFW	LDFT	LDFT
		51 080 ...	51 080 ...	51 042 ...	51 043 ...	51 157 ...	50 409 ...
150408FR	0,8					00802	550
1504PDSR	0,8	020	120		520		
1504PDSR	1,2			420			
P		●	●	○		○	
M			○	●		○	
K		○	○		●	●	○
N						●	●
S						○	
H							
O						○	○

Milling guide

Cutting data standard values	→ 145–148	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

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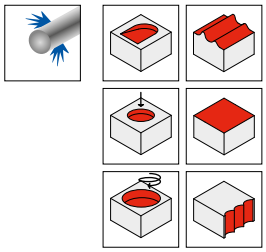
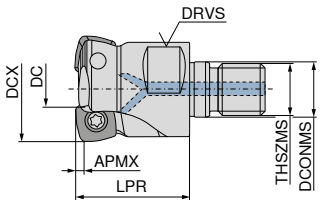
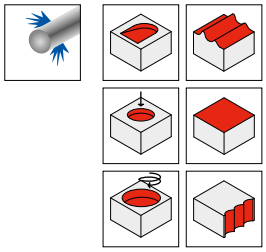
MaxiMill – HFC high-feed screw-in cutter

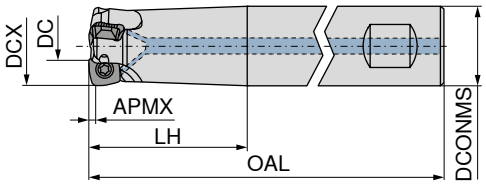




Designation	DC	DCX	ZNF	APMX	LPR	DCONMS	THSZMS	DRVS	RPMX	torque moment	Insert	50 682 ...
	mm	mm		mm	mm	mm		mm	1/min.	Nm		
GHFC.16.R.02-06	7	16	2	0,8	27	8,5	M8	10	20800	1,2	XPLX 0603..	**616**
GHFC.20.R.03-06	11	20	3	0,8	33	10,5	M10	15	19800	1,2	XPLX 0603..	**620**
GHFC.25.R.04-06	16	25	4	0,8	35	12,5	M12	17	18700	1,2	XPLX 0603..	**625**
GHFC.32.R.05-06	23	32	5	0,8	35	17,0	M16	24	22000	1,2	XPLX 0603..	**632**
GHFC.42.R.07-06	33	42	7	0,8	35	17,0	M16	24	15000	1,2	XPLX 0603..	**04207**
GHFC.25.R.02-09	12	25	2	1,0	35	12,5	M12	17	30000	3,2	XDLX 09T3..	**025**
GHFC.25.R.03-09	12	25	3	1,0	35	12,5	M12	17	30000	3,2	XDLX 09T3..	**125**
GHFC.32.R.03-09	19	32	3	1,0	35	17,0	M16	24	27000	3,2	XDLX 09T3..	**032**
GHFC.42.R.05-09	19	42	5	1,0	35	17,0	M16	24	26100	3,2	XDLX 09T3..	**04205**
GHFC.32.R.02-12	15	32	2	2,0	35	17,0	M16	24	21600	5	XOLX 1204..	**132**
GHFC.35.R.03-12	18	35	3	2,0	35	17,0	M16	24	21360	5	XOLX 1204..	**035**
GHFC.42.R.04-12	25	42	4	2,0	35	17,0	M16	24	20800	5	XOLX 1204..	**04204**

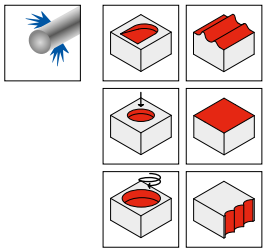
MaxiMill – HFC high-feed end mill

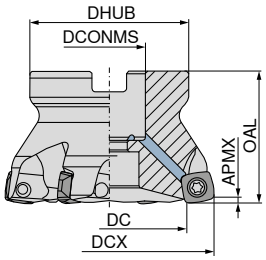


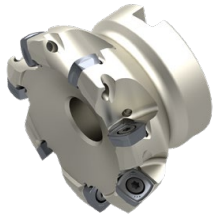


Designation	DC	DCX	ZNF	APMX	OAL	LH	DCONMS $_{h6}$	RPMX	torque moment	Insert	50 681 ...	50 681 ...
	mm	mm		mm	mm	mm	mm	1/min.	Nm			
CHFC.16.R.02-06-B-40	7,0	16	2	0,8	89	40	16	17300	1,2	XPLX 0603..		**616**
CHFC.16.R.02-06-A-40-200	7,0	16	2	0,8	200	40	16	4600	1,2	XPLX 0603..	**716**	
CHFC.20.R.03-06-B-50	11,0	20	3	0,8	101	50	20	14500	1,2	XPLX 0603..		**620**
CHFC.20.R.03-06-A-50-225	11,0	20	3	0,8	225	50	20	4200	1,2	XPLX 0603..	**720**	
CHFC.25.R.04-06-B-50	16,0	25	4	0,8	107	50	25	15600	1,2	XPLX 0603..		**625**
CHFC.25.R.04-06-A-50-225	16,0	25	4	0,8	225	50	25	4600	1,2	XPLX 0603..	**725**	
CHFC.32.R.05-06-B-25-60	23,0	32	5	0,8	117	60	25	11000	1,2	XPLX 0603..		**632**
CHFC.32.R.05-06-A-25-60-225	23,0	32	5	0,8	225	60	25	3900	1,2	XPLX 0603..	**732**	
CHFC.25.R.02-09-A-50-225	12,3	25	2	1,0	225	50	25	9000	3,2	XDLX 09T3..	**025**	
CHFC.25.R.03-09-A-50-225	12,3	25	3	1,0	225	50	25	9000	3,2	XDLX 09T3..	**125**	
CHFC.32.R.03-09-A-63-250	19,3	32	3	1,0	250	63	32	8100	3,2	XDLX 09T3..	**032**	
CHFC.32.R.02-12-A-63-250	14,8	32	2	2,0	250	63	32	6480	5	XOLX 1204..	**132**	
CHFC.35.R.03-12-A-63-250	17,8	35	3	2,0	250	63	32	6480	5	XOLX 1204..	**035**	

MaxiMill – HFC high-feed face mill







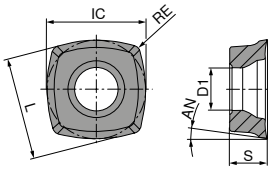
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	50 683 ...
AHFC.32.R.03-09	19,3	32	3	1,0	40	16	38	27700	3,2	XDLX 09T3..	**032**
AHFC.35.R.04-09	19,3	35	4	1,0	40	16	38	26700	3,2	XDLX 09T3..	**035**
AHFC.40.R.04-09	27,3	40	4	1,0	40	16	38	26400	3,2	XDLX 09T3..	**140**
AHFC.42.R.05-09	29,3	42	5	1,0	40	16	38	26100	3,2	XDLX 09T3..	**142**
AHFC.50.R.05-09	37,3	50	5	1,0	40	22	43	23500	3,2	XDLX 09T3..	**150**
AHFC.52.R.06-09	39,3	52	6	1,0	40	22	43	23000	3,2	XDLX 09T3..	**152**
AHFC.63.R.06-09	50,3	63	6	1,0	40	22	48	20500	3,2	XDLX 09T3..	**163**
AHFC.66.R.07-09	53,3	66	7	1,0	40	22	48	20000	3,2	XDLX 09T3..	**16600**
AHFC.40.R.03-12	22,8	40	3	2,0	40	16	38	21120	5	XOLX 1204..	**040**
AHFC.42.R.04-12	24,8	42	4	2,0	40	16	38	20880	5	XOLX 1204..	**042**
AHFC.50.R.04-12	32,8	50	4	2,0	40	22	43	18800	5	XOLX 1204..	**050**
AHFC.52.R.05-12	34,8	52	5	2,0	40	22	43	18400	5	XOLX 1204..	**052**
AHFC.63.R.05-12	45,8	63	5	2,0	40	22	48	16400	5	XOLX 1204..	**063**
AHFC.66.R.06-12	48,8	66	6	2,0	40	22	48	16000	5	XOLX 1204..	**066**
AHFC.80.R.07-12	62,8	80	7	2,0	50	27	58	14000	5	XOLX 1204..	**080**
AHFC.100.R.08-12	82,8	100	8	2,0	50	32	78	12000	5	XOLX 1204..	**100**
AHFC.63.R.05-19	36,7	63	5	3,3	40	22	48	5500	5	XOLX 1906..	**263**
AHFC.80.R.06-19	53,7	80	6	3,3	50	27	58	4700	5	XOLX 1906..	**280**
AHFC.100.R.08-19	73,7	100	8	3,3	52	32	78	4100	5	XOLX 1906..	**300**
AHFC.125.R.10-19	98,7	125	10	3,3	63	40	88	3600	5	XOLX 1906..	**325**
AHFC.160.R.11-19	133,7	160	11	3,3	63	40	98	3100	5	XOLX 1906..	**360** [1]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

	TORX® blade		Clamping key – T		Key D		Power Screw		Molykote		Clamping screw		Torque screwdriver	
	80 950 ...		**80 397 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts														
Insert														
XDLX 09T3..		**036**				**113**				**303**		**110**		**192**
XDLX 09T3.. (Ø32 – Ø42)		**036**		**040**		**113**		**151**		**303**		**304**		**192**
XOLX 1204..		**037**				**114**				**303**		**01200**		**193**
XOLX 1204.. (Ø40 – Ø42)		**037**		**040**		**114**		**151**		**303**		**01200**		**193**
XOLX 1906..		**037**				**114**				**303**		**302**		**193**
XPLX 0603..		**033**				**110**				**303**		**116**		**192**

XPLX / XDLX / XOLX / XOHX

Designation	IC	D1	L	BS	S	AN
	mm	mm	mm	mm	mm	°
XPLX 0603..	6,35	2,8	6	1	2,75	11
XDLX 09T3..	9,52	4,4	9	1,9	3,97	15
XO.X 1204..	12,70	5,5	12	1,3	4,76	10
XOLX 1906..	19,14	6,0	19	-	6,35	10



XPLX

		-M50 CTCP220	**-M50** CTPP225	**-M50** CTPP235	**-M50** CTPM225	**-M50** CTPM240	**-F40** CTPM245	**-F40** CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		XPLX	XPLX	XPLX	XPLX	XPLX	XPLX	XPLX
		51 019 ...	**51 019 ...**	**51 019 ...**	**51 019 ...**	**51 019 ...**	**51 116 ...**	**51 116 ...**
ISO	RE mm							
060305ER	0,5						**455**	**90501**
060305SR	0,5	**255**	**055**	**105**	**205**	**405**		
P		●	●	●	●	○	●	●
M				○	●	●	●	●
K				○				
N								
S								○
H								
O								

XPLX

		-M50 CTCK215	**-F40** CTC5240	**-F40** CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		XPLX	XPLX	XPLX
		51 019 ...	**50 518 ...**	**51 116 ...**
ISO	RE mm			
060305ER	0,5		**558**	**55500**
060305SR	0,5	**505**		
P				
M				
K		●		
N				
S			●	●
H				
O				

XDLX

		-M50 CTCP220 DRAGONSKIN	-M50 CTPP225 DRAGONSKIN	-M50 CTCP230 DRAGONSKIN	-M50 CTPP235 DRAGONSKIN
		XDLX	XDLX	XDLX	XDLX
		51 016 ...	51 016 ...	51 016 ...	51 016 ...
ISO	RE mm				
09T308SR	0,8	258	058	008	108
P		●	●	●	●
M					○
K				○	○
N					
S					
H					
O					

XDLX

		-M50 CTPM225 DRAGONSKIN	-M50 CTCM235 DRAGONSKIN	-M50 CTPM240 DRAGONSKIN	-F40 CTPM245 DRAGONSKIN	-M50 CTPM245 DRAGONSKIN	-M50 CTCM245 DRAGONSKIN
		XDLX	XDLX	XDLX	XDLX	XDLX	XDLX
		51 016 ...	51 016 ...	51 016 ...	51 115 ...	51 016 ...	51 016 ...
ISO	RE mm						
09T308ER	0,8				458		
09T308SR	0,8	208	308	408		458	90801
P		●	●	○	●	●	●
M		●	●	●	●	●	●
K							
N							
S							○
H							
O							

15

XDLX

		-M50 CTCK215	-F40 CTC5240	-F40 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		XDLX	XDLX	XDLX
		51 016 ...	50 503 ...	51 115 ...
ISO	RE mm			
09T308ER	0,8		558	558
09T308SR	0,8	508		
P				
M				
K		●		
N				
S			●	●
H				
O				

XOLX

		-M50 CTCP220	-M50 CTPP225	-M50 CTCP230	-M50 CTPP235	-R50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		XOLX	XOLX	XOLX	XOLX	XOLX
		51 017 ...	51 017 ...	51 017 ...	51 017 ...	51 018 ...
ISO	RE mm					
120410SR	1,0	260	060	010	110	110
P		●	●	●	●	●
M					○	○
K				○	○	○
N						
S						
H						
O						

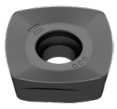
XOLX

	-M50 CTPM225	-M50 CTCM235	-M50 CTPM240	-F40 CTPM245	-M50 CTPM245	-F40 CTCM245	-M50 CTCM245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	XOLX	XOLX	XOLX	XOLX	XOLX	XOLX	XOLX
	51 017 ...	51 017 ...	51 017 ...	51 022 ...	51 017 ...	51 022 ...	51 017 ...
ISO / RE mm							
120410ER 1,0				460		91001	
120410SR 1,0	210	310	410		460		91001
P	●	●	○	●	●	●	●
M	●	●	●	●	●	●	●
K							
N							
S						○	○
H							
O							

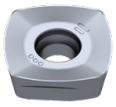
XOLX / XOHX

	-M50 CTCK215	-F40 CTC5240	-F50 CTC5240	-F40 CTCS245	-F50 CTCS245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	XOLX	XOLX	XOHX	XOLX	XOHX
	51 017 ...	50 504 ...	51 124 ...	51 022 ...	51 124 ...
ISO / RE mm					
120410ER 1,0		558		560	
120410SR 1,0	510		16000		56000
P					
M					
K	●				
N					
S		●	●	●	●
H					
O					

XOLX

		-M50 CTCP230 DRAGONSKIN	-M50 CTPP235 DRAGONSKIN	-M50 CTPM240 DRAGONSKIN	-F40 CTPM245 DRAGONSKIN
					
		XOLX	XOLX	XOLX	XOLX
		51 017 ...	51 017 ...	51 017 ...	51 022 ...
ISO	RE mm				
190615ER	1,5				465
190615SR	1,5	015	115	415	
P		●	●	○	●
M			○	●	●
K		○	○		
N					
S					
H					
O					

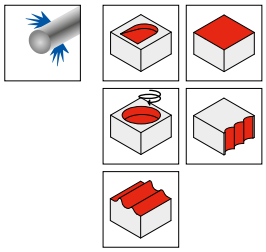
XOLX

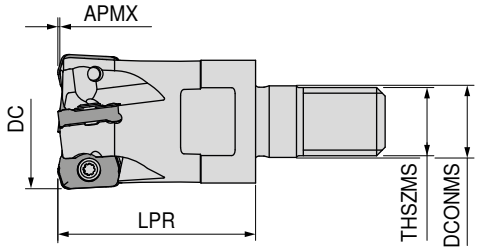
		-F40 CTCM245 DRAGONSKIN	-M50 CTCK215 DRAGONSKIN	-M50 CTPK220 DRAGONSKIN	-F40 CTC5240 DRAGONSKIN	-F40 CTCS245 DRAGONSKIN
						
		XOLX	XOLX	XOLX	XOLX	XOLX
		51 022 ...	51 017 ...	51 017 ...	50 504 ...	51 022 ...
ISO	RE mm					
190615ER	1,5	91501			515	56500
190615SR	1,5		515	61500		
P		●				
M		●				
K			●	●		
N						
S		○			●	●
H						
O						

Milling guide

Cutting data standard values	→ 145–148	Machining strategy	→ 176–179
Starting Parameter	→ 176–179	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

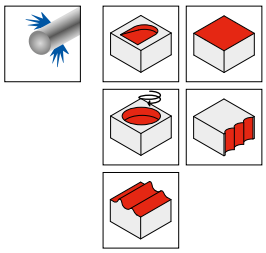
MaxiMill – DHFC high-feed screw-in cutter

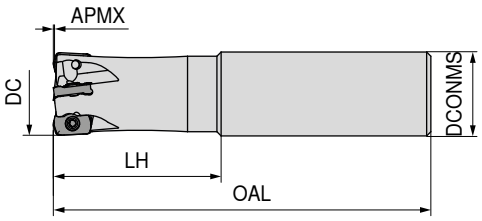




Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	torque moment Nm	Insert	56 411 ...
GDHFC.16.R.02-09	16	2	0,75	29	8,5	M8	0,65	LNKX 0925..	**01602**
GDHFC.16.R.03-09	16	3	0,75	29	8,5	M8	0,65	LNKX 0925..	**01603**
GDHFC.20.R.04-09	20	4	0,75	29	10,5	M10	0,65	LNKX 0925..	**02004**
GDHFC.25.R.05-09	25	5	0,75	33	12,5	M12	0,65	LNKX 0925..	**02505**
GDHFC.32.R.05-09	32	5	0,75	42	17,0	M16	0,65	LNKX 0925..	**03205**
GDHFC.35.R.06-09	35	6	0,75	42	17,0	M16	0,65	LNKX 0925..	**03506**
GDHFC.42.R.06-09	42	6	0,75	42	17,0	M16	0,65	LNKX 0925..	**04206**

MaxiMill – DHFC high-feed end mill





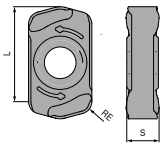
Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS $_{h6}$ mm	torque moment Nm	Insert	56 417 ...
CDHFC.16.R.05-09-A-32	16	3	0,75	80	32	16	0,65	LNKX 0925..	**01603**
CDHFC.20.R.04-09-A-40	20	4	0,75	90	40	20	0,65	LNKX 0925..	**02004**

Spare parts DC	TORX® blade 80 950 ...	Key D 80 950 ...	Molykote 70 950 ...	Clamping screw 56 950 ...	Torque screwdriver 80 950 ...
16 - 42	**051**	**117**	**303**	**15000**	**191**

15

LNKX

Designation	L mm	S mm
LNKX 0925..	9	2,50



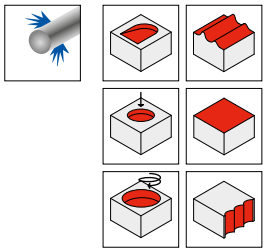
LNKX

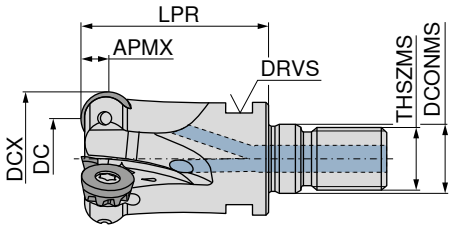
		-R50 CTPP231	-M50 CTPP236	-R50 CTPP236	-M50 CTPM241	-R50 CTPK221
		LNKX	LNKX	LNKX	LNKX	LNKX
		56 353 ...	56 355 ...	56 353 ...	56 355 ...	56 353 ...
ISO	RE mm					
0925ZSR	1	12000	02500	02000	42500	27000
P		●	●	●	○	○
M		○	○	○	●	
K		○	○	○		●
N						
S					○	
H						
O						

Milling guide

Cutting data standard values	→ 145–148	Machining strategy	→ 180
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

MaxiMill – 251 RS Screw in cutter

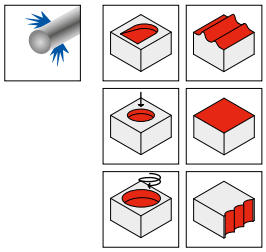


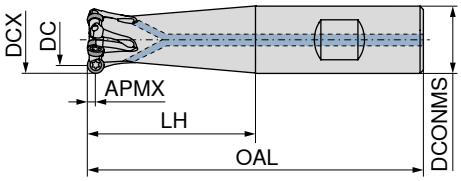


Designation	DC mm	DCX mm	ZNF	APMX mm	DCONMS mm	LPR mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	50 684 ...
G251.20.R.05-05-RS	15	20	5	2,5	10,5	33	M10	15	31800	0,7	RDHX 0501..	**220**
G251.25.R.06-05-RS	20	25	6	2,5	12,5	35	M12	17	24450	0,7	RDHX 0501..	**225**
G251.32.R.07-05-RS	27	32	7	2,5	17,0	35	M16	24	19850	0,7	RDHX 0501..	**232**
G251.20.R.03-08-RS	12	20	3	4,0	10,5	33	M10	15	25000	1,2	RDHX 0802..	**120**
G251.25.R.04-08-RS	17	25	4	4,0	12,5	35	M12	17	19000	1,2	RDHX 0802..	**125**
G251.32.R.05-08-35-RS	24	32	5	4,0	17,0	35	M16	24	19000	1,2	RDHX 0802..	**132**
G251.20.R.02-10-RS	10	20	2	5,0	10,5	33	M10	15	30000	2	RP.X 10T3..	**020**
G251.25.R.03-10-RS	15	25	3	5,0	12,5	35	M12	17	30000	2	RP.X 10T3..	**025**
G251.32.R.04-10-RS	22	32	4	5,0	17,0	35	M16	24	25000	2	RP.X 10T3..	**032**
G251.25.R.02-12-35-RS	13	25	2	6,0	12,5	35	M12	17	25000	3,2	RP.X 1204..	**525**
G251.32.R.03-12-35-RS	20	32	3	6,0	17,0	35	M16	24	19850	3,2	RP.X 1204..	**532**
G251.35.R.03-12-35-RS	23	35	3	6,0	17,0	35	M16	24	15900	3,2	RP.X 1204..	**535**
G251.42.R.04-12-42-RS	30	42	4	6,0	17,0	42	M16	24	15000	3,2	RP.X 1204..	**542**

Spare parts Insert	 TORX® blade **80 950 ...**	 Key D **80 950 ...**	 Molykote **70 950 ...**	 Clamping screw **70 950 ...**	 Torque screwdriver **80 950 ...**
RDHX 0501..	**031**	**108**	**303**	**149**	**191**
RDHX 0802..	**033**	**110**	**303**	**116**	**191**
RP.X 10T3..	**035**	**112**	**303**	**840**	**192**
RP.X 1204..	**036**	**113**	**303**	**304**	**192**

MaxiMill – 251 RS End milling cutter

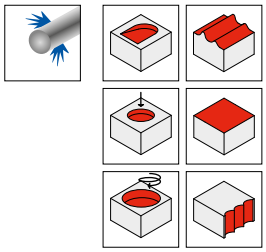


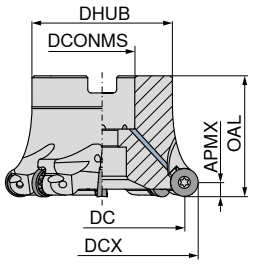


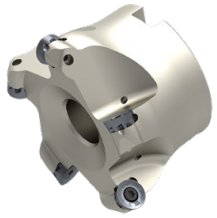
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	RPMX 1/min.	Insert	50 685 ...		50 685 ...	
C251.12.R-03-05-B-16-25-RS	7	12	3	2,5	75	25	16	40000	RDHX 0501..				**012**
C251.12.R-03-05-A-32-165-RS	7	12	3	2,5	165	32	12	16000	RDHX 0501..		**112**		
C251.16.R-04-05-B-32-RS	11	16	4	2,5	81	32	16	40000	RDHX 0501..				**316**
C251.16.R-04-05-A-40-165-RS	11	16	4	2,5	165	40	16	18000	RDHX 0501..		**016**		
C251.20.R-05-05-B-40-RS	15	20	5	2,5	91	40	20	31800	RDHX 0501..				**620**
C251.20.R-05-05-A-50-165-RS	15	20	5	2,5	165	50	20	18000	RDHX 0501..		**120**		
C251.16.R-02-08-B-32-RS	8	16	2	4,0	81	32	16	40000	RDHX 0802..				**116**
C251.16.R-02-08-A-40-165-RS	8	16	2	4,0	165	40	16	18000	RDHX 0802..		**216**		
C251.20.R-03-08-B-40-RS	12	20	3	4,0	91	40	20	31800	RDHX 0802..				**220**
C251.20.R-03-08-A-60-RS	12	20	3	4,0	110	50	20	30000	RDHX 0802..		**020**		
C251.20.R-03-08-A-50-200-RS	12	20	3	4,0	200	50	20	25000	RDHX 0802..		**320**		
C251.25.R-04-08-B-50-RS	17	25	4	4,0	107	50	25	25500	RDHX 0802..				**625**
C251.25.R-04-08-A-60-RS	17	25	4	4,0	116	60	25	19000	RDHX 0802..		**125**		
C251.25.R-04-08-A-60-225-RS	17	25	4	4,0	225	60	25	18000	RDHX 0802..		**225**		
C251.20.R-02-10-A-50-RS	10	20	2	5,0	102	50	20	25000	RP.X 10T3..		**420**		
C251.20.R-02-10-A-50-200-RS	10	20	2	5,0	200	50	20	25000	RP.X 10T3..		**520**		
C251.25.R.03-10-A-60-RS	15	25	3	5,0	116	60	25	25000	RP.X 10T3..		**025**		
C251.25.R-03-10-B-60-RS	15	25	3	5,0	116	60	25	20000	RP.X 10T3..				**325**
C251.25.R-03-10-A-60-225-RS	15	25	3	5,0	225	60	25	18000	RP.X 10T3..		**425**		
C251.32.R.04-10-A-70-RS	22	32	4	5,0	130	70	32	25000	RP.X 10T3..		**032**		
C251.25.R-02-12-B-30-RS	13	25	2	6,0	86	30	25	25000	RP.X 1204..				**525**
C251.32.R-03-12-A-RS	20	32	3	6,0	100	40	32	19000	RP.X 1204..		**232**		
C251.32.R-03-12-B-40-RS	20	32	3	6,0	100	40	32	19000	RP.X 1204..				**132**

Spare parts	TORX® blade	Key D	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Insert					
RDHX 0501..	**031**	**108**	**303**	**149**	**191**
RDHX 0802..	**033**	**110**	**303**	**116**	**191**
RP.X 10T3..	**035**	**112**	**303**	**840**	**192**
RP.X 10T3..		**112**	**303**	**840**	
RP.X 1204..	**036**	**113**	**303**	**304**	**192**

MaxiMill – 251 RS Shell mill







50 686 ...

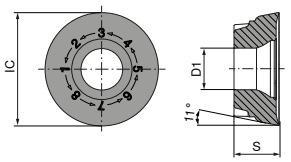
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	
A251.40.R.03-10-RS	30	40	3	5	40	38	16	15900	2	RP.X 10T3..	**240**
A251.40.R.05-10-RS	30	40	5	5	40	38	16	16000	2	RP.X 10T3..	**140**
A251.42.R.06-10-RS	32	42	6	5	40	38	16	16000	2	RP.X 10T3..	**142**
A251.50.R.04-10-RS	40	50	4	5	40	43	22	12700	2	RP.X 10T3..	**350**
A251.50.R.06-10-RS	40	50	6	5	40	43	22	12500	2	RP.X 10T3..	**150**
A251.52.R.06-10-RS	42	52	6	5	40	43	22	12500	2	RP.X 10T3..	**152**
A251.40.R.04-12-RS	28	40	4	6	40	38	16	15900	3,2	RP.X 1204..	**340**
A251.50.R.04-12-RS	38	50	4	6	40	43	22	12700	3,2	RP.X 1204..	**250**
A251.50.R.05-12-RS	38	50	5	6	40	43	22	12500	3,2	RP.X 1204..	**050**
A251.52.R.05-12-RS	40	52	5	6	40	43	22	12500	3,2	RP.X 1204..	**052**
A251.63.R.06-12-RS	51	63	6	6	40	48	22	10000	3,2	RP.X 1204..	**063**
A251.66.R.07-12-RS	54	66	7	6	40	48	22	9000	3,2	RP.X 1204..	**166**
A251.80.R.05-12-RS	68	80	5	6	50	58	27	7950	3,2	RP.X 1204..	**180**
A251.80.R.07-12-RS	68	80	7	6	50	58	27	8000	3,2	RP.X 1204..	**080**
A251.100.R.06-12-RS	88	100	6	6	50	78	32	6350	3,2	RP.X 1204..	**100**
A251.100.R.10-12-RS	88	100	10	6	50	78	32	6350	3,2	RP.X 1204..	**200**
A251.50.R.04-16-RS	34	50	4	8	40	48	22	12700	5	RP.X 1605..	**450**
A251.52.R.04-16-RS	36	52	4	8	40	48	22	10100	5	RP.X 1605..	**452**
A251.63.R.05-16-RS	47	63	5	8	40	48	22	10100	5	RP.X 1605..	**163**
A251.66.R.05-16-RS	50	66	5	8	40	48	22	7950	5	RP.X 1605..	**466**
A251.80.R.06-16-RS	64	80	6	8	50	58	27	7950	5	RP.X 1605..	**280**
A251.100.R.07-16-RS	84	100	7	8	50	78	32	6350	5	RP.X 1605..	**300**
A251.125.R.08-16-RS	109	125	8	8	63	88	40	5050	5	RP.X 1605..	**225**
A251.80.R.05-20-RS	60	80	5	10	50	58	27	7950	5	RP.X 2006..	**380**
A251.100.R.06-20-RS	80	100	6	10	50	78	32	6350	5	RP.X 2006..	**400**
A251.125.R.06-20-RS	105	125	6	10	63	88	40	5050	5	RP.X 2006..	**125**

	TORX® blade	Clamping key – T	Key D	Power Screw	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts Insert							
RP.X 10T3..	**035**	**040**	**112**	**151**	**303**	**840**	**192**
RP.X 1204..	**036**	**040**	**113**	**151**	**303**	**304**	**192**
RP.X 1605..	**037**	**050**	**114**	**154**	**303**	**01200**	**193**
RP.X 2006..	**037**		**114**		**303**	**302**	**193**

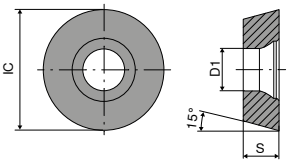
15

RDHX / RPHX / RPNX

Designation	IC mm	D1 mm	S mm
RDHX 0501..	5	2,5	1,59
RDHX 0802..	8	2,8	2,38
RP.X 10T3..	10	3,4	3,97
RP.X 1204..	12	4,4	4,76
RP.X 1605..	16	5,5	5,56
RP.X 2006..	20	6,0	6,35



RP.X 10T3.. / RP.X 1204.. / RP.X 1605.. / RPNX 2006..

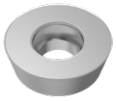


RDHX 0501.. / RDHX0802..

RDHX

	-SN CTCP230	-SN CTPP235	-F50 CTPM240	-F50 CTPM245	-F50 CTCM245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	RDHX	RDHX	RDHX	RDHX	RDHX
	51 048 ...	51 048 ...	51 083 ...	51 083 ...	51 083 ...
ISO					
0501M0SN	020	120		465	
0802M0SN	025	125	420	470	92001
0802M4SN				471	92101
P	●	●	○	●	●
M		○	●	●	●
K	○	○			
N					
S					○
H					
O					

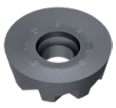
RDHX

	-FN H216T	-M31 CTC5240	-F50 CTCS245
		DRAGONSKIN	DRAGONSKIN
			
	RDHX	RDHX	RDHX
	50 481 ...	50 481 ...	51 083 ...
ISO			
0501M0FN	600		
0802M0EN		500	
0802M0FN	602		
0802M0SN			570
0802M4EN		50100	
P			
M			
K	○		
N	●		
S		●	●
H			
O	○		

RPHX / RPNX

	-SN TCM10	-F50 CTCP230 DRAGONSKIN	-M50 CTCP230 DRAGONSKIN	-SN CTCP230 DRAGONSKIN	-SN CTCP230 DRAGONSKIN
	CERMET RPHX	RPNX	RPNX	RPHX	RPNX
	50 483 ...	51 055 ...	51 054 ...	51 052 ...	51 057 ...
ISO					
10T3M0SN	900				
10T3M8SN		020	020	020	
1204M0SN	902				
1204M8SN		025	025	025	025
1605M8SN			030	030	030
2006M8SN					035
P	●	●	●	●	●
M					
K	○	○	○	○	○
N					
S					
H					
O					

RPHX / RPNX

	-F50 CTPP235 DRAGONSKIN	-F50 CTPP235 DRAGONSKIN	-M30 CTPP235 DRAGONSKIN	-M30 CTPP235 DRAGONSKIN
				
	RPHX	RPNX	RPHX	RPNX
	51 051 ...	51 055 ...	51 049 ...	51 053 ...
ISO				
10T3M8EN			120	
10T3M8SN	12000	120		
1204M8SN	125	125		
1605M0SN		130		
2006M8EN				120
P	●	●	●	●
M	○	○	○	○
K	○	○	○	○
N				
S				
H				
O				

15

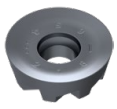
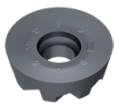
RPNX / RPHX

	-M50 CTPP235 DRAGONSKIN	-M50 CTPP235 DRAGONSKIN	-SN CTPP235 DRAGONSKIN	-SN CTPP235 DRAGONSKIN
	RPNX	RPHX	RPHX	RPNX
	51 054 ...	51 050 ...	51 052 ...	51 057 ...
ISO				
10T3M8SN	12000	12000	120	
1204M8SN	125		125	125
1605M8SN	130		130	130
2006M8SN				135
P	●	●	●	●
M	○	○	○	○
K	○	○	○	○
N				
S				
H				
O				

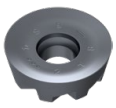
RPHX

	-F50 CTPM225 DRAGONSKIN	-M30 CTPM225 DRAGONSKIN	-SN CTPM225 DRAGONSKIN	-F50 CTCM235 DRAGONSKIN	-M30 CTCM235 DRAGONSKIN
	RPHX	RPHX	RPHX	RPHX	RPHX
	51 051 ...	51 049 ...	51 052 ...	51 051 ...	51 049 ...
ISO					
1204M8EN		225			325
1204M8SN	225		225	325	
P	●	●	●	●	●
M	●	●	●	●	●
K					
N					
S					
H					
O					

RPHX / RPNX

	-F50 CTPM240 DRAGONSKIN	-F50 CTPM240 DRAGONSKIN	-M30 CTPM240 DRAGONSKIN	-M30 CTPM240 DRAGONSKIN	-M50 CTPM240 DRAGONSKIN
					
	RPHX	RPNX	RPHX	RPNX	RPHX
	51 051 ...	51 055 ...	51 049 ...	51 053 ...	51 050 ...
ISO					
10T3M8EN			420		
10T3M8SN	420				420
1204M8EN			425		
1204M8SN	425				425
1605M8EN			430		
1605M8SN	430				
2006M8EN				420	
2006M8SN		435			
P	○	○	○	○	○
M	●	●	●	●	●
K					
N					
S					
H					
O					

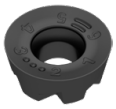
RPHX / RPNX

	CTPM245 DRAGONSKIN	-F50 CTPM245 DRAGONSKIN	-F50 CTPM245 DRAGONSKIN	-M32 CTPM245 DRAGONSKIN	-M50 CTPM245 DRAGONSKIN
					
	RPHX	RPHX	RPNX	RPHX	RPHX
	51 052 ...	51 051 ...	51 055 ...	51 108 ...	51 050 ...
ISO					
10T3M4SN		470 [1]	470 [1]		470 [1]
10T3M8SN		471	471		471
1204M4EN	475 [1]			475 [1]	
1204M4SN		475 [1]	475 [1]		475 [1]
1204M6SN		476			476
1204M8SN		477	476		477
1605M8SN		480			
2006M4SN		485 [1]			
2006M8SN			485		
P	●	●	●	●	●
M	●	●	●	●	●
K					
N					
S					
H					
O					

1) Insert with 4 indexes

15

RPNX / RPHX

	-F50 CTCM245 DRAGONSKIN	-M50 CTCM245 DRAGONSKIN	-F50 CTCM245 DRAGONSKIN	-M50 CTCM245 DRAGONSKIN
				
	RPNX	RPNX	RPHX	RPHX
	51 055 ...	51 054 ...	51 051 ...	51 050 ...
ISO				
10T3M4SN	92001[1)]		92001[1)]	92001[1)]
10T3M8SN	92101		92101	
1204M4SN	92501[1)]		92501[1)]	92501[1)]
1204M6SN		92601	92601	92601
1204M8SN	92601			92701
1605M8SN	93001		93001	
2006M8SN	93501	93501		
P	●	●	●	●
M	●	●	●	●
K				
N				
S	○	○	○	○
H				
O				

1) Insert with 4 indexes

RPHX / RPNX

NEW

	-SN CTCK215 DRAGONSKIN	-SN CTCK215 DRAGONSKIN	-SN CTPK220 DRAGONSKIN	-F10 CTPX715 DRAGONSKIN	-27P H216T
	RPHX	RPNX	RPNX	RPHX	RPHX
	51 052 ...	51 057 ...	51 057 ...	51 156 ...	50 483 ...
ISO					
10T3M8FN				02002	600
10T3M8SN	520		620		
1204M8FN				02502	602
1204M8SN	525	525	625		
1605M8FN				03002	604
1605M8SN	530	530	630		
2006M8SN		535	635		
P				○	
M				○	
K	●	●	●	●	○
N				●	●
S				○	
H					
O				○	○

RPNX / RPHX

	-M31 CTC5240 DRAGONSKIN	-M31 CTC5240 DRAGONSKIN	-F50 CTCS245 DRAGONSKIN	-F50 CTCS245 DRAGONSKIN	-R60 CTP6215
	RPNX	RPHX	RPHX	RPNX	RPNX
	51 149 ...	50 493 ...	51 051 ...	51 055 ...	50 508 ...
ISO					
10T3M4EN		550 [1]			
10T3M4SN			570 [1]		
10T3M8EN		551			
10T3M8SN			571		
1204M4EN		552 [1]			
1204M4SN			575		
1204M6EN		56200			
1204M6SN			57800		
1204M8EN		582			300
1204M8SN			577		
1605M8EN		555	58100		
2006M8EN	12001				
2006M8SN				585	
P					
M					
K					●
N					
S	●	●	●	●	
H					●
O					

1) Insert with 4 indexes

Milling guide

Cutting data standard values	→ 145–148	Machining strategy	→ 181
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

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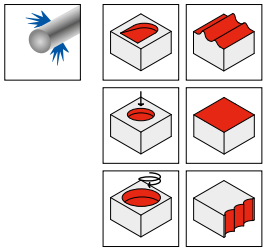
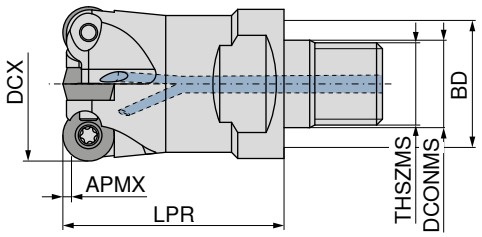
R 1000 screw-in button insert milling cutter

▲ Insert angle 0°





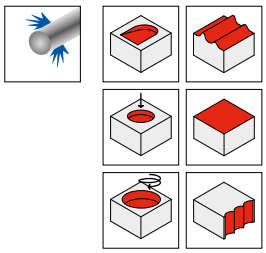
56 403 ...

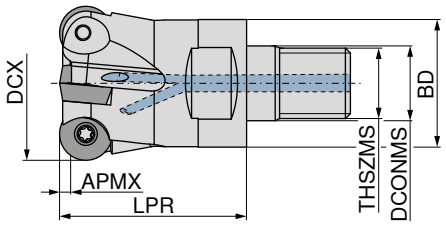
Designation	DCX mm	ZNF	APMX mm	THSZMS	LPR mm	DCONMS mm	BD mm	torque moment Nm	Insert	
R1000G.15.2.M8-07.IK	15	2	1,5	M8	28,5	8,5	13,8	0,9	RD.X 0702..	**153**
R1000G.16.3.M8-07.IK	16	3	1,5	M8	28,5	8,5	13,8	0,9	RD.X 0702..	**161**
R1000G.20.4.M10-07.IK	20	4	1,5	M10	28,5	10,5	18,0	0,9	RD.X 0702..	**203**
R1000G.25.5.M12-07.IK	25	5	1,5	M12	28,5	12,5	21,0	0,9	RD.X 0702..	**252**
R1000G.30.5.M16-07.IK	30	5	1,5	M16	28,5	17,0	29,0	0,9	RD.X 0702..	**301**
R1000G.35.6.M16-07.IK	35	6	1,5	M16	28,5	17,0	29,0	0,9	RD.X 0702..	**351**
R1000G.42.7.M16-07.IK	42	7	1,5	M16	42,5	17,0	29,0	0,9	RD.X 0702..	**421**
R1000G.20.2.M10-10.IK	20	2	2,8	M10	29,0	10,5	18,0	2,4	RD.X 1003..	**204**
R1000G.25.2.M12-10.IK	25	2	2,8	M12	33,0	12,5	21,0	2,4	RD.X 1003..	**253**
R1000G.25.3.M12-10.IK	25	3	2,8	M12	33,0	12,5	21,0	2,4	RD.X 1003..	**254**
R1000G.30.4.M12-10.IK	30	4	2,3	M12	33,0	12,5	21,0	2,4	RD.X 1003..	**302**
R1000G.30.4.M16-10.IK	30	4	2,8	M16	43,0	17,0	23,0	2,4	RD.X 1003..	**303**
R1000G.35.5.M16-10.IK	35	5	2,8	M16	43,0	17,0	29,0	2,4	RD.X 1003..	**352**
R1000G.42.5.M16-10.IK	42	5	2,8	M16	43,0	17,0	29,0	2,4	RD.X 1003..	**422**
R1000G.42.6.M16-10.IK	42	6	2,8	M16	43,0	17,0	29,0	2,4	RD.X 1003..	**423**
R1000G.24.2.M12-12.IK	24	2	3,0	M12	33,0	12,5	21,0	2,4	RD.X 12T3..	**241**
R1000G.35.3.M16-12.IK	35	3	3,0	M16	43,0	17,0	29,0	2,4	RD.X 12T3..	**353**
R1000G.35.4.M16-12.IK	35	4	3,0	M16	43,0	17,0	29,0	2,4	RD.X 12T3..	**354**
R1000G.42.4.M16-12.IK	42	4	3,0	M16	43,0	17,0	29,0	2,4	RD.X 12T3..	**424**
R1000G.42.5.M16-12.IK	42	5	3,0	M16	43,0	17,0	29,0	2,4	RD.X 12T3..	**425**
R1000G.32.2.M16-16.IK	32	2	4,0	M16	43,5	17,0	29,0	4,3	RD.X 1604..	**321**
R1000G.35.3.M16-16.IK	35	3	4,0	M16	43,5	17,0	29,0	4,3	RD.X 1604..	**355**

	TORX® blade	Clamping Screw	over clamp	Key D	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**56 950 ...**	**56 950 ...**	**80 950 ...**	**70 950 ...**	**56 950 ...**	**80 950 ...**
Spare parts							
Insert							
RD.X 0702..	**032**			**109**	**303**	**006**	**191**
RD.X 1003..	**036**			**113**	**303**	**010**	**192**
RD.X 12T3..	**036**	**022**		**113**	**303**	**010**	**192**
RD.X 1604..	**037**		**210**	**114**	**303**	**012**	**192**

R 1007 screw-in button insert milling cutter

▲ Insert angle 7°
▲ for Steel < 10 % Cr





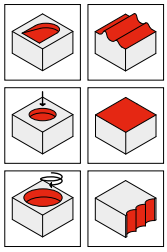
Designation	DCX mm	ZNF	APMX mm	THSZMS	LPR mm	DCONMS mm	BD mm	torque moment Nm	Insert	56 405 ...
R1007G.25.3.M12-10.IK	25	3	2,5	M12	32,5	12,5	21	2,4	RD.X 1003..	**251**
R1007G.42.6.M16-10.IK	42	6	2,5	M16	42,5	17,0	29	2,4	RD.X 1003..	**421**
R1007G.35.4.M16-12.IK	35	4	3,0	M16	42,5	17,0	29	2,4	RD.X 12T3..	**352**

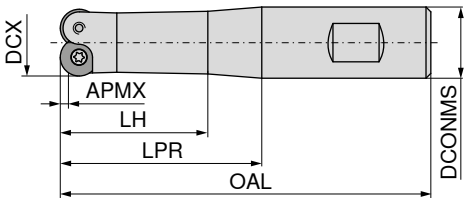
Spare parts	TORX® blade	Clamping Screw	Key D	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**56 950 ...**	**80 950 ...**	**70 950 ...**	**56 950 ...**	**80 950 ...**
Insert						
RD.X 1003..	**036**		**113**	**303**	**010**	**192**
RD.X 12T3..	**036**	**022**	**113**	**303**	**010**	**192**

15

R 1002 shank button insert milling cutter

▲ Insert angle 0°



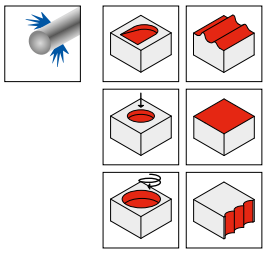


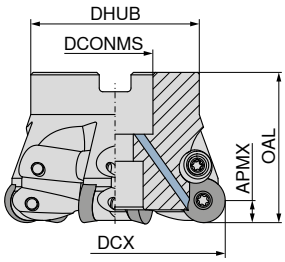
56 443 ...

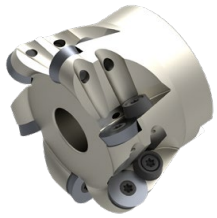
Designation	DCX mm	ZNF	APMX mm	OAL mm	LPR mm	LH mm	DCONMS mm	Insert	
R1002C.15.2.40-07	15	2	2,6	89	40	23	16	RD.X 0702..	**151**
R1002C.15.2.60-07	15	2	2,6	109	60	23	16	RD.X 0702..	**152**
R1002C.15.2.80-07	15	2	2,6	131	80	22	20	RD.X 0702..	**153**
R1002C.15.2.100-07	15	2	2,6	151	100	22	20	RD.X 0702..	**154**
R1002C.20.2.40-10	20	2	4,0	91	40	23	20	RD.X 1003..	**201**
R1002C.20.2.60-10	20	2	4,0	111	60	23	20	RD.X 1003..	**202**
R1002C.20.2.80-10	20	2	4,0	137	80	23	25	RD.X 1003..	**203**
R1002C.20.2.100-10	20	2	4,0	157	100	23	25	RD.X 1003..	**204**
R1002C.20.2.120-10	20	2	4,0	177	125	23	25	RD.X 1003..	**205**

R 1000 shell button insert milling cutter

▲ Insert angle 0°







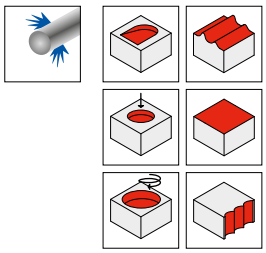
56 407 ...

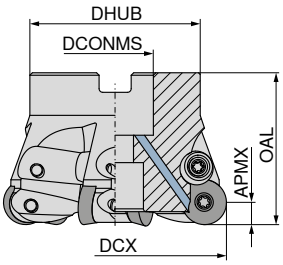
Designation	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	
R1000A.42.6.43-10.IK	42	6	2,8	43,0	16	35	2,4	RD.X 1003..	**420**
R1000A.42.4.43-12.IK	42	4	3,0	43,0	16	35	2,4	RD.X 12T3..	**421**
R1000A.42.5.43-12.IK	42	5	3,0	43,0	16	35	2,4	RD.X 12T3..	**422**
R1000A.52.5.53-12.IK	52	5	3,5	53,0	22	40	2,4	RD.X 12T3..	**521**
R1000A.52.4.53,5-16.IK	52	4	4,7	53,5	22	40	4,3	RD.X 1604..	**522**
R1000A.66.5.53,5-16.IK	66	5	5,1	53,5	27	48	4,3	RD.X 1604..	**661**
R1000A.80.6.53,5-16.IK	80	6	5,8	53,5	27	60	4,3	RD.X 1604..	**801**

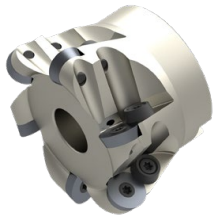
Spare parts	TORX® blade	Clamping Screw	over clamp	Key D	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**56 950 ...**	**56 950 ...**	**80 950 ...**	**70 950 ...**	**56 950 ...**	**80 950 ...**
Insert							
RD.X 1003..	**036**			**113**	**303**	**010**	**192**
RD.X 12T3..	**036**	**022**		**113**	**303**	**010**	**192**
RD.X 1604..	**037**		**210**	**114**	**303**	**012**	**192**

R 1007 shell button insert milling cutter

▲ Insert angle 7°
▲ for Steel < 10 % Cr + Milling machines with low power







Designation	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	56 409 ...
R1007A.42.6.42,5-10.IK	42	6	3,5	42,5	16	35	2,4	RD.X 1003..	**421**
R1007A.52.7.52,5-10.IK	52	7	3,5	52,5	22	40	2,4	RD.X 1003..	**521**
R1007A.52.5.52,5-12.IK	52	5	3,5	52,5	22	40	2,4	RD.X 12T3..	**522**
R1007A.66.6.52,5-12.IK	66	6	3,5	52,5	27	48	2,4	RD.X 12T3..	**661**
R1007A.80.7.54,5-12.IK	80	7	3,5	54,5	27	60	2,4	RD.X 12T3..	**801**
R1007A.52.5.53-16.IK	52	5	4,1	53,0	22	40	4,3	RD.X 1604..	**523**
R1007A.66.5.53-16.IK	66	5	4,6	53,0	27	48	4,3	RD.X 1604..	**662**
R1007A.66.6.53-16.IK	66	6	5,1	53,0	27	48	4,3	RD.X 1604..	**663**
R1007A.80.6.53-16.IK	80	6	5,1	53,0	27	60	4,3	RD.X 1604..	**802**
R1007A.100.7.53-16	100	7	5,1	53,0	32	70	4,3	RD.X 1604..	**910** 1)
R1007A.125.8.53-16	125	8	5,2	53,0	40	90	4,3	RD.X 1604..	**925** 1)
R1007A.160.9.53-16	160	9	5,1	53,0	40	120	4,3	RD.X 1604..	**960** 1)

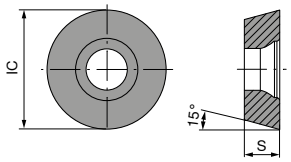
1) Without Through Coolant

	TORX® blade	Clamping Screw	over clamp	Key D	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**56 950 ...**	**56 950 ...**	**80 950 ...**	**70 950 ...**	**56 950 ...**	**80 950 ...**
Spare parts							
Insert							
RD.X 1003..	**036**			**113**	**303**	**010**	**192**
RD.X 12T3..	**036**	**022**		**113**	**303**	**010**	**192**
RD.X 1604..	**037**		**210**	**114**	**303**	**012**	**192**

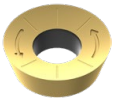
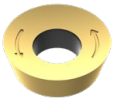
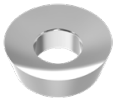
15

RDHX / RDMX / RDEX / RDPX

Designation	IC mm	S mm
RD.X 0702..	7	2,38
RD.X 1003..	10	3,18
RD.X 12T3..	12	3,97
RD.X 1604..	16	4,76



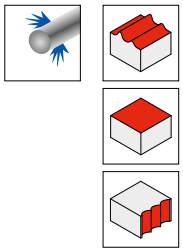
RDHX / RDMX / RDEX / RDPX

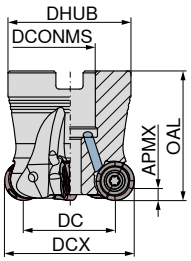
	WTN1205	WAN1240	WAX1240	-HP WAN2225	-F30P WUN4210
					
	RDHX	RDMX	RDEX	RDPX	RDHX
	56 302 ...	56 309 ...	56 314 ...	56 348 ...	56 304 ...
ISO					
0702M0E					611
0702M0T	111		611		
1003M0S				231	
1003M0T	131	731	631		631
12T3M0S				241	
12T3M0T	141	741	641		641
1604M0S				251	
1604M0T	151	751	651		651
P	●	●	●		
M	●	○	○	●	
K	●	○	○		○
N					●
S				●	
H	●				
O					○

Milling guide

Cutting data standard values	→ 182–184	Machining strategy	→ 185+186
Technical Information	→ 193–198	Grade description	→ 199–201
Designation System	→ 202–208		

MaxiMill – 252 Shell mill





NEW

50 689 ...

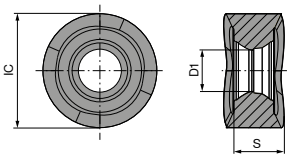
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	
A252.40.R.05-10	30	40	5	2,5	40	16	38	2	RNHU 1004..	**140**
A252.42.R.05-10	32	42	5	2,5	40	16	38	2	RNHU 1004..	**142**
A252.50.R.06-10	40	50	6	2,5	40	22	43	2	RNHU 1004..	**150**
A252.52.R.07-10	42	52	7	2,5	40	22	43	2	RNHU 1004..	**152**
A252.63.R.08-10	53	63	8	2,5	40	22	48	2	RNHU 1004..	**16300**
A252.80.R.10-10	70	80	10	2,5	50	27	58	2	RNHU 1004..	**18000**
A252.40.R.04-12	28	40	4	3,0	40	16	38	3,2	RNHU 1205..	**240**
A252.50.R.05-12	38	50	5	3,0	40	22	43	3,2	RNHU 1205..	**250**
A252.52.R.05-12	40	52	5	3,0	40	22	43	3,2	RNHU 1205..	**252**
A252.63.R.06-12	51	63	6	3,0	40	22	48	3,2	RNHU 1205..	**263**
A252.66.R.07-12	54	66	7	3,0	40	22	48	3,2	RNHU 1205..	**266**
A252.80.R.08-12	68	80	8	3,0	50	27	58	3,2	RNHU 1205..	**280**
A252.100.R.10-12	88	100	10	3,0	50	32	78	3,2	RNHU 1205..	**30000**
A252.125.R.12-12	113	125	12	3,0	63	40	88	3,2	RNHU 1205..	**32500**

	TORX® blade	Clamping key – T	Key D	Power Screw	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts							
Insert							
RNHU 1004.. (Ø40 – Ø80)	**053**		**127**		**303**	**710**	**192**
RNHU 1205.. (Ø40)	**054**	**040**	**128**	**151**	**303**	**839**	**192**
RNHU 1205.. (Ø50 – Ø125)	**054**		**128**		**303**	**839**	**192**

15

RNHU

Designation	IC mm	D1 mm	S mm
RNHU 1004..	10	3,4	4,60
RNHU 1205..	12	4,4	5,30



RNHU

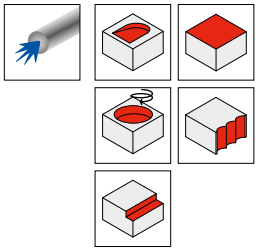
	NEW -M50 CTPP235 DRAGONSKIN	NEW -F50 CTPM240 DRAGONSKIN	NEW -M31 CTPM245 DRAGONSKIN	NEW -M32 CTPM245 DRAGONSKIN	NEW -M31 CTC5240 DRAGONSKIN	NEW -M31 CTC5240 DRAGONSKIN
	RNHU	RNHU	RNHU	RNHU	RNHU	RNHU
	51 130 ...	51 129 ...	51 106 ...	51 107 ...	50 520 ...	50 521 ...
ISO						
1004M4ER	12000	42000	470	470	550	
1205M4ER		42500	475	475		552
1205M4SR	12500					
P	●	○	●	●		
M	○	●	●	●		
K	○					
N						
S					●	●
H						
O						

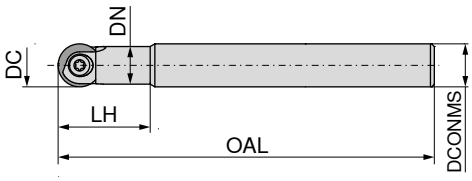
Milling guide

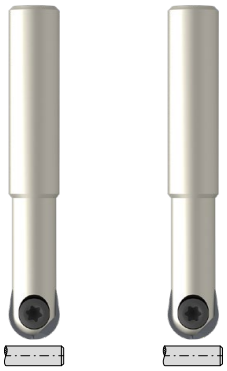
Cutting data standard values	→ 145–148	Machining strategy	→ 187
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

K 2000 / K 2001 shank copy milling cutter

▲ with carbide shank







ISO designation	DC mm	DN mm	LH mm	OAL mm	DCONMS mm	torque moment Nm	56 100 ...	56 101 ...
K2000C.6.16.100	6	5,3	16	100	8	0,5	060 1)	
K2000C.6.20.100	6	5,8	20	100	6	0,5	061 1)	
K2000C.6.70.150	6	5,8	70	150	6	0,5	062 1)	
K2000C.6.100.200	6	5,8	100	200	6	0,5	063 1)	
K2000C.8.25.80	8	7,0	25	80	8	1	081 1)	
K2000C.8.25.100	8	7,0	25	100	8	1	082 1)	
K2000C.8.40.150	8	7,0	40	150	8	1	083 1)	
K2000C.10.35.80	10	8,8	35	80	10	3	101 1)	
K2000C.10.35.120	10	8,8	35	120	10	3	102 1)	
K2000C.10.50.150	10	8,8	50	150	10	3	103 1)	
K2000C.12.35.80	12	10,5	35	80	12	4	121 1)	
K2001C.12.35.80	12	10,5	35	80	12	4		121
K2000C.12.35.120	12	10,5	35	120	12	4	122 1)	
K2001C.12.35.120	12	10,5	35	120	12	4		122
K2000C.12.50.160	12	10,5	50	160	12	4	123 1)	
K2001C.12.50.160	12	10,5	50	160	12	4		123
K2001C.16.40.100	16	14,0	40	100	16	5		161
K2001C.16.40.140	16	14,0	40	140	16	5		162
K2001C.16.55.175	16	14,0	55	175	16	5		163
K2001C.20.50.100	20	18,0	50	100	20	5		201
K2001C.20.50.140	20	18,0	50	140	20	5		202
K2001C.20.75.190	20	18,0	75	190	20	5		203
K2001C.25.60.160	25	22,4	60	160	25	8		252
K2001C.25.90.210	25	22,4	90	210	25	8		253

1) Without Through Coolant

Applicable inserts

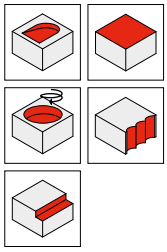
	ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4

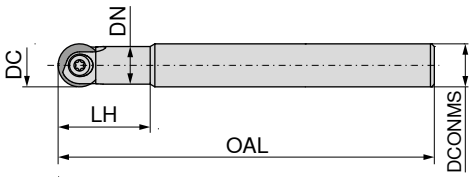
	XOHX06.. -MR2, XOHX-FM1

15

K 2002 shank copy milling cutter

▲ cylindrical steel shank version





56 102 ...

Designation	DC mm	DN mm	LH mm	OAL mm	DCONMS mm	torque moment Nm	
K2002C.12.32.90	12	10,5	32	90	12	4	**121**
K2002C.12.32.130	12	10,5	32	130	12	4	**122**
K2002C.12.46.150	12	10,5	46	150	12	4	**123**
K2002C.16.36.100	16	14,0	36	100	16	5	**161**
K2002C.16.36.140	16	14,0	36	140	16	5	**162**
K2002C.16.53.160	16	14,0	53	160	16	5	**163**
K2002C.20.45.160	20	18,0	45	160	20	5	**202**
K2002C.20.61.175	20	18,0	61	175	20	5	**203**
K2002C.25.45.160	25	22,4	45	160	25	8	**252**
K2002C.25.70.190	25	22,4	70	190	25	8	**253**
K2002C.32.56.175	32	28,6	56	175	32	8	**322**
K2002C.32.80.210	32	28,6	80	210	32	8	**323**

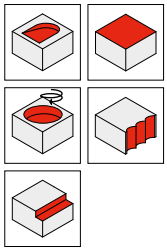
Applicable inserts

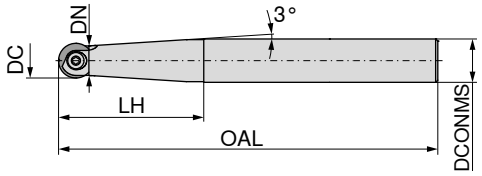
	ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4

	XOHX-FM1

K 2003 shank copy milling cutter

▲ tapered execution





56 104 ...

Designation	DC mm	DN mm	LH mm	OAL mm	DCONMS mm	torque moment Nm	
K2003C.6.16.90	6	5,3	40	90	10	0,5	**061**
K2003C.8.50.85	8	7,5	50	85	12	1	**081**
K2003C.8.50.140	8	7,5	50	140	12	1	**082**
K2003C.10.35.85	10	9,0	35	85	12	3	**101**
K2003C.10.35.150	10	9,0	35	150	12	3	**102**
K2003C.12.60.110	12	10,5	60	110	16	4	**121**
K2003C.12.60.160	12	10,5	60	160	16	4	**122**
K2003C.16.67.120	16	14,0	67	120	20	5	**161**
K2003C.16.67.175	16	14,0	67	175	20	5	**162**
K2003C.20.80.190	20	18,0	80	190	25	5	**201**
K2003C.25.100.210	25	22,4	100	210	32	8	**251**
K2003C.32.123.240	32	28,6	123	240	40	8	**321**

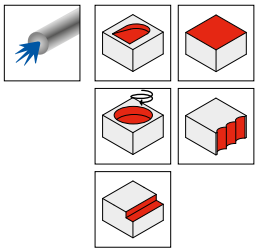
Applicable inserts

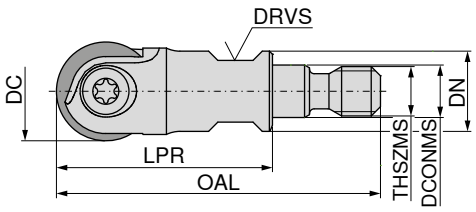
	ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4

	XOHX-FM1

15

K 2000 screw-in copy milling cutter





56 120 ...

Designation	DC mm	LPR mm	DN mm	OAL mm	DCONMS mm	THSZMS	DRVS mm	torque moment Nm	
K2000G.8.25.M6	8	25	10	39,5	6,5	M6	8	1	**081** [1]
K2000G.10.25.M6	10	25	10	39,5	6,5	M6	8	3	**101** [1]
K2000G.12.25.M6	12	25	10	39,5	6,5	M6	8	4	**121** [1]
K2000G.12.26.M8	12	26	13	43,5	8,5	M8	10	4	**122**
K2000G.16.26.M8	16	26	13	43,5	8,5	M8	10	5	**161**
K2000G.20.30.M10	20	30	18	49,5	10,5	M10	15	5	**201**
K2000G.25.40.M12	25	40	21	62,0	12,5	M12	17	8	**251**
K2000G.32.45.M16	32	45	30	69,0	17,0	M16	26	8	**321**

1) Without Through Coolant

Applicable inserts

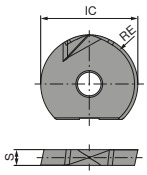
	ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4

	XOHX-FM1

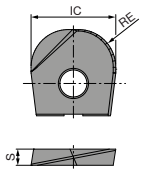
Spare parts DC	TORX® blade **80 950 ...**	Key D **80 950 ...**	Molykote **70 950 ...**	Clamping screw **56 950 ...**	Torque screwdriver **80 950 ...**
6	**031**	**108**	**303**	**041**	**191**
8	**033**	**110**	**303**	**042**	**191**
10	**036**	**113**	**303**	**043**	**193**
12	**037**	**114**	**303**	**044**	**193**
16	**037**	**114**	**303**	**045**	**193**
20	**037**	**114**	**303**	**046**	**193**
25		**131**	**303**	**047**	
32		**131**	**303**	**048**	

ROHX / XOHX / ROGX

Designation	IC mm	S mm
ROHX0616R..	6	1,60
ROHX0820R..	8	2,00
ROHX1025R..	10	2,50
XOHX10254..	10	2,50
XOHX12255..	12	2,50
RO.X1225R..	12	2,50
RO.X1630R..	16	3,00
XOHX16307..	16	3,00
XOHX20309..	20	3,00
RO.X2030R..	20	3,00
RO.X2540R..	25	4,00
RO.X3250R..	32	5,00



RO.X



XOHX

ROHX / XOHX / ROGX

	-MR5 CTPP211	-FM1 CTPP216	-FM3 CTPP216	-FM4 CTPP216	-FM4 CTPK226	-MR4 CTPK231	-FM6 CTCN211
	ROHX	XOHX	ROHX	ROHX	ROHX	ROGX	ROHX
	56 149 ...	56 169 ...	56 147 ...	56 141 ...	56 141 ...	56 143 ...	56 145 ...
ISO / RE mm							
0616 R3 / 3,0			30200	90200			602 1)
0820 R4 / 4,0	71300		31300	71300	11300		613 1)
1025 R5 / 5,0	72400		32400	72400	12400		624 1)
102540 / 4,0		92400					
1225 R6 / 6,0			33500	73500	13500	53500	635 1)
122550 / 5,0		93500					
1630 R8 / 8,0			34600	74600	14600	54600	646 1)
163070 / 7,0		94700					
2030 R10 / 10,0			35700	75700	15700	55700	
203090 / 9,0		95900					
2540 R12,5 / 12,5			36800	76800	16800	56800	
3250 R16 / 16,0			37900	77900	17900	57900	
P	●	●	●	●	●	●	
M	○	○	○	○	●	●	
K	○	●	●	●	●	●	
N	○	○	○	○		○	○
S	○	○	○	○		○	
H	○	●	●	●	○	○	
O	○	○	○	○			●

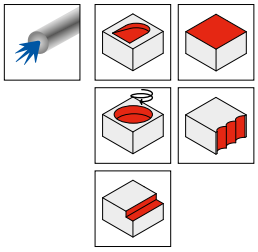
1) Specifically for machining graphite !

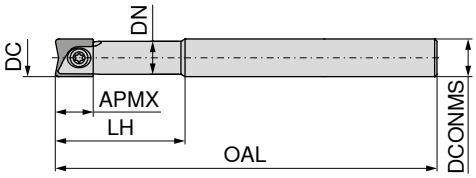
Milling guide

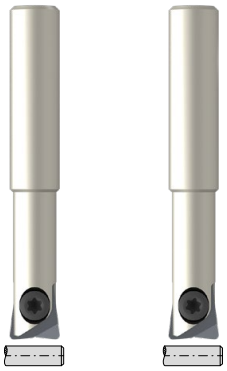
Cutting data standard values	→ 188+189	Depth of Cut	→ 190
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

K 2005 / K 2006 shank copy milling cutter

▲ with carbide shank







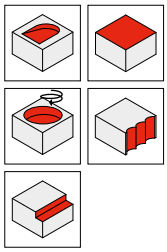
Designation	DC mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS mm	torque moment Nm	56 110 ...	56 111 ...
K2005C.8.27.82	8	9,5	7,0	27	82	8	1	081 1)	
K2005C.8.27.102	8	9,5	7,0	27	102	8	1	082 1)	
K2005C.8.42.152	8	9,5	7,0	42	152	8	1	083 1)	
K2005C.10.37.82	10	11,5	8,8	37	82	10	3	101 1)	
K2005C.10.37.122	10	11,5	8,8	37	122	10	3	102 1)	
K2005C.10.52.152	10	11,5	8,8	52	152	10	3	103 1)	
K2005C/K2006C.12.37.82	12	14,0	10,5	37	82	12	4	121 1)	121
K2005C/K2006C.12.37.122	12	14,0	10,5	37	122	12	4	122 1)	122
K2005C/K2006C.12.52.162	12	14,0	10,5	52	162	12	4	123 1)	123
K2006C.16.42.102	16	16,0	14,0	42	102	16	5		161
K2006C.16.42.142	16	16,0	14,0	42	142	16	5		162
K2006C.16.57.177	16	16,0	14,0	57	177	16	5		163
K2006C.20.52.102	20	18,0	18,0	52	102	20	5		201
K2006C.20.52.142	20	18,0	18,0	52	142	20	5		202
K2006C.20.77.192	20	18,0	18,0	77	192	20	5		203
K2006C.25.62.162	25	23,5	22,4	62	162	25	8		252
K2006C.25.92.212	25	23,5	22,4	92	212	25	8		253

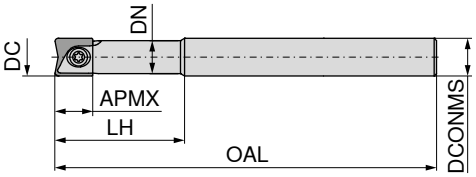
1) Without Through Coolant

Applicable inserts

	XOHX-FM2 / -FM5 / -MR2 / -MR3 / -MR6
	XOGX-MF4

K 2007 shank copy milling cutter





56 112 ...

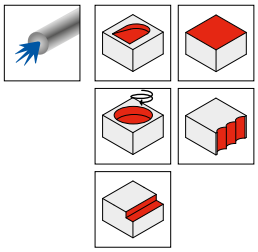
Designation	DC mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS mm	torque moment Nm	
K2007C.12.34.132	12	14,0	10,5	34	132	12	4	**122**
K2007C.12.34.92	12	14,0	10,5	34	92	12	4	**121**
K2007C.12.48.152	12	14,0	10,5	48	152	12	4	**123**
K2007C.16.38.102	16	16,0	14,0	38	102	16	5	**161**
K2007C.16.38.142	16	16,0	14,0	38	142	16	5	**162**
K2007C.16.55.162	16	16,0	14,0	55	162	16	5	**163**
K2007C.20.47.162	20	18,0	18,0	47	162	20	5	**202**
K2007C.20.63.177	20	18,0	18,0	63	177	20	5	**203**
K2007C.25.47.162	25	23,5	22,4	47	162	25	8	**252**
K2007C.25.72.192	25	23,5	22,4	72	192	25	8	**253**
K2007C.32.58.177	32	28,0	28,6	58	177	32	8	**322**
K2007C.32.82.212	32	28,0	28,6	82	212	32	8	**323**

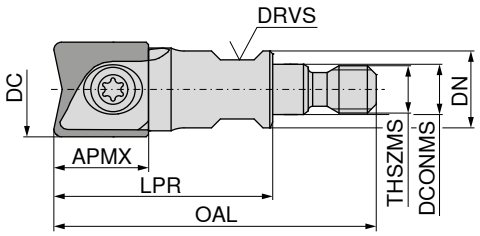
Applicable inserts

	XOHX-FM2 / -FM5 / -MR2 / -MR3 / -MR6
	XOGX-MF4

15

K 2005 screw-in copy milling cutter





56 130 ...

Designation	DC mm	APMX mm	DN mm	LPR mm	OAL mm	DCONMS mm	THSZMS	DRVS mm	torque moment Nm	
K2005G.8.25.M6	8	9,5	10	25	39,5	6,5	M6	8	1	**081** [1]
K2005G.10.25.M6	10	11,5	10	25	39,5	6,5	M6	8	3	**101** [1]
K2005G.12.25.M6	12	14,0	10	25	39,5	6,5	M6	8	4	**121** [1]
K2005G.12.28.M8	12	14,0	13	28	45,5	8,5	M8	8	4	**122**
K2005G.16.28.M8	16	16,0	13	28	45,5	8,5	M8	10	5	**161**
K2005G.20.32.M10	20	18,0	18	32	51,5	10,5	M10	15	5	**201**
K2005G.25.42.M12	25	23,5	21	42	64,0	12,5	M12	17	8	**251**
K2005G.32.47.M16	32	28,0	30	47	71,0	17,0	M16	26	8	**321**

1) Without Through Coolant

Applicable inserts

XOHX-FM2 / -FM5 / -MR2 / -MR3 / -MR6
XOGX-MF4

TORX® blade

80 950 ...

Key D

80 950 ...

Molykote

70 950 ...

Clamping screw

56 950 ...

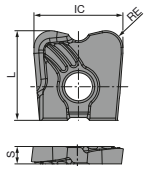
Torque screwdriver

80 950 ...

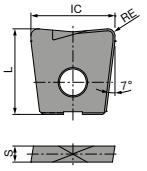
Spare parts DC									
8	**033**		**110**		**303**		**042**		**191**
10	**036**		**113**		**303**		**043**		**193**
12	**037**		**114**		**303**		**044**		**193**
16	**037**		**114**		**303**		**045**		**193**
20	**037**		**114**		**303**		**046**		**193**
25			**131**		**303**		**047**		
32			**131**		**303**		**048**		

XOHX / XOGX

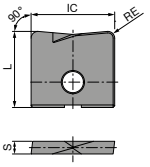
Designation	IC	S	L
	mm	mm	mm
XO.X10251..	10	2,50	11,5
XO.X12251..	12	2,50	14,0
XO.X16301..	16	3,00	16,0
XO.X16303..	16	3,00	16,0
XO.X20301..	20	3,00	18,0
XO.X20304..	20	3,00	18,0
XOGX12252..	12	2,50	14,0
XOHX06160..	6	1,60	8,0
XOHX08200..	8	2,00	9,5
XOHX08201..	8	2,00	9,5
XOHX10250..	10	2,50	11,5
XOHX12252..	12	3,00	14,0
XOHX20302..	20	3,00	18,0
XOHX25401..	25	4,00	23,5
XOHX25402..	25	4,00	23,5
XOHX25405..	25	4,00	23,5
XOHX32502..	32	5,00	28,0



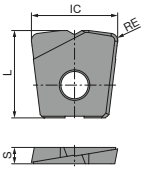
XOGX



XOHX

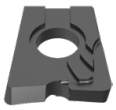
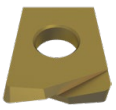
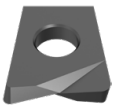


XOHX



XOHX

XOHX / XOGX

	-MR2 CTPP211	-MR6 CTPP211	-FM2 CTPP216	-FM5 CTPP216	-MF4 CTPP216	-MR3 CTPK231	-MR2 CTCN211
							
	XOHX	XOHX	XOHX	XOHX	XOGX	XOHX	XOHX
	56 167 ...	56 163 ...	56 165 ...	56 159 ...	56 161 ...	56 171 ...	56 168 ...
ISO / RE mm							
061605 0,5	71000						610 1)
082006 0,6		71000	71000	71000			
082010 1,0	71200		71200				612 1)
102508 0,8		72100	72100	72100		32100	
102510 1,0	72200		72200		92200		622 1)
122510 1,0	73200	73200	73200	73200	93200	53200	632 1)
122520 2,0	73500		73500		93500		
163010 1,0	74200		74200		94200		642 1)
163013 1,3		74300	74300	74300			
163015 1,5						54400	
163030 3,0	74700		74500		94700		
203010 1,0	75200		75200		95200		
203016 1,6		75400	75400	75400			
203020 2,0						55500	
203040 4,0	75800		75800		95800		
254010 1,0	76200		76200				
254020 2,0		76500	76500	76500			
254050 5,0	76900		76900				
325025 2,5		77600		77600			
P	●	●	●	●	●	●	
M	○	○	○	○	○	●	
K	○	○	●	●	●	●	
N	○	○	○	○	○	○	○
S	○	○	○	○	○	○	
H	○	○	●	●	●	○	
O	○	○	○	○	○		●

1) Specifically for machining graphite !

Milling guide

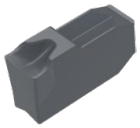
Cutting data standard values	→ 188+189	Depth of Cut	→ 190
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

15

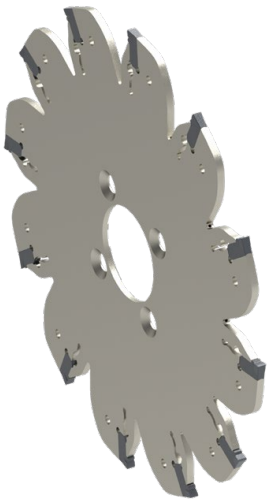
Application tips – **MaxiMill** – Slot-SX

▲ The following components are required to complete the tool:

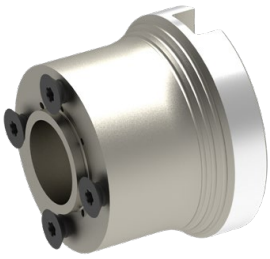
Spanner



Grooving insert



Saw cutters

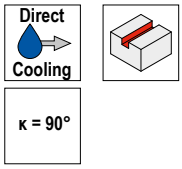


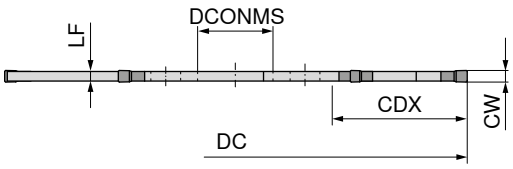
Multipurpose milling cutter adapter

MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	LF mm	ZEFP	Insert	Adapter	50 383 ...
ASLOT.80.R.6.13.DC-SX2	80	2	23	13	1,65	6	SX E2 ..	AD.SLOT.13...	**08002**
ASLOT.80.R.6.13.DC-SX3	80	3	23	13	2,50	6	SX E3 ..	AD.SLOT.13...	**08003**
ASLOT.80.R.4.13.DC-SX4	80	4	23	13	3,50	4	SX E4 ..	AD.SLOT.13...	**08004**
ASLOT.80.R.4.13.DC-SX5	80	5	23	13	4,50	4	SX E5 ..	AD.SLOT.13...	**08005**

Clamping screw

Ejector SX

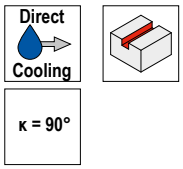
Spare parts for Article no.	50 950 ...	70 950 ...
50 383 08002	**00100**	**836**
50 383 08003	**00100**	**836**
50 383 08004	**00100**	**837**
50 383 08005	**00100**	**837**

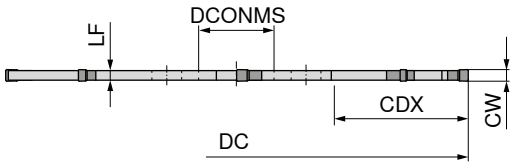
Suitable multipurpose milling cutter adapters can be found on → **Page 136**

MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS H6 mm	LF mm	ZEFP	Insert	Adapter	50 384 ...
ASLOT.100.R.8.22.DC-SX2	100	2	29	22	1,65	8	SX E2 ..	AD.SLOT.22...	**10002**
ASLOT.100.R.8.22.DC-SX3	100	3	29	22	2,50	8	SX E3 ..	AD.SLOT.22...	**10003**
ASLOT.100.R.6.22.DC-SX4	100	4	29	22	3,50	6	SX E4 ..	AD.SLOT.22...	**10004**
ASLOT.100.R.6.22.DC-SX5	100	5	29	22	4,50	6	SX E5 ..	AD.SLOT.22...	**10005**
ASLOT.100.R.4.22.DC-SX6	100	6	29	22	5,40	4	SX E6 ..	AD.SLOT.22...	**10006**

Clamping screw

50 950 ...

Ejector SX

70 950 ...

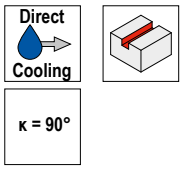
Spare parts for Article no.		
50 384 10002	**00100**	**836**
50 384 10003	**00100**	**836**
50 384 10004	**00100**	**837**
50 384 10005	**00100**	**837**
50 384 10006	**00100**	**837**

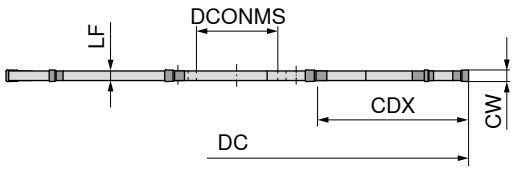
Suitable multipurpose milling cutter adapters can be found on → **Page 136**

MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	LF mm	ZEFP	Insert	Adapter	50 385 ...
ASLOT.125.R.10.22.DC-SX2	125	2	42	22	1,65	10	SX E2 ..	AD.SLOT.22...	**12502**
ASLOT.125.R.10.22.DC-SX3	125	3	42	22	2,50	10	SX E3 ..	AD.SLOT.22...	**12503**

Clamping screw

Ejector SX

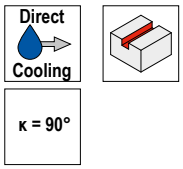
Spare parts for Article no.	50 950 ...	70 950 ...
50 385 12502	**00100**	**836**
50 385 12503	**00100**	**836**

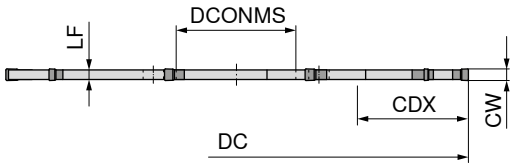
Suitable multipurpose milling cutter adapters can be found on → **Page 136**

MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	LF mm	ZEFP	Insert	Adapter	50 386 ...
ASLOT.125.R.10.32.DC-SX2	125	2	30	32	1,65	10	SX E2 ..	AD.SLOT.32...	**12502**
ASLOT.125.R.10.32.DC-SX3	125	3	30	32	2,50	10	SX E3 ..	AD.SLOT.32...	**12503**
ASLOT.125.R.8.32.DC-SX4	125	4	30	32	3,50	8	SX E4 ..	AD.SLOT.32...	**12504**
ASLOT.125.R.8.32.DC-SX5	125	5	30	32	4,50	8	SX E5 ..	AD.SLOT.32...	**12505**
ASLOT.125.R.8.32.DC-SX6	125	6	30	32	5,40	8	SX E6 ..	AD.SLOT.32...	**12506**

Clamping screw

Ejector SX

Spare parts for Article no.	50 950 ...	70 950 ...
50 386 12502	**00200**	**836**
50 386 12503	**00200**	**836**
50 386 12504	**00200**	**837**
50 386 12505	**00200**	**837**
50 386 12506	**00200**	**837**

Suitable multipurpose milling cutter adapters can be found on → **Page 136**

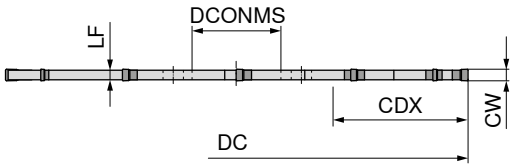
MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws

Direct Cooling

κ = 90°



NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	LF mm	ZEFP	Insert	Adapter	50 387 ...
ASLOT.160.R.12.32.DC-SX2	160	2	48	32	1,65	12	SX E2 ..	AD.SLOT.32...	**16002**
ASLOT.160.R.12.32.DC-SX3	160	3	48	32	2,50	12	SX E3 ..	AD.SLOT.32...	**16003**

Clamping screw

Ejector SX

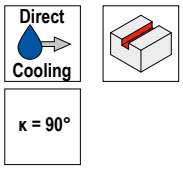
Spare parts for Article no.	50 950 ...	70 950 ...
50 387 16002	**00200**	**836**
50 387 16003	**00200**	**836**

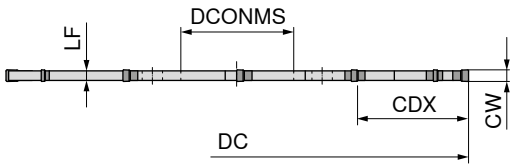
Suitable multipurpose milling cutter adapters can be found on → **Page 136**

MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	LF mm	ZEFP	Insert	Adapter	50 388 ...
ASLOT.160.R.12.40.DC-SX2	160	2	39	40	1,65	12	SX E2 ..	AD.SLOT.40...SK	**16002**
ASLOT.160.R.12.40.DC-SX3	160	3	39	40	2,50	12	SX E3 ..	AD.SLOT.40...SK	**16003**
ASLOT.160.R.10.40.DC-SX4	160	4	39	40	3,50	10	SX E4 ..	AD.SLOT.40...SK	**16004**
ASLOT.160.R.10.40.DC-SX5	160	5	39	40	4,50	10	SX E5 ..	AD.SLOT.40...SK	**16005**
ASLOT.160.R.10.40.DC-SX6	160	6	39	40	5,40	10	SX E6 ..	AD.SLOT.40...SK	**16006**

Clamping screw

Ejector SX

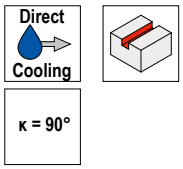
Spare parts for Article no.	50 950 ...	70 950 ...
50 388 16002	**00300**	**836**
50 388 16003	**00300**	**836**
50 388 16004	**00300**	**837**
50 388 16005	**00300**	**837**
50 388 16006	**00300**	**837**

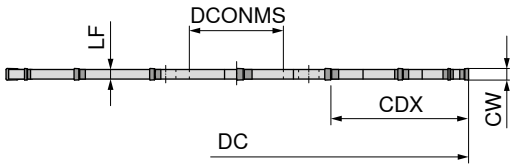
Suitable multipurpose milling cutter adapters can be found on → **Page 136**

MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	LF mm	ZEFP	Insert	Adapter	50 389 ...
ASLOT.200.R.16.40.DC-SX2	200	2	59	40	1,65	16	SX E2 ..	AD.SLOT.40...SK	**20002**
ASLOT.200.R.16.40.DC-SX3	200	3	59	40	2,50	16	SX E3 ..	AD.SLOT.40...SK	**20003**
ASLOT.200.R.14.40.DC-SX4	200	4	59	40	3,50	14	SX E4 ..	AD.SLOT.40...SK	**20004**
ASLOT.200.R.14.40.DC-SX5	200	5	59	40	4,50	14	SX E5 ..	AD.SLOT.40...SK	**20005**
ASLOT.200.R.14.40.DC-SX6	200	6	59	40	5,40	14	SX E6 ..	AD.SLOT.40...SK	**20006**

Clamping screw

Ejector SX

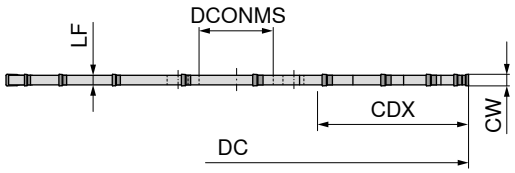
Spare parts for Article no.	50 950 ...	70 950 ...
50 389 20002	**00300**	**836**
50 389 20003	**00300**	**836**
50 389 20004	**00300**	**837**
50 389 20005	**00300**	**837**
50 389 20006	**00300**	**837**

Suitable multipurpose milling cutter adapters can be found on → **Page 136**

MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws



NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	LF mm	ZEFP	Insert	Adapter	50 380 ...
ASLOT.250.R.20.40.DC-SX3	250	3	84	40	2,5	20	SX E3 ..	AD.SLOT.40...ZK	**25003**
ASLOT.250.R.18.40.DC-SX4	250	4	84	40	3,5	18	SX E4 ..	AD.SLOT.40...ZK	**25004**
ASLOT.250.R.18.40.DC-SX5	250	5	84	40	4,5	18	SX E5 ..	AD.SLOT.40...ZK	**25005**
ASLOT.250.R.18.40.DC-SX6	250	6	84	40	5,4	18	SX E6 ..	AD.SLOT.40...ZK	**25006**[1)]

1) Not ex-stock

Clamping screw

Ejector SX

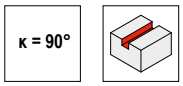
Spare parts for Article no.	50 950 ...	70 950 ...
50 380 25003	**00400**	**836**
50 380 25004	**00400**	**837**
50 380 25005	**00400**	**837**
50 380 25006	**00400**	**837**

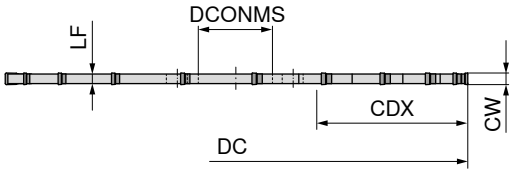
Suitable multipurpose milling cutter adapters can be found on → **Page 136**

MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	LF mm	ZEFP	Insert	Adapter	50 390 ...
ASLOT.250.R.20.40-SX3	250	3	84	40	2,5	20	SX E3 ..	AD.SLOT.40...ZK	**25003**
ASLOT.250.R.18.40-SX4	250	4	84	40	3,5	18	SX E4 ..	AD.SLOT.40...ZK	**25004**
ASLOT.250.R.18.40-SX5	250	5	84	40	4,5	18	SX E5 ..	AD.SLOT.40...ZK	**25005**
ASLOT.250.R.18.40-SX6	250	6	84	40	5,4	18	SX E6 ..	AD.SLOT.40...ZK	**25006**[1)]

1) Not ex-stock

Clamping screw

Ejector SX

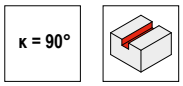
Spare parts for Article no.	50 950 ...	70 950 ...
50 390 25003	**00400**	**836**
50 390 25004	**00400**	**837**
50 390 25005	**00400**	**837**
50 390 25006	**00400**	**837**

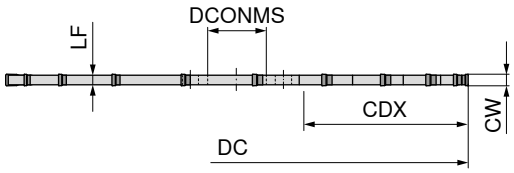
Suitable multipurpose milling cutter adapters can be found on → **Page 136**

MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	LF mm	ZEFP	Insert	Adapter	50 391 ...
ASLOT.315.R.22.40-SX4	315	4	115	40	3,5	22	SX E4 ..	AD.SLOT.40...ZK	**31504**
ASLOT.315.R.22.40-SX5	315	5	115	40	4,5	22	SX E5 ..	AD.SLOT.40...ZK	**31505**
ASLOT.315.R.22.40-SX6	315	6	115	40	5,4	22	SX E6 ..	AD.SLOT.40...ZK	**31506**[1)]

1) Not ex-stock

Clamping screw

Ejector SX

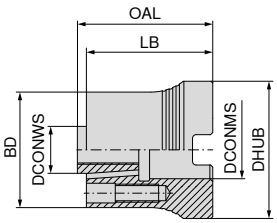
Spare parts for Article no.	50 950 ...	70 950 ...
50 391 31504	**00400**	**837**
50 391 31505	**00400**	**837**
50 391 31506	**00400**	**837**

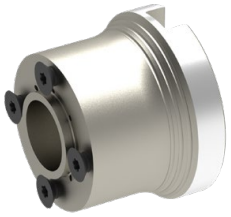
Suitable multipurpose milling cutter adapters can be found on → **Page 136**

MaxiMill – Slot-SX multipurpose milling cutter adapter

Scope of supply:

Multipurpose milling cutter adapter including screws





NEW

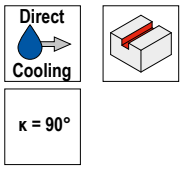
Designation	DCONMS mm	DCONWS h6 mm	DHUB mm	LB mm	OAL mm	BD mm	50 395 ...
AD.SLOT.13.32.A16	16	13	38	35	37,5	32	**01300**
AD.SLOT.22.40.A22	22	22	48	35	37,5	40	**02200**
AD.SLOT.22.40.A22.40	22	22	40	35	37,5	40	**02300**
AD.SLOT.32.63.A27	27	32	58	45	47,5	63	**03200**
AD.SLOT.40.80.A32.SK	32	40	78	55	57,5	80	**04000**
AD.SLOT.40.80.A32.ZK	32	40	78	55	57,5	80	**04100**

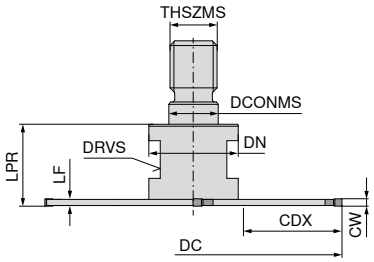
Spare parts for Article no.	Clamping screw 50 950 ...	Clamping screw 50 950 ...	Clamping screw 50 950 ...	Power Screw 70 950 ...
50 395 01300	**00100**			**151**
50 395 02200	**00100**			
50 395 03200	**00200**			
50 395 04000			**00300**	
50 395 04100		**00400**		

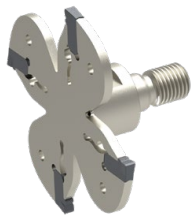
MaxiMill – Slot-SX screw-in multipurpose milling cutter

Scope of supply:

Screw-in multipurpose milling cutter **without** assembly key







NEW

50 392 ...

Designation	DC mm	CW mm	CDX mm	DCONMS mm	THSZMS	LF mm	DN mm	LPR mm	DRVS mm	ZEFP	Insert	
GSLOT.63.R.4.M10.DC-SX2	63	2	21	10,5	M10	1,65	19	18	15	4	SX E2 ..	**06302**
GSLOT.63.R.4.M10.DC-SX3	63	3	21	10,5	M10	2,50	19	18	15	4	SX E3 ..	**06303**

Ejector SX

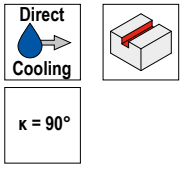
70 950 ...

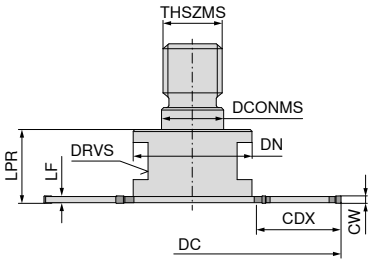
Spare parts for Article no.	
50 392 06302	**836**
50 392 06303	**836**

MaxiMill – Slot-SX screw-in multipurpose milling cutter

Scope of supply:

Screw-in multipurpose milling cutter **without** assembly key





NEW

50 393 ...

Designation	DC mm	CW mm	CDX mm	DCONMS mm	THSZMS	LF mm	DN mm	LPR mm	DRVS mm	ZEFP	Insert	
GSLOT.80.R.6.M16.DC-SX2	80	2	23	17	M16	1,65	32	20	24	6	SX E2 ..	**08002**
GSLOT.80.R.6.M16.DC-SX3	80	3	23	17	M16	2,50	32	20	24	6	SX E3 ..	**08003**
GSLOT.80.R.4.M16.DC-SX4	80	4	23	17	M16	3,50	32	20	24	4	SX E4 ..	**08004**

Ejector SX

70 950 ...

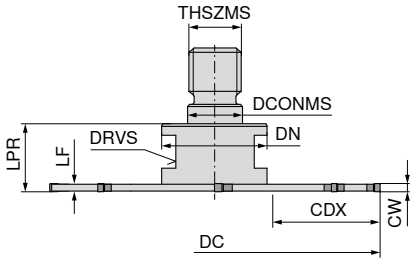
Spare parts for Article no.	
50 393 08002	**836**
50 393 08003	**836**
50 393 08004	**837**

MaxiMill – Slot-SX screw-in multipurpose milling cutter

Scope of supply:

Screw-in multipurpose milling cutter **without** assembly key

κ = 90°



NEW

50 394 ...

Designation	DC mm	CW mm	CDX mm	DCONMS mm	THSZMS	LF mm	DN mm	LPR mm	DRVS mm	ZEFP	Insert	
GSLOT.100.R.8.M16.DC-SX2	100	2	33	17	M16	1,65	32	20	24	8	SX E2 ..	**10002**
GSLOT.100.R.8.M16.DC-SX3	100	3	33	17	M16	2,50	32	20	24	8	SX E3 ..	**10003**
GSLOT.100.R.6.M16.DC-SX4	100	4	33	17	M16	3,50	32	20	24	6	SX E4 ..	**10004**

Ejector SX

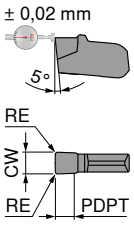
70 950 ...

Spare parts for Article no.	
50 394 10002	**836**
50 394 10003	**836**
50 394 10004	**837**

Suitable adapters for screw-in cutters can be found in – Chapter 16 Adapters and accessories

Insert SX

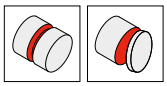
F	M	R
●		



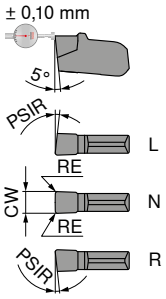
-F2
CTP1340
DRAGONSKIN

Designation	CW mm	RE mm	PDPT mm	for tool holder	70 346 ...
SX E2.00 N 0.20	2	0,2	1,5	-SX2	**622**
SX E3.00 N 0.30	3	0,3	2,0	-SX3	**623**
SX E4.00 N 0.40	4	0,4	2,5	-SX4	**624**
P					●
M					●
K					○
N					○
S					●
H					
O					

Insert SX

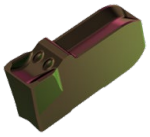


F	M	R
	●	



-M1
CTCP335
DRAGONSKIN

-M1
CTP1340
DRAGONSKIN

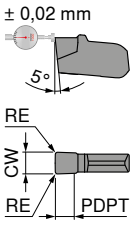


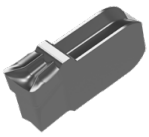
Designation	IH	CW mm	RE mm	for tool holder	70 342 ...	70 342 ...
SX E2.00 N 0.20	N	2	0,2	-SX2	**52200**	**622**
SX E3.00 N 0.20	N	3	0,2	-SX3	**523**	**623**
SX E4.00 N 0.30	N	4	0,3	-SX4	**524**	**624**
SX E5.00 N 0.30	N	5	0,3	-SX5	**52500**	**625**
SX E6.00 N 0.40	N	6	0,4	-SX6	**52600**	**626**
P					●	●
M					○	●
K					●	○
N						○
S						●
H						
O						

Insert SX

F	M	R

-27P
H216T

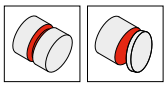




Designation	CW mm	RE mm	PDPT mm	for tool holder	70 349 ...
SX E2.00 N 0.20	2	0,2	2,0	-SX2	**122**
SX E3.00 N 0.30	3	0,3	2,5	-SX3	**123**
SX E4.00 N 0.40	4	0,4	3,0	-SX4	**124**

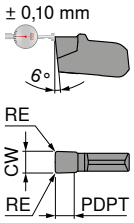
P	
M	
K	○
N	●
S	
H	
O	○

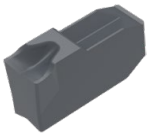
Insert SX



F	M	R

NEW
-M7
CTP1340
DRAGONSKIN

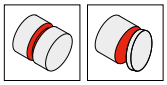




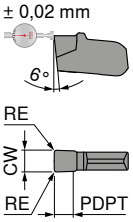
Designation	CW mm	RE mm	PDPT mm	for tool holder	70 347 ...
SX E2.00 N 0.20	2	0,2	1,5	-SX2	**62200**
SX E3.00 N 0.20	3	0,2	2,0	-SX3	**62300**
SX E4.00 N 0.30	4	0,3	2,5	-SX4	**62400**
SX E5.00 N 0.30	5	0,3	2,7	-SX5	**62500**
SX E6.00 N 0.40	6	0,4	3,0	-SX6	**62600**

P	●
M	●
K	○
N	○
S	●
H	
O	

Insert SX



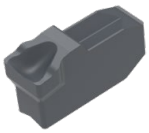
F	M	R



NEW

-M8
CTP1340

DRAGONSKIN



70 348 ...

Designation	CW mm	RE mm	PDPT mm	for tool holder	
SX E2.00 N 0.20	2	0,2	1,5	-SX2	**62200**
SX E3.00 N 0.20	3	0,2	2,0	-SX3	**62300**
SX E4.00 N 0.30	4	0,3	2,5	-SX4	**62400**
SX E5.00 N 0.30	5	0,3	2,7	-SX5	**62500**
SX E6.00 N 0.40	6	0,4	3,0	-SX6	**62600**

P	●
M	●
K	○
N	○
S	●
H	
O	

Milling guide

Cutting data standard values	→ 191	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

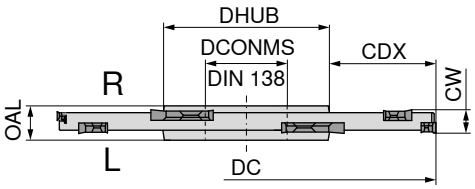
15

TX slot milling and parting off cutter

▲ Note: slot milling and parting off cutters TX are cross-pitched and equipped with indexable inserts for both right-hand and left-hand version.
▲ ZEFP = number of inserts

Scope of supply:

slot milling and parting off cutter, 2 spare clamping screws and 1 Torx key



Designation	DC mm	CW mm	ZNF	CDX mm	DCONMS mm	DHUB mm	OAL mm	ZEFP	Insert	torque moment Nm	50 730 ...
TX.STF.80X27.03.Z4	80	3	4	18,0	27	40	8	8	TX. 161702	0,7	**083**
TX.STF.100X32.03.Z5	100	3	5	25,0	32	46	8	10	TX. 161702	0,7	**103**
TX.STF.125X40.03.Z6	125	3	6	32,0	40	54	10	12	TX. 161702	0,7	**123**
TX.STF.160X40.03.Z8	160	3	8	50,0	40	54	10	16	TX. 161702	0,7	**163** 1)
TX.STF.80X27.04.Z4	80	4	4	18,0	27	40	8	8	TX. 162302	1,3	**084**
TX.STF.100X32.04.Z5	100	4	5	25,0	32	46	8	10	TX. 162302	1,3	**104**
TX.STF.125X40.04.Z6	125	4	6	32,0	40	54	10	12	TX. 162302	1,3	**124**
TX.STF.160X40.04.Z8	160	4	8	50,0	40	54	10	16	TX. 162302	1,3	**164** 1)
TX.STF.80X27.06.Z4	80	6	4	21,0	27	36	10	8	TX. 223202	2	**086**
TX.STF.80X22.06.Z4	80	6	4	22,0	22	33	10	8	TX. 223202	2	**080**
TX.STF.100X32.06.Z5	100	6	5	25,5	32	47	10	10	TX. 223202	2	**106**
TX.STF.125X40.06.Z6	125	6	6	32,5	40	58	10	12	TX. 223202	2	**136**
TX.STF.160X40.06.Z8	160	6	8	50,0	40	58	10	16	TX. 223202	2	**166** 1)
TX.STF.80X27.08.Z4	80	8	4	21,0	27	36	12	8	TX. 224302	2,8	**088**
TX.STF.100X32.08.Z5	100	8	5	25,5	32	47	12	10	TX. 224302	2,8	**108**
TX.STF.125X40.08.Z6	125	8	6	32,5	40	58	12	12	TX. 224302	2,8	**138**
TX.STF.160X40.08.Z8	160	8	8	50,0	40	58	12	16	TX. 224302	2,8	**168** 1)
TX.STF.80X27.10.Z4	80	10	4	21,0	27	36	12	8	TX. 225402	3	**090**
TX.STF.100X32.10.Z5	100	10	5	25,5	32	47	12	10	TX. 225402	3	**110**
TX.STF.125X40.10.Z6	125	10	6	32,5	40	58	14	12	TX. 225402	3	**140**
TX.STF.160X40.10.Z8	160	10	8	50,0	40	58	14	16	TX. 225402	3	**170** 1)

1) Without Through Coolant

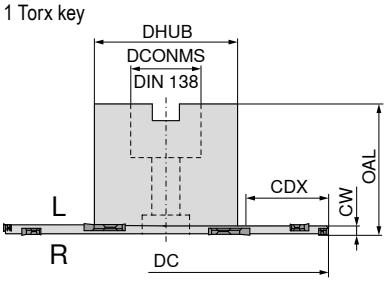
	TORX® blade	Key D	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts					
CW					
3	**032**	**109**	**303**	**858**	**191**
4	**033**	**110**	**303**	**218**	**191**
6	**036**	**113**	**303**	**101**	**192**
8	**037**	**114**	**303**	**135**	**192**
10	**037**	**114**	**303**	**146**	**192**

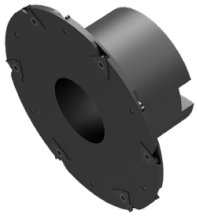
TX shell / slot milling and parting off cutter

▲ Note: slot milling and parting off cutters TX are cross-pitched and equipped with indexable inserts for both right-hand and left-hand version.
▲ ZEFP = number of inserts

Scope of supply:

slot milling and parting off cutter, 2 spare clamping screws and 1 Torx key





50 734 ...

Designation	DC mm	CW mm	ZNF	CDX mm	DCONMS mm	DHUB mm	OAL mm	ZEFP	torque moment Nm	Insert	
TX.ASF.100.R.03.Z5	100	3	5	25,0	27	48	50	10	0,7	TX. 161702	**300**
TX.ASF.125.R.03.Z6	125	3	6	37,5	27	48	50	12	0,7	TX. 161702	**225**
TX.ASF.160.R.03.Z8	160	3	8	44,0	40	70	50	16	0,7	TX. 161702	**260** 1)
TX.ASF.100.R.04.Z5	100	4	5	25,0	27	48	50	10	3,2	TX. 162302	**100**
TX.ASF.125.R.04.Z6	125	4	6	37,5	27	48	50	12	3,2	TX. 162302	**025**
TX.ASF.125.R.04.Z6	125	4	6	26,5	40	70	50	12	3,2	TX. 162302	**125**
TX.ASF.160.R.04.Z8	160	4	8	55,0	27	48	50	16	3,2	TX. 162302	**060** 1)
TX.ASF.160.R.04.Z8	160	4	8	44,0	40	70	50	16	3,2	TX. 162302	**160** 1)
TX.ASF.180.R.04.Z9	180	4	9	54,0	40	70	50	18	3,2	TX. 162302	**180** 1)
TX.ASF.200.R.04.Z10	200	4	10	64,0	40	70	50	20	3,2	TX. 162302	**200** 1)

1) Without Through Coolant

Washer

TORX® blade

Clamping Screw

Key D

Molykote

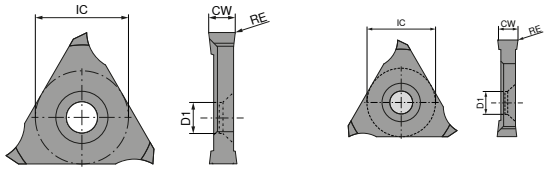
Clamping screw

Torque screwdriver

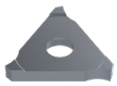
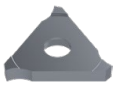
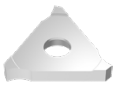
		70 950 ...		**80 950 ...**		**70 950 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**	**80 950 ...**
Spare parts													
CW	**DCONMS**												
3	27	**221**		**032**		**219**		**109**		**303**		**858**	**191**
3	40	**222**		**032**		**220**		**109**		**303**		**858**	**191**
4	27	**221**		**033**		**219**		**110**		**303**		**218**	**192**
4	40	**222**		**033**		**220**		**110**		**303**		**218**	**192**

TX-L / TX-R

Designation	IC mm	D1 mm	CW mm
TX . 1617..	10	3,95	1,7
TX . 1623..	10	3,95	2,3
TX . 2232..	13	5,50	3,2
TX . 2243..	13	5,50	4,3
TX . 2254..	13	5,50	5,4



TX_L / TX_R

		CWX500	CWX500	CWK10	CWK10
					
		TX-L	TX-R	TX-L	TX-R
		50 382 ...	50 381 ...	50 382 ...	50 381 ...
ISO	RE mm				
TX 161702	0,15	217	217		
TX 162302	0,15	223	223		
TX 223202	0,15	232	232		
TX 223202	0,20			532	532
TX 224302	0,15	243	243		
TX 224302	0,20			543	543
TX 225402	0,15	254	254		
TX 225402	0,20			554	554
P		●	●		
M		●	●		
K		●	●		
N		●	●	●	●
S		○	○		
H					
O		○	○	○	○

Milling guide

Cutting data standard values	→ 192	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

Material examples for cutting data tables

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

* Tensile strength

Cutting data standard values

Index	CTEP210		TCM10		CTCP220		CTPP225		CTCP230		CTPP231		CTPP235		CTPP236	
	CERMET		CERMET													
	DRAGONSKIN												DRAGONSKIN			
	Cutting Material **hard** (v_c↑) → **tough** (v_c↓)															
	v_c (m/min)															
P.1.1	344		292		339	170	263	157	286	150	200	100	246	137	300	180
P.1.2	302		257		308	154	234	143	242	133	170	90	208	121	270	160
P.1.3	263		224		280	140	207	129	202	118	140	80	172	106	225	130
P.1.4	250		214		270	135	198	125	189	112	170	90	160	101	270	160
P.1.5	230		197		256	128	185	118	169	105	160	90	143	94	240	140
P.2.1	308		262		313	157	238	145	249	136	170	90	214	123	270	160
P.2.2	246		211		268	134	196	124	185	111	130	70	157	100	200	120
P.2.3	230		197		256	128	185	118	169	105	170	90	143	94	270	160
P.2.4	181		157		220	110	151	102	118	85	120	60	98	76	180	110
P.3.1					140	70	130	65	140	87	170	90	121	97	270	160
P.3.2					95	50	100	50	90	55	140	80	108	83	180	140
P.3.3					50	30	70	35	40	22	120	70	96	69	150	120
P.4.1					140	70	130	65	140	87	140	80	121	97	180	140
P.4.2					118	60	115	58	115	71	130	70	114	90	170	130
M.1.1											170	90	121	97	270	160
M.2.1													108	83		
M.3.1													117	93		
K.1.1									310	190	150	110	160	110	360	90
K.1.2	300		240						160	100	150	110	150	110	360	90
K.2.1	350		280						200	120	150	110	150	110	230	170
K.2.2	300		240						130	80	150	110	150	110	160	110
K.3.1	300		240						190	115					210	160
K.3.2									160	100					210	160
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1																
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

Index	CTPM225		CTCM235		CTPM240		CTPM241		CTPM245		CTCM245		CTN3105		CTL3215	
													CERAMIC		CBN	
	DRAGONSKIN															
	Cutting Material **hard** (v_c↑) → **tough** (v_c↓)															
	v_c (m/min)															
P.1.1	272	191	251	184	226	141	200	100	244	139	279	134				
P.1.2	231	163	210	152	188	126	170	90	207	124	242	119				
P.1.3	193	137	172	123	152	112	140	70	173	109	208	104				
P.1.4	180	129	160	113	140	107	170	90	161	104	196	99				
P.1.5	161	116	141	99	123	100	150	80	144	97	179	92				
P.2.1	237	167	217	157	194	128	170	90	212	126	247	121				
P.2.2	177	127	157	111	137	106	120	60	158	103	193	98				
P.2.3	161	116	141	99	123	100	170	90	144	97	179	92				
P.2.4	114	84	94	62	78	83	110	60	101	78	136	73				
P.3.1	148	121	136	115	126	105	210	100	155	107	175	122				
P.3.2	121	101	128	110	112	95	180	100	143	93	163	108				
P.3.3	95	81	120	105	98	85	160	90	131	79	151	94				
P.4.1	148	121	136	115	126	105	140	90	155	107	175	122				
P.4.2	134	111	132	113	119	100	130	80	149	100	169	115				
M.1.1	**148**	**121**	**136**	**115**	**126**	**105**	**210**	**100**	**155**	**107**	**175**	**122**				
M.2.1	**121**	**101**	**128**	**110**	**112**	**95**	**180**	**90**	**143**	**93**	**163**	**108**				
M.3.1	**140**	**115**	**134**	**114**	**121**	**102**	**210**	**100**	**152**	**103**	**172**	**118**				
K.1.1													**800**		**800**	
K.1.2													**600**		**600**	
K.2.1																
K.2.2															**450**	
K.3.1																
K.3.2																
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1								60				80				
S.1.2								60				70				
S.2.1								60				35				
S.2.2								60				25				
S.2.3								60				30				
S.3.1								60				80				
S.3.2								60				50				
S.3.3								60				40				
H.1.1																
H.1.2															150	
H.1.3																
H.1.4																
H.2.1															280	
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

Index	CTCK215		CTPK220		CTPK221		CTPX715		H216T		CTWN215		CTC5240		CTCS245		CTP6215	
	DRAGONSKIN		DRAGONSKIN				DRAGONSKIN						DRAGONSKIN					
	Cutting Material **hard** (v_c↑) → **tough** (v_c↓)																	
	v_c (m/min)																	
P.1.1					190	120	240	130										
P.1.2					180	100	200	120										
P.1.3					150	80	170	100										
P.1.4					180	100	160	100										
P.1.5					170	90	140	90										
P.2.1					180	100	210	120										
P.2.2					140	80	150	100										
P.2.3					180	100	140	90										
P.2.4					130	80	100	70										
P.3.1					210	120	120	90										
P.3.2					160	90	100	80										
P.3.3					130	80	90	70										
P.4.1					210	120	120	90										
P.4.2					190	100	110	90										
M.1.1							120	100										
M.2.1							110	90										
M.3.1							120	100										
K.1.1	360	210	320	190	270	200	**320**	190	130	130	130	130					280	250
K.1.2	220	130	170	100	270	200	**170**	100	110	110	110	110					190	160
K.2.1	230	140	210	130	250	180	**210**	130	130	130	130	130					180	150
K.2.2	160	100	140	90	180	120	**140**	90	120	120	120	120					180	150
K.3.1	250	150	200	120	220	170	**200**	120	130	130	130	130					250	220
K.3.2	210	130	170	100	220	170	**170**	100	110	120	110	110					190	160
N.1.1								**1500**		**1500**		**1500**						
N.1.2								**1000**		**1000**		**1000**						
N.2.1								**1100**		**1100**		**1100**						
N.2.2								**1000**		**1000**		**1000**						
N.2.3								**280**		**280**		**280**						
N.3.1								**350**		**350**		**350**						
N.3.2								**350**		**350**		**350**						
N.3.3								**320**		**320**		**320**						
N.4.1								**320**		**320**		**320**						
S.1.1								60						**80**		**64**		
S.1.2								50						**70**		**56**		
S.2.1								30						**35**		**28**		
S.2.2								20						**25**		**20**		
S.2.3								20						**30**		**24**		
S.3.1								60						**80**		**64**		
S.3.2								40						**50**		**40**		
S.3.3								30						**40**		**32**		
H.1.1																	**50**	
H.1.2																	**40**	
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1							160	160	160	160	160	160						
O.1.2																		
O.2.1							240	240	240	240	240	240						
O.2.2																		
O.3.1																		

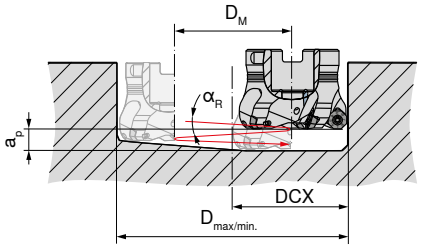
The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

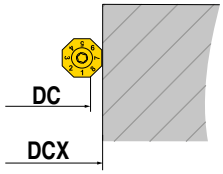
System MaxiMill 274-04/-09

Machining strategy

Helical plunging

$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface
D_M = D_{max} – DCX and D_{min} – DCX





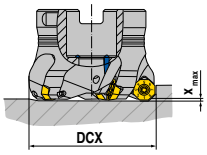
OF..04

DC mm	DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
20	**25,5**	45	39	2,3
25	**30,6**	55	49	1,9
32	**37,6**	69	63	1,4
40	**45,7**	85	79	1,2
50	**55,7**	105	99	0,9
63	**68,7**	131	125	0,7
80	**85,7**	165	159	0,6
100	**105,7**	205	199	0,5
125	**130,7**	255	249	0,4

SF..09

DC mm	DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
18,8	**27,4**	45,00	42,0	1,9
23,8	**32,5**	55,00	52,0	1,5
30,7	**39,5**	69,00	66,0	1,1
38,7	**47,6**	85,00	82,0	0,9
48,6	**57,6**	105,00	102,0	0,7
61,7	**70,6**	131,00	128,0	0,5
78,7	**87,5**	165,00	162,0	0,4
98,7	**107,5**	205,00	202,0	0,3
123,7	**132,5**	255,00	252,0	0,3

Axial ramping



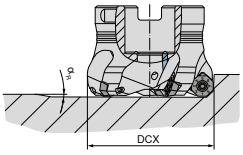
OF..04

DC mm	DCX mm	x_{max} mm
20	**25,6**	2,5
25	**30,7**	2,5
32	**37,7**	2,5
40	**45,7**	2,5
50	**55,7**	2,5
63	**68,7**	2,5
80	**85,7**	2,5
100	**105,7**	2,5
125	**130,7**	2,5

SF..09

DC mm	DCX mm	x_{max} mm
18,8	**27,4**	3,7
23,8	**32,5**	3,5
30,7	**39,5**	3,2
38,7	**47,6**	3,1
48,6	**57,6**	3,1
61,7	**70,6**	3,0
78,7	**87,5**	2,9
98,7	**107,5**	2,7
123,7	**132,5**	2,7

Angled ramping



OF..04

DC mm	DCX mm	$\alpha_{R\,max}$ °
20	**25,6**	14,2
25	**30,7**	9,5
32	**37,7**	6,5
40	**45,7**	4,7
50	**55,7**	3,5
63	**68,7**	2,7
80	**85,7**	2,0
100	**105,7**	1,6
125	**130,7**	1,2

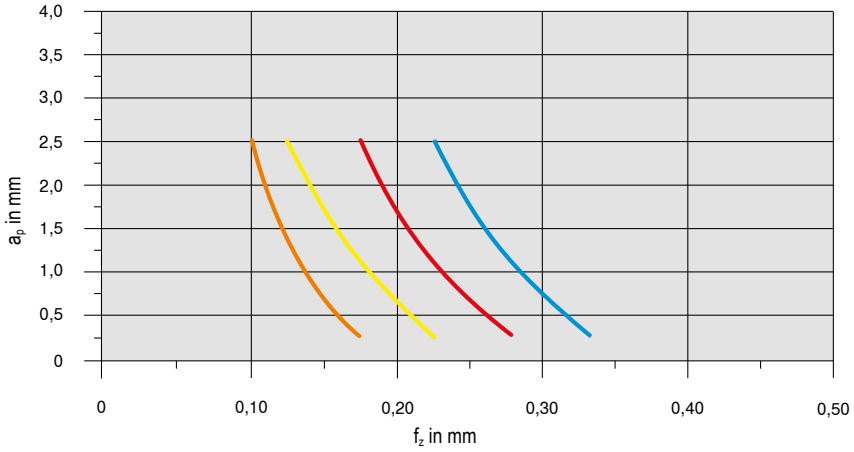
SF..09

DC mm	DCX mm	$\alpha_{R\,max}$ °
18,8	**27,4**	20,4
23,8	**32,5**	13,0
30,7	**39,5**	8,0
38,7	**47,6**	5,8
48,6	**57,6**	4,3
61,7	**70,6**	3,2
78,7	**87,5**	2,3
98,7	**107,5**	1,7
123,7	**132,5**	1,3

System MaxiMill 274-04

Starting Parameter

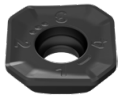
OF.. 04



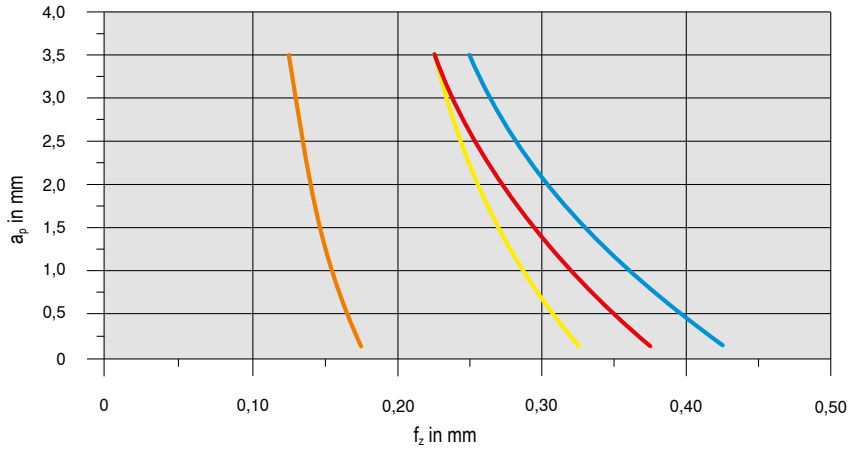
Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**OFHT040305SN-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**OFHT040305SN-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**OFHT040305SN-M50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**OFHT040305SN-F50**	**CTC5240**	35	Emulsion

System MaxiMill 274-09

Starting Parameter



SF.. 09



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**SFKT0903AFSR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SFHT0903AFSR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SFKT0903AFSR-R50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**SFHT0903AFSR-F50**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 146–148

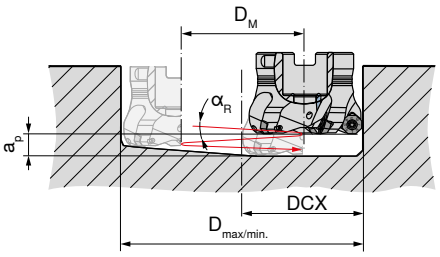
From v_c > 400 m/min, the tool must be balanced!

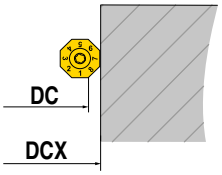
System MaxiMill 274-05/-12

Machining strategy

Helical plunging

$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface
D_M = D_{max} – DCX and D_{min} – DCX





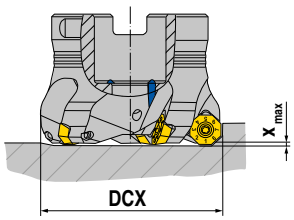
OF..05

DC mm	DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
40	**48**	87	85	1,6
50	**58**	107	99	1,1
63	**71**	133	125	0,9
80	**88**	167	159	0,7
100	**107,9**	207	199	0,5
125	**132,9**	257	249	0,4
160	**167,9**	327	325	0,35

SF..12

DC mm	DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
47,0	**61,0**	107	105	0,5
59,9	**74,0**	133	131	0,4
76,9	**90,9**	167	165	0,3
96,9	**110,9**	207	205	0,25
121,9	**135,9**	257	255	0,2

Axial ramping



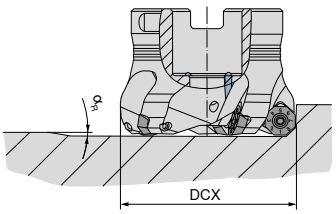
OF..05

DC mm	DCX mm	X_{max} mm
40	**48**	2,5
50	**58**	2,2
63	**71**	1,9
80	**88**	1,8
100	**107,9**	1,1
125	**132,9**	1,4
160	**167,9**	1,1

SF..12

DC mm	DCX mm	X_{max} mm
47,0	**61,0**	3,4
59,9	**74,0**	3,2
76,9	**90,9**	3,0
96,9	**110,9**	2,5
121,9	**135,9**	2,6

Angled ramping



OF..05

DC mm	DCX mm	$\alpha_{R\,max}$ °
40	**48**	6,5
50	**58**	3,2
63	**71**	2,0
80	**88**	1,5
100	**107,9**	0,7
125	**132,9**	0,7
160	**167,9**	0,4

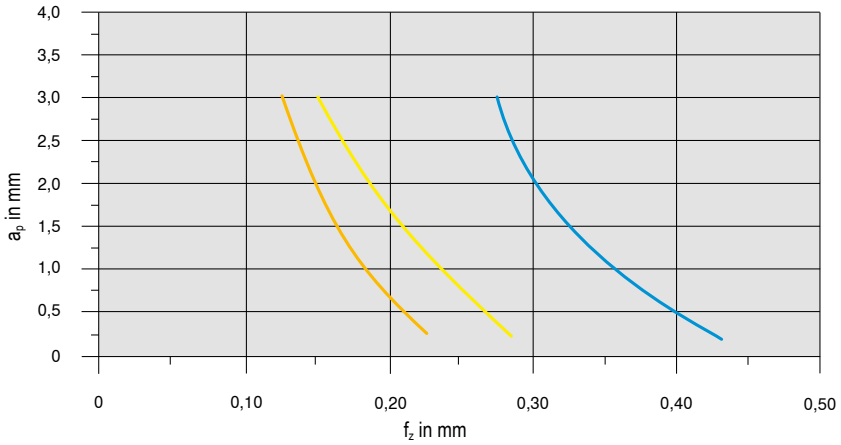
SF..12

DC mm	DCX mm	$\alpha_{R\,max}$ °
47,0	**61,0**	4,9
59,9	**74,0**	3,4
76,9	**90,9**	2,4
96,9	**110,9**	1,6
121,9	**135,9**	1,3

System MaxiMill 274-05

Starting Parameter

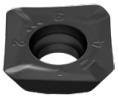
OF.. 05



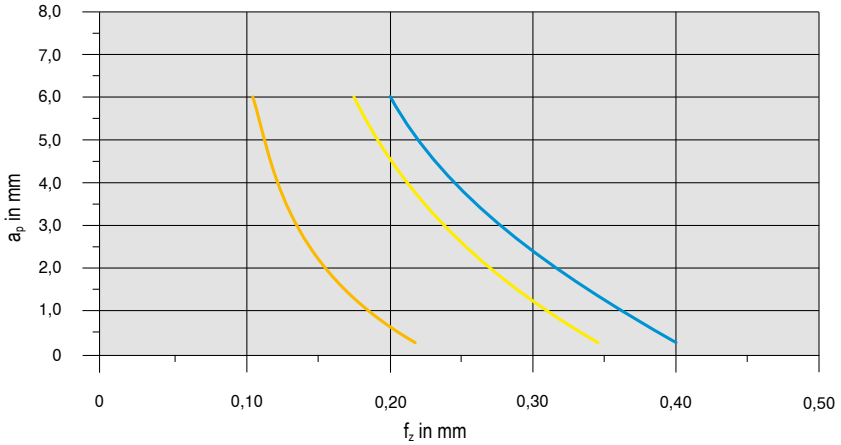
Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**OFHT050410SN-M50**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**OFHT050410SN-F50**	**CTPM240**	180	Dry
Heat-resistant	**S.2.2**	Inconel 718	**OFHT050410SN-F50**	**CTC5240**	35	Emulsion

System MaxiMill 274-12

Starting Parameter



SF.. 12



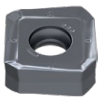
Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**SFKT1204AFSR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SFKT1204AFSR-M50**	**CTPM240**	180	Dry
Heat-resistant	**S.2.2**	Inconel 718	**SFHT1204AFER-F40**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 146–148

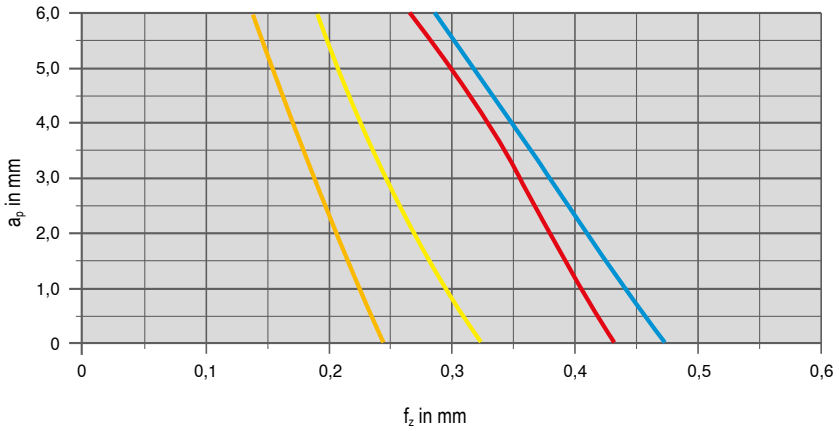
From v_c > 400 m/min, the tool must be balanced!

MaxiMill 271-12 system

Starting Parameter



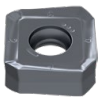
SOHU 12



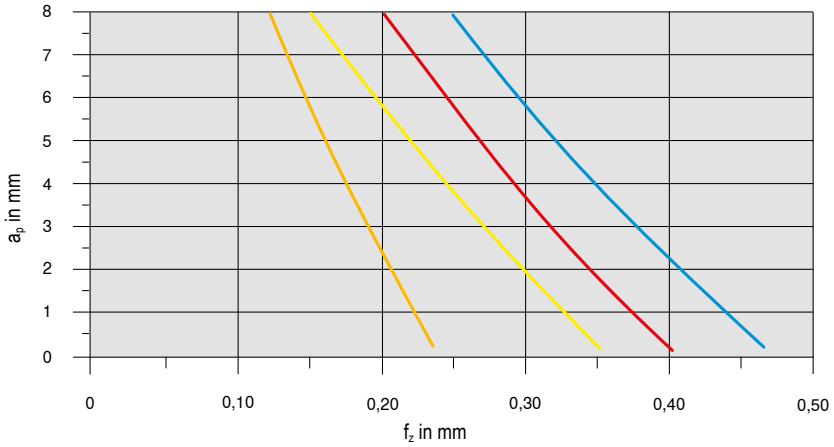
Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**SOHU 1204ABSR-M50**	**CTPP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SOHU 1204ABSR-M50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SOHU 1204ABSR-R50**	**CTCK215**	300	Dry
Heat-resistant	**S.2.2**	Inconel 718	**SOHU 1204ABSR-F50**	**CTC5240**	30	Emulsion

System MaxiMill 271-17

Starting Parameter



SAKU 17



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**SAKU 1706ABSR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SAKU 1706ABSR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SAKU 1706ABSR-R50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**SAKU 1706ABSR-F50**	**CTC5240**	35	Emulsion

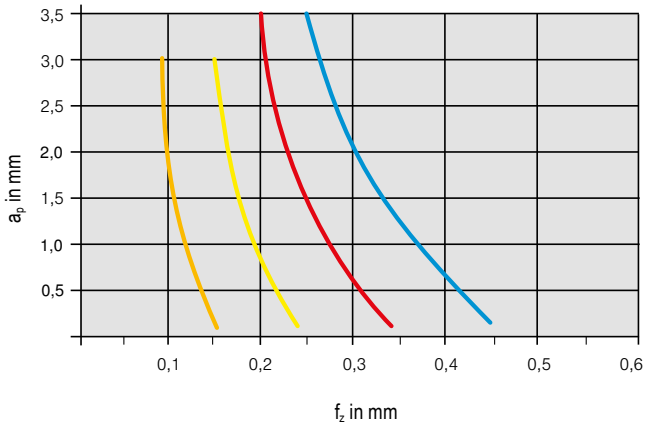
Detailed information on cutting speed for each grade can be found on → page 146–148

From v_c > 400 m/min, the tool must be balanced!

MaxiMill 273-06 system

Starting Parameter

OAKU 06



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**OAKU 060508SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**OAKU 060508SR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**OAKU 060508SR-R50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**OAKU 060508ER-F40**	**CTC5240**	35	Emulsion

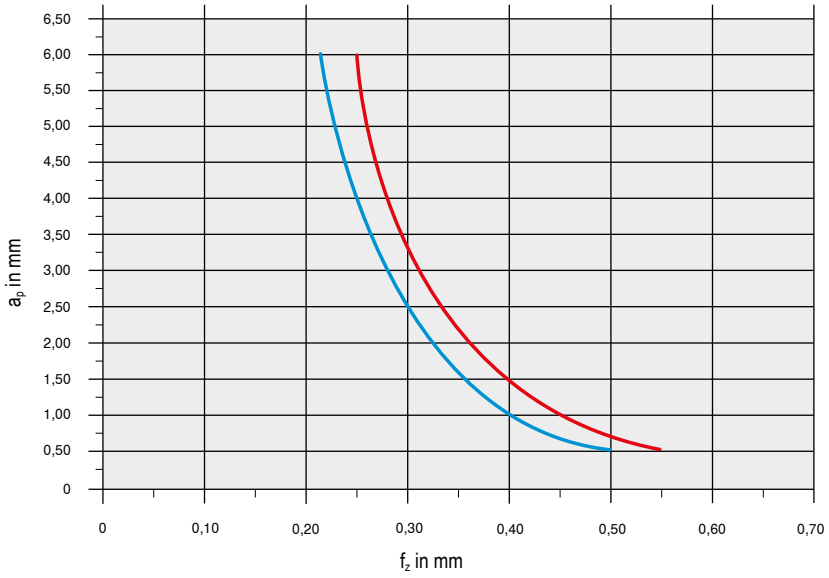
Detailed information on cutting speed for each grade can be found on → page 146–148

From v_c > 400 m/min, the tool must be balanced!

MaxiMill 273-08 system

Starting Parameter

ONKU 08



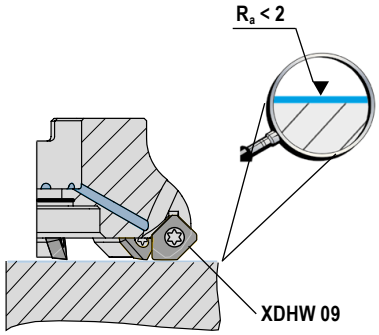
Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**ONKU 080608SR-M50**	**CTPP235**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**ONKU 080608SR-R50**	**CTCK215**	250	Dry

Detailed information on cutting speed for each grade can be found on → page 146–148

From v_c > 400 m/min, the tool must be balanced!

MaxiMill 270 system

Machining strategy

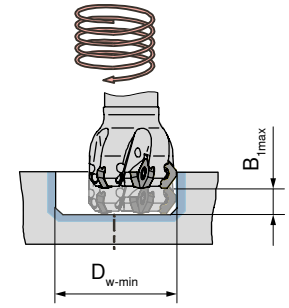


Finish milling with trailing edge inserts

Two Masterfinish inserts are mounted in each 125mm head

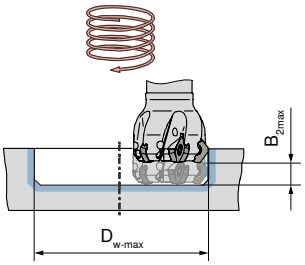
Steel	SDNT	0903AESN-29	CTPP235	+	XDHW	0903AESN CTPP235
	SDNT	0903AESN-29	CTCP230	+	XDHW	0903AESN CTCP230
	SDHT	0903AESN-33	CTCP230	+	XDHW	0903AESN CTCP230
	SDHW	0903AESN	TCM10	+	XDHW	0903AESN TCM10
Cast iron	SDNT	0903AESN-31	CTCK215	+	XDHW	0903AEEN CTCK215
Non-ferrous metals	SDHT	0903AEFN-ALP	-27P H216T	+	XDHW	0903AEFN -27P H216T

Helical plunging (without pilot hole)



C 270-09

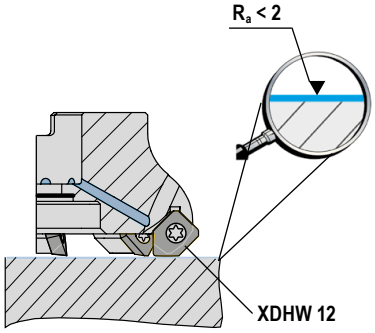
DC mm	D_{w-min} mm	$B_{1\,max}$ mm	D_{w-max} mm	$B_{2\,max}$ mm
6	14,4	1,5	19,0	1,5
12	28,5	1,5	31,0	1,5
16	36,5	1,5	39,0	1,5
20	44,5	1,5	47,0	1,5
25	54,5	1,5	57,0	1,5
32	68,5	1,5	71,0	1,5



A 270-09

DC mm	D_{w-min} mm	$B_{1\,max}$ mm	D_{w-max} mm	$B_{2\,max}$ mm
32	68,5	1,5	71,0	1,5
40	84,5	1,5	87,0	1,5
50	104,5	1,5	107,0	1,5
63	130,5	1,5	133,0	1,5
80	164,5	1,5	167,0	1,5
100	204,5	1,5	207,0	1,5
125	254,5	1,5	257,0	1,5
160	324,5	1,5	327,0	1,5

System MaxiMill 270-12

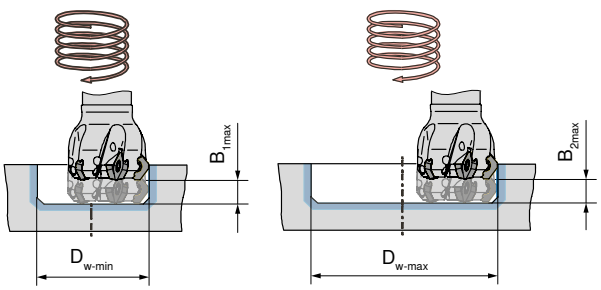


Finish milling with trailing edge inserts

Two Masterfinish inserts are mounted in each 125mm head

Steel	SDMT	1204AESN-29R	CTPP235	+	XDHW	1204AESN CTPP235
	SDMT	1204AESN-29R	CTCP230	+	XDHW	1204AESN CTCP230
	SDHW	1204AESN-R	TCM10	+	XDHW	1204AESN TCM10
Cast iron	SDMT	1204AEEN-31	CTCK215	+	XDHW	1204AEEN CTCK215
	SDHW	1204AESN-R	CTCK215	+	XDHW	1204AEEN CTCK215
Non-ferrous metals	SDHT	1204AEFN-ALP	-27P H216T	+	XDHW	1204AEFN -27P H216T

Helical plunging (without pilot hole)

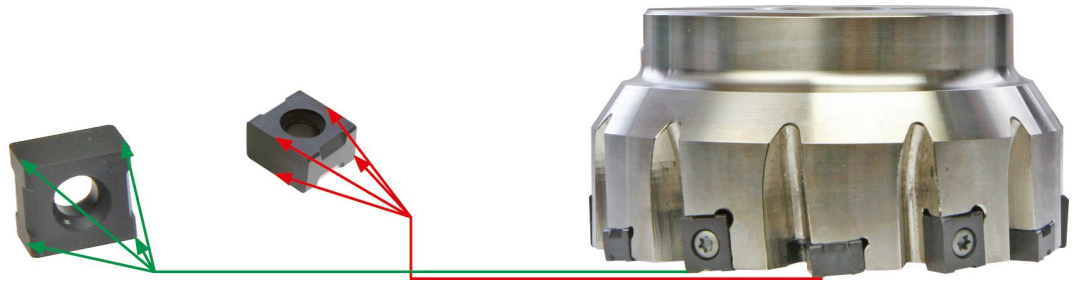


DC mm	D_{w-min} mm	$B_{1\,max}$ mm	D_{w-max} mm	$B_{2\,max}$ mm
32	74,5	1,5	78,0	1,5
40	90,5	1,5	94,0	1,5
50	110,5	1,5	114,0	1,5
63	136,5	1,5	140,0	1,5
80	170,5	1,5	174,0	1,5
100	210,5	1,5	214,0	1,5
125	260,5	1,5	264,0	1,5
160	330,5	1,5	334,0	1,5

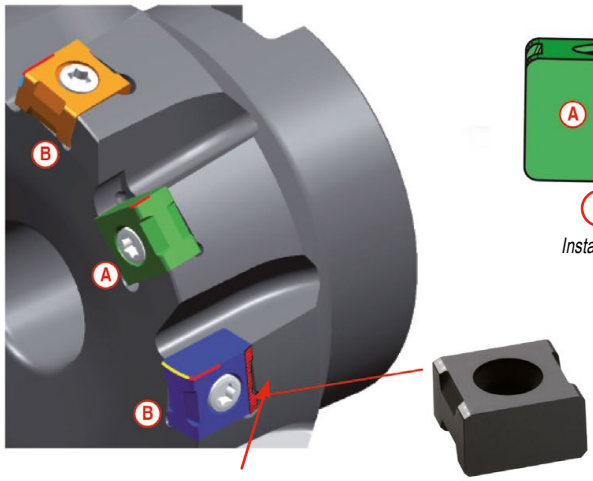
From v_c > 400 m/min, the tool must be balanced!

MaxiMill HEC 11 / HEC 12 system

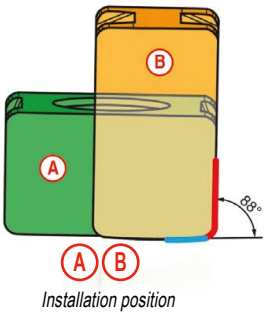
4 cutting edges per installation position



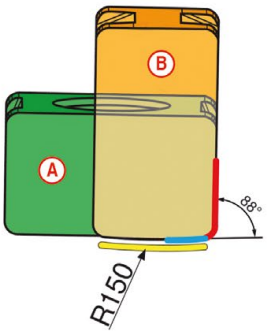
Correct assembly of standard and trailing edge inserts



Marking for the correct assembly



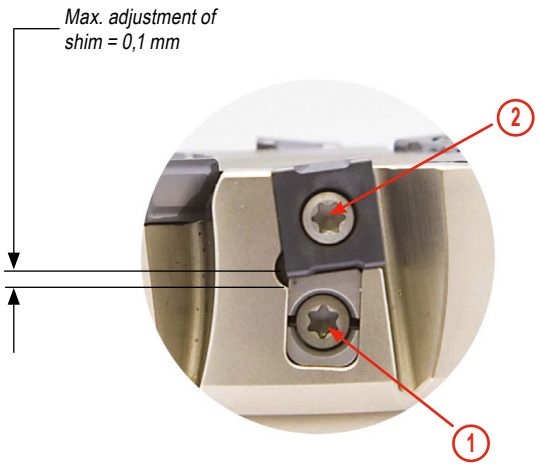
Installation position



Face machining insert — B
Insert main cutting edge — A B
Trailing edge facet — B

Adjust the tools in axial direction

- ▲ Install the wedge into the cutter body and lightly clamp the clamping screw so as not to clamp. — 1
- ▲ Install the inserts as shown and tighten to 1,0 Nm torque. — 2
- ▲ Using pre-setting equipment, mark the highest cutting edge. — 1
- ▲ With small adjustments of the setting screw set all cutting edges to the same height by 0,005 mm or better. — 1
- ▲ Clamp insert with 3,2 Nm torque. — 2



Average chip thickness [h_m] – the approach

Face milling

1 Select appropriate average chip thickness [h_m] for the steel from the table.

Material	Tensile strength N/mm²	h_m mm
for steel	...–800	0,2
for steel	800–1000	0,18
for steel	1000–1200	0,16
for steel	1200–...	0,14
for stainless steel	... –750	0,21
for stainless steel	750–900	0,19
for stainless steel	900–1150	0,17
for stainless steel	1150– ...	0,15

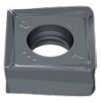
2 Select the corrected feed rate value from the table based on the appropriate chip thickness [h_m] and depth of cut [a_e].

h_m mm	Corrected feed value f_z for h_m			
0,20	0,40 **	0,40 **	0,33	0,28
0,18	0,40 **	0,40 **	0,29	0,25
0,16	0,40 **	0,36	0,26	0,23
0,14	0,36	0,31	0,23	0,20
0,21	0,40 **	0,40 **	0,34	0,30
0,19	0,40 **	0,40 **	0,31	0,27
0,17	0,40 **	0,38	0,28	0,24
0,15	0,39	0,34	0,24	0,21
a_e =	**0,3 x DC**	**0,4 x DC**	**0,75 x DC**	**1 x DC**

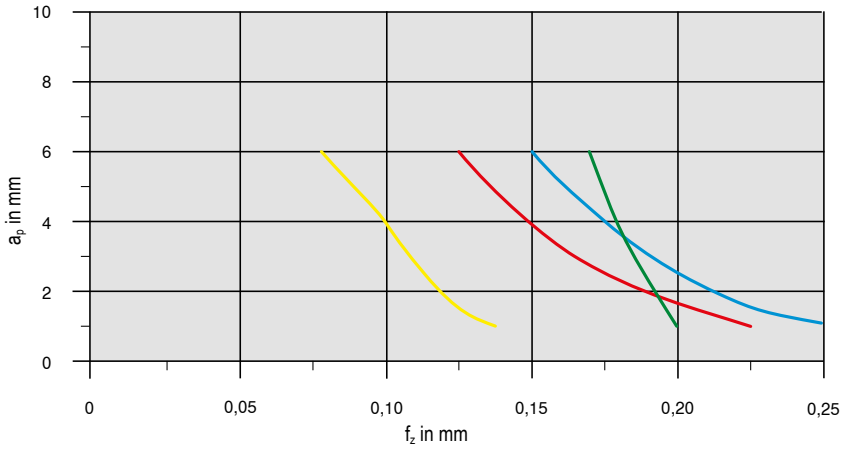
** f_z > 0,4 mm: Danger of an open space contact

MaxiMill 491-09 system

Starting Parameter



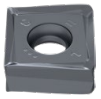
SNHU 09



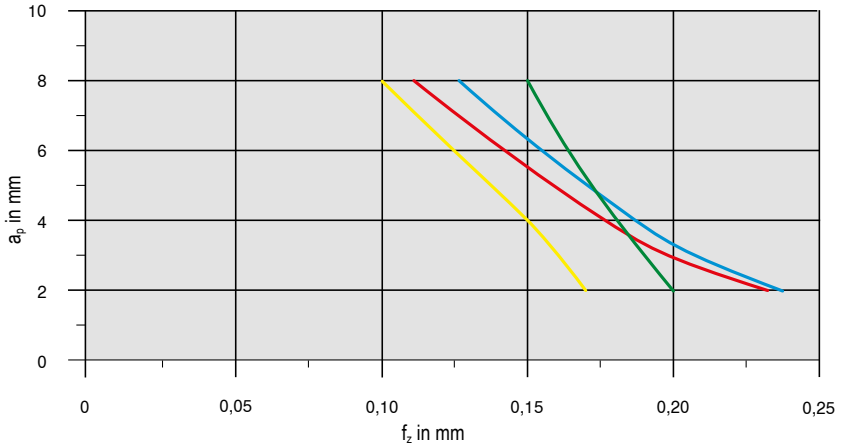
Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**SNHU09T308SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SNHU09T308SR-F50**	**CTPM240**	180	Emulsion
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SNHU09T308SR-R50**	**CTCK215**	250	Dry
Non-ferrous metals	**N.1.2**	AlMgSi1	**SNHU09T308FR-F10**	**CTWN215**	500	Emulsion

MaxiMill 491-12 system

Starting Parameter



SNHU 12



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**SNHU120408SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SNHU120408SR-F50**	**CTPM240**	180	Emulsion
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SNHU120408SR-R50**	**CTCK215**	250	Dry
Non-ferrous metals	**N.1.2**	AlMgSi1	**SNHU120408FR-F10**	**CTC5240**	500	Emulsion

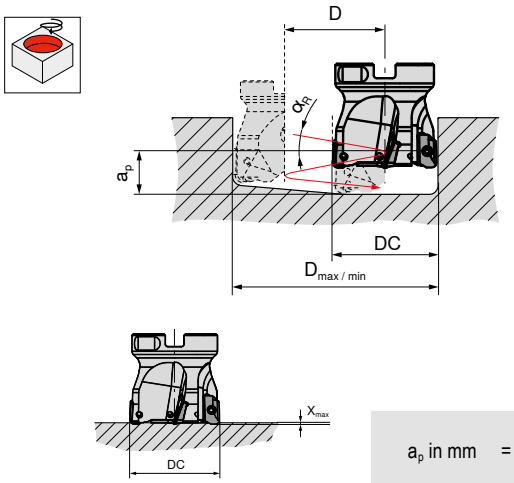
Detailed information on cutting speed for each grade can be found on → page 146–148

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 211-07

Machining strategy

Helical plunging

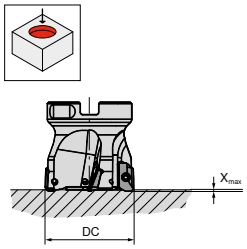


a_p in mm = $D * \pi * \tan \alpha_R$

DC mm	D_{max} / RE 0,4 mm	D_{min} mm	$\alpha_{R\,max}$ °
10	19	13	5,5
12	23	17	6,0
16	31	25	3,0
20	39	33	2,0
25	49	43	1,5
32	63	57	1,2
40	79	73	0,8
50	99	93	0,7

DC mm	D mm	$\alpha_{R\,max\,360°}$ °
10	13	5,5
12	17	6,0
16	25	3,0
20	33	2,0
25	43	1,5
32	57	1,2
40	73	0,8
50	93	0,7

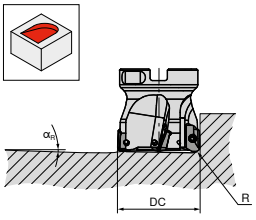
Axial ramping



DC mm	X_{max} mm
10	0,8
12	0,8
16	0,8
20	0,8
25	0,8
32	0,8
40	0,8
50	0,8

$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface

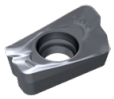
Angled ramping



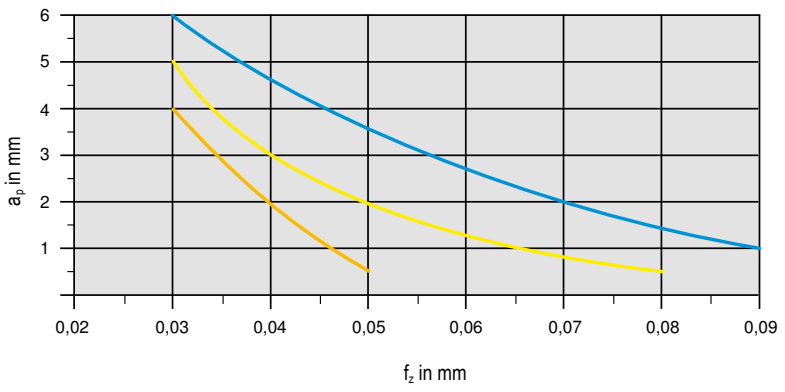
DC mm	α °
10	11,0
12	7,9
16	4,3
20	3,0
25	2,5
32	1,6
40	1,2
50	1,0

$D = D_{max} - DC / D_{min} - DC$

Starting Parameter



XDKT 07



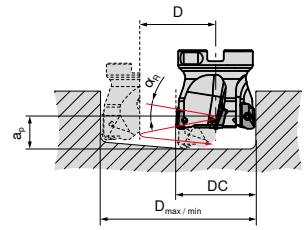
Material			Inserts		v_c in m/min	Cooling
Steel	P.2.2	40CrMnMoS 8-6	XDKT070308SR-M50	CTCP230	200	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	XDKT070308SR-F50	CTPM240	180	Dry
Heat-resistant	S.2.2	Inconel 718	XDKT070308ER-F50	CTC5240	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 146–148

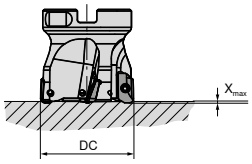
From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 211-11

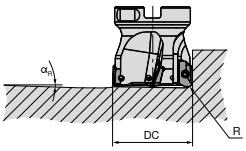
Machining strategy



1 Helical plunging



2 Axial ramping



3 Angled ramping

DC mm	1 Helical plunging RE = 0,8 mm		2 Axial ramping X_{max}	3 Angled ramping α_R
12	α_R	16 °	1,3 mm	18 °
	$D_{max.}$	21 mm		
	$D_{min.}$	14 mm		
16	α_R	9,5 °	1,5 mm	10,8 °
	$D_{max.}$	29 mm		
	$D_{min.}$	21 mm		
20	α_R	7 °	2,0 mm	9,8 °
	$D_{max.}$	37 mm		
	$D_{min.}$	30 mm		
25	α_R	4,5 °	2,0 mm	7,5 °
	$D_{max.}$	47 mm		
	$D_{min.}$	40 mm		
32	α_R	3,2 °	1,0 mm	4,8 °
	$D_{max.}$	61 mm		
	$D_{min.}$	53 mm		
40	α_R	2,2 °	1,6 mm	2,9 °
	$D_{max.}$	77 mm		
	$D_{min.}$	72 mm		
50	α_R	1,7 °	1,6 mm	2,2 °
	$D_{max.}$	98 mm		
	$D_{min.}$	93 mm		
63	α_R	1,5 °	1,6 mm	1,8 °
	$D_{max.}$	123 mm		
	$D_{min.}$	116 mm		
80	α_R	1,0 °	1,6 mm	1,4 °
	$D_{max.}$	157 mm		
	$D_{min.}$	153 mm		
100	α_R	0,8 °	1,6 mm	1,1 °
	$D_{max.}$	197 mm		
	$D_{min.}$	193 mm		
125	α_R	0,6 °	1,6 mm	0,8 °
	$D_{max.}$	247 mm		
	$D_{min.}$	243 mm		

DC mm	Maximum speed related to projection length n_{max} in min^{-1} l_a = 1–2 x Ø mm	l_a = 2,5 x Ø mm	l_a = 3 x Ø mm	l_a = 4 x Ø mm	l_a = 5 x Ø mm
12	55000	51500	47000	42000	37000
16	42000	38500	34100	28900	24200
20	36900	33000	28500	23900	19500
25	33200	29000	24400	19900	15400
32	30200	26000	20900	16600	11900
40	27700	23000	18000	13500	9000
50	25400	20400	15400	10800	6100
63	23300	18300	12900	8300	3700
80	21300	16100	10600	5800	
100	19600	14100	8400		
125	17900	12800	7600		

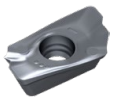
$D_{max.}$ in mm = largest diameter for flat bottom hole

$D_{min.}$ in mm = Smallest diameter for flat bottom surface

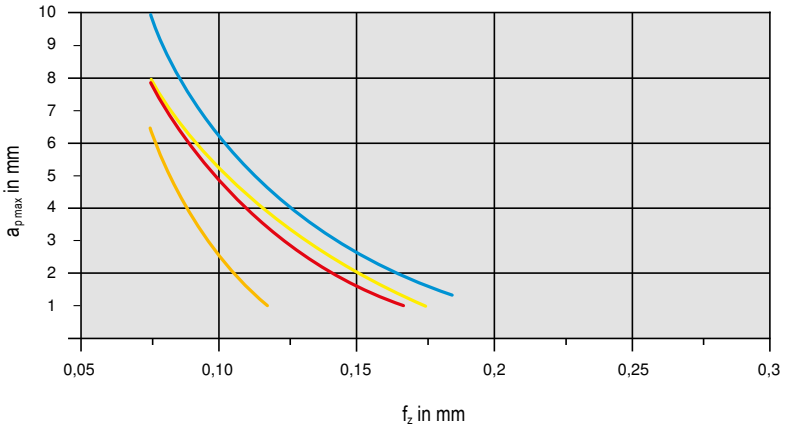
a_p in mm = D x π x tan (α_R) = Pitch

l_s in mm = Overhang length

Starting Parameter



XDKT 11



Material			Inserts		v_c in m/min	Cooling
Steel	P.2.2	40CrMnMoS 8-6	XDKT11T308SR-M50	CTCP230	200	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	XDKT11T308SR-F50	CTPM240	180	Dry
Cast iron	K.1.1	EN-GJL-250 (GG25)	XDKT11T308SR-R50	CTCK215	250	Dry
Heat-resistant	S.2.2	Inconel 718	XDKT11T308ER-F50	CTC5240	35	Emulsion

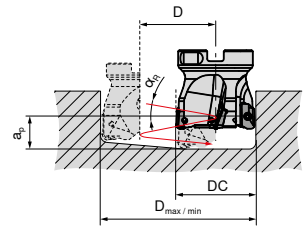
Detailed information on cutting speed for each grade can be found on → page 146–148

From v_c > 400 m/min, the tool must be balanced!

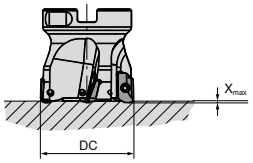
15

System MaxiMill 211-15

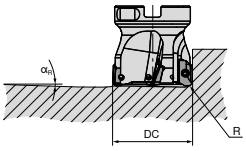
Machining strategy



1 Helical plunging



2 Axial ramping



3 Angled ramping

DC mm		1 Helical plunging RE = 0,8 mm	2 Axial ramping X_{max}	3 Angled ramping α_R
25	α_R	7,5 °	2,7 mm	9,5 °
	$D_{max.}$	48 mm		
	$D_{min.}$	37 mm		
32	α_R	5 °	2,5 mm	6,8 °
	$D_{max.}$	62 mm		
	$D_{min.}$	47 mm		
40	α_R	3,2 °	2,5 mm	5,1 °
	$D_{max.}$	78 mm		
	$D_{min.}$	63 mm		
50	α_R	2,5 °	2,5 mm	2,5 °
	$D_{max.}$	98 mm		
	$D_{min.}$	86 mm		
63	α_R	1,5 °	2,5 mm	2,5 °
	$D_{max.}$	124 mm		
	$D_{min.}$	111 mm		
80	α_R	1,3 °	2,5 mm	2,0 °
	$D_{max.}$	158 mm		
	$D_{min.}$	147 mm		
100	α_R	1,1 °	2,5 mm	1,5 °
	$D_{max.}$	198 mm		
	$D_{min.}$	190 mm		
125	α_R	0,9 °	2,5 mm	0,9 °
	$D_{max.}$	248 mm		
	$D_{min.}$	240 mm		
160	α_R	0,6 °	2,5 mm	0,7 °
	$D_{max.}$	318 mm		
	$D_{min.}$	310 mm		

Maximum speed related to projection length n_{max} in min^{-1}			
DC mm	l_a = 2 x Ø mm	l_a = 3 x Ø mm	l_a = 5 x Ø mm
25	26560	19520	13320
32	24160	16720	9520
40	22160	14400	7200
50	20320	12320	4880
63	18640	10320	2960
80	17040	8480	
100	15680	6720	
125	14320		
160	13200		

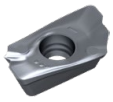
$D_{max.}$ in mm = largest diameter for flat bottom hole

$D_{min.}$ in mm = Smallest diameter for flat bottom surface

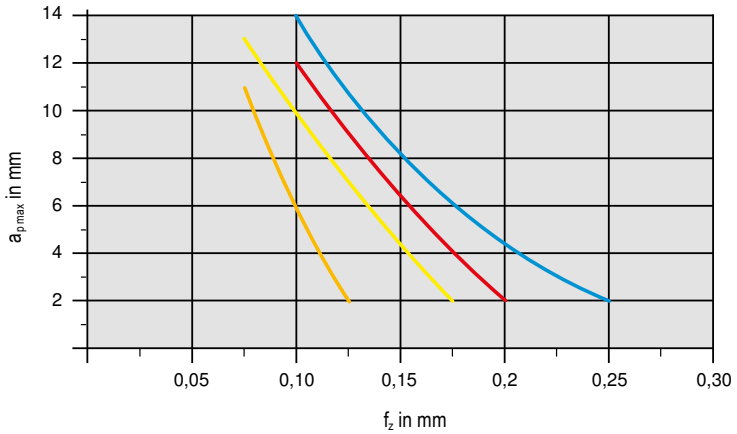
a_p in mm = D x π x tan (α_R) = Pitch

l_a in mm = Overhang length

Starting Parameter



XDKT 15



Material			Inserts		v_c in m/min	Cooling
Steel	P.2.2	40CrMnMoS 8-6	XDKT150508SR-M50	CTCP230	200	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	XDKT150508SR-F50	CTPM240	180	Dry
Cast iron	K.1.1	EN-GJL-250 (GG25)	XDKT150508SR-R50	CTCK215	250	Dry
Heat-resistant	S.2.2	Inconel 718	XDKT150508ER-F40	CTC5240	35	Emulsion

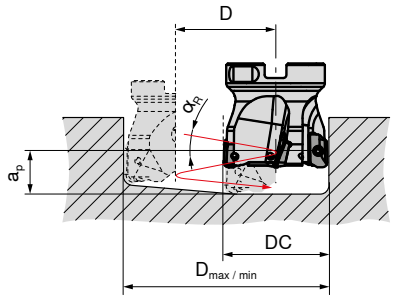
Detailed information on cutting speed for each grade can be found on → page 146–148

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 211-20

Machining strategy

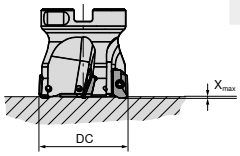
Helical plunging



DC mm	D_{max} / RE 0,4 mm	D_{min} mm	$\alpha_{R\,max}$ °
63	124	107	2,2
80	158	143	1,7
100	198	183	1,3

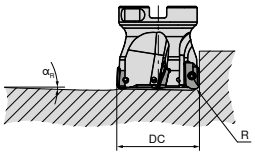
a_p in mm $= D * \pi * \tan \alpha_R$

Axial ramping



DC mm	X_{max} mm
63	2,0
80	2,0
100	2,0

Angled ramping

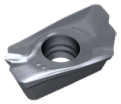


DC mm	α °
63	2,2
80	1,7
100	1,3

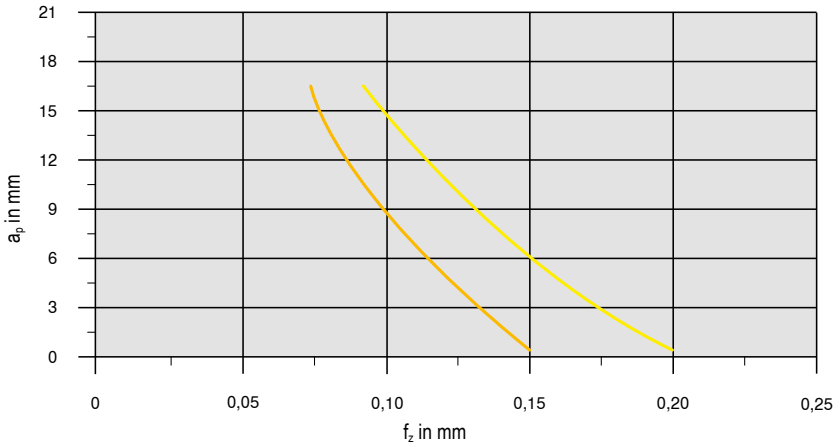
$D = D_{max} - DC / D_{min} - DC$

$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface

Starting Parameter



XDKT 20



Material			Inserts		v_c in m/min	Cooling
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XDKT200708ER-F40**	**CTPM240**	180	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XDKT200708ER-F40**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 146–148

From v_c > 400 m/min, the tool must be balanced!

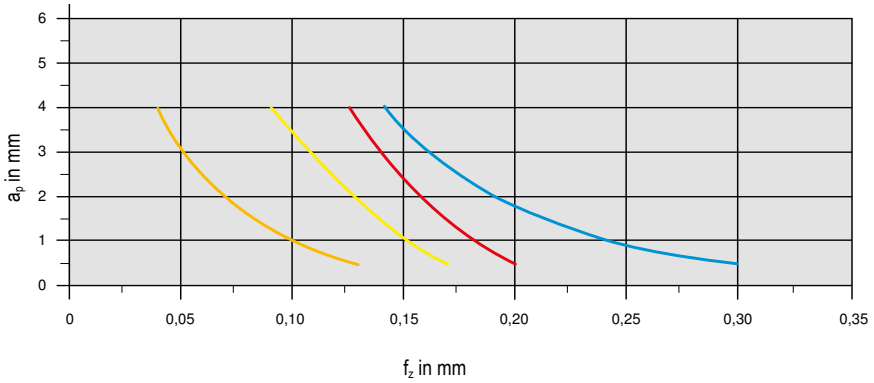
System MaxiMill 490-09

Machining strategy

System MaxiMill 490-09 is not suitable for plunging!

Starting Parameter

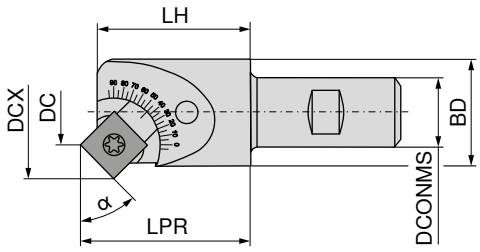
SDNT 09



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**SDNT09T308SR-29**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SDNT09T308SR-33**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SDNT09T308SR-31**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**SDNT09T308ER-M31**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 146–148

MaxiMill 490-09 adjustable angle milling cutter – dimensions



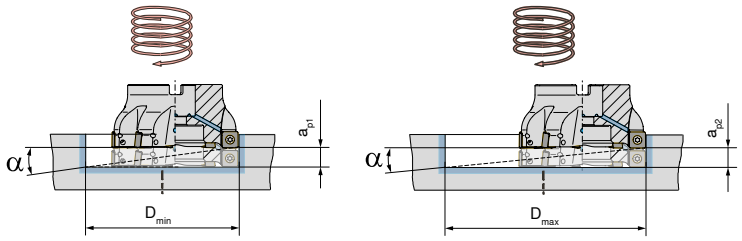
Constant dimensions			Angle-dependent dimensions*			
BD	DCONMS	LH	α	DC*	DCX	LPR*
18,6	16	32	**0°**	**9,35/1,60****	**20,14**	**33,07**
			5°	3,81	20,82	33,40
			10°	4,59	21,44	33,69
			15°	**5,42**	**21,98**	**33,95**
			20°	6,30	22,45	34,17
			25°	7,23	22,85	34,35
			30°	**8,18**	**23,16**	**34,49**
			35°	9,15	23,39	34,58
			40°	10,14	23,53	34,64
			45°	**11,13**	**23,59**	**34,65**
			50°	12,12	23,56	34,61
			55°	13,09	23,44	34,54
			60°	**14,04**	**23,24**	**34,42**
			65°	14,96	22,96	34,26
			70°	15,84	22,60	34,06
			75°	**16,68**	**22,16**	**33,83**
			80°	17,46	21,65	33,56
			85°	18,19	21,07	33,25
			90°	**10,07/1,90****	**20,44**	**32,93**

* Tangential cutting point at deepest engagement point
** Smallest diameter in centre

System MaxiMill 490-12

Machining strategy

Helical plunging (without pilot hole)



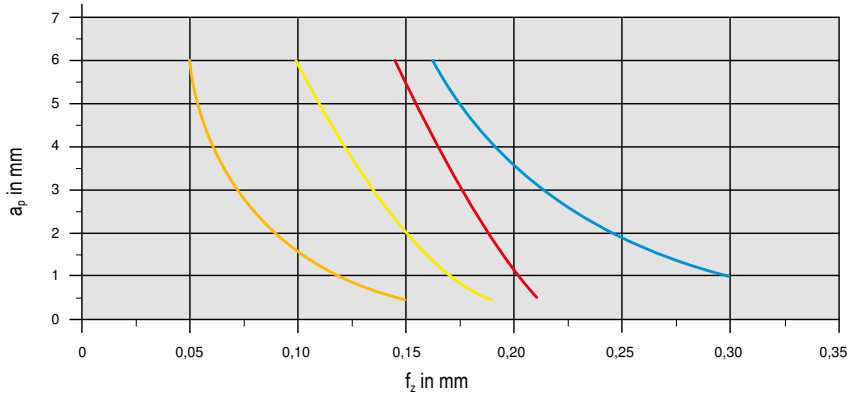
$$B = (D_W - DC) \times \pi \times \tan \alpha$$

D_w = Diameter of the hole to be produced
DC = Nominal diameter of the milling tool
B = Axial feed to 360° circular movement

DC mm	D_{min} mm	a_{p1} mm	D_{max} mm	a_{p2} mm	α °
50	77	2,5	98	4,8	2,0
63	103	1,8	124	3,0	1,0
80	137	2,1	158	3,0	0,8
100	177	2,1	198	2,9	0,6
125	227	1,8	248	2,4	0,4

Starting Parameter

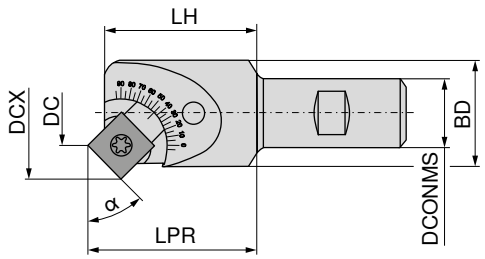
SDMT 12



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**SDMT1205ZZSN-29**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SDMT120512SR-33**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SDMT1205ZZSN-31**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**SDMT120508ER-M31**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 146–148

MaxiMill 490-12 adjustable angle milling cutter – dimensions



Constant dimensions			Angle-dependent dimensions*			
BD	DCONMS	LH	α	DC*	DCX	LPR*
25	20	37	**0°**	**25,07/1,12****	**26,64**	**38,36**
			5°	3,72	27,61	38,79
			10°	4,84	28,48	39,21
			15°	**6,03**	**29,25**	**39,58**
			20°	7,27	29,92	39,90
			25°	8,57	30,48	40,16
			30°	**9,91**	**30,92**	**40,37**
			35°	11,28	31,25	40,51
			40°	12,67	31,45	40,60
			45°	**14,08**	**31,54**	**40,62**
			50°	15,48	31,50	40,58
			55°	16,86	31,34	40,48
			60°	**18,23**	**31,06**	**40,33**
			65°	19,56	30,66	40,11
			70°	20,85	30,15	39,83
			75°	**22,08**	**29,52**	**39,51**
			80°	23,26	28,79	39,12
			85°	24,35	27,95	38,69
			90°	**25,37/1,42****	**26,94**	**38,21**

* Tangential cutting point at deepest engagement point
** Smallest diameter in centre

HSC/HPC machining

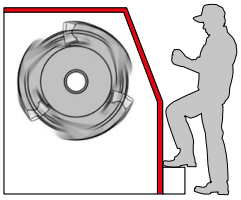
Safety advice

Suitability of the tool for HSC machining

HSC tools from CERATIZIT have been specially developed for this machining strategy and guarantee maximum operational reliability.

Observation of safety precautions of the machine manufacturer

Make sure that all safety precautions of the machine-manufacturer are observed (e.g.: closed machine guards).

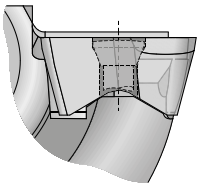


Suitability of the adapters for HSC machining

According to the milling situation, choose the optimum tool/clamping device combination. For high speed milling applications it is necessary to dynamically balance tool and tool adapter together (see ISO 1940 directives).

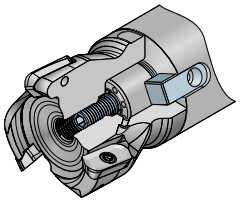
Mounting the indexable insert with centrifugal force protection

Insert clamping: EURO-patent EP 1083017A1
Make sure that the insert pocket is cleaned and the threading bore for the clamping screw is in good condition.
Check the axial and radial contact points of the insert in the pocket.
The clamping screws for positive insert clamping must be tightened with a torque of (XDHT11 = 1,8 Nm; XDH.19 = 6,0 Nm).



Optimum mounting of HSC milling cutters (DC = Ø 40–63) to milling arbors using power screw

The power screw guarantees a stable connection of tool and milling adapter and is easy to use.



Power Screw

Maximum admissible number of revolutions

Please note the maximum number of revolutions stated on the tool. This number is exclusively valid for the specific tool and must be adapted according to the selected tool adapter, total overhang length and the respective machining situation.

Optimum application range of the tool (a_e, a_p, f_z, n)

In order to guarantee productive milling, please observe the recommendations regarding the cutting parameters.

Failure to comply with these safety regulations automatically excludes CERATIZIT from any liability

System MaxiMill HSC-11

Cutting data standard values

Workpiece material		Treatment / alloy		VDI 3323 Group	Hardness HB	H216T (CTWN215) v_c in m/min (dry)	H216T (CTWN215) v_c in m/min (lubricated)
N	Aluminum alloys	non hardenable		21	60		660–9840
		hardenable		22	100		660–6560
	Cast aluminum alloy	non hardenable	< 12% Si	23	80		660–6560
		hardenable	< 12% Si	24	90		660–5900
		non hardenable	> 12% Si	25	130		660–3280
	Copper and copper alloys (Bronze, Brass)		Free-cutting steel alloy (1% Pb)	26			660–1970
			brass, red bronze	27	90	820–3280	820–3280
			bronze	28	100		490–1310
			lead-free copper and electrolytic copper	29	100		980–2620
O	Non metal materials		Duroplastics	29		260–3280	260–3280
			Fibre-reinforced plastics	29		230–1640	230–1640
			hard rubber	30		100–260	100–260

= full lubricant

= Minimum quantity lubrication

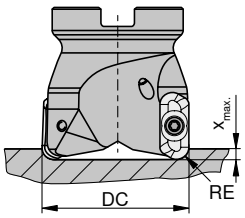
= dry machining

15

System MaxiMill HSC-11

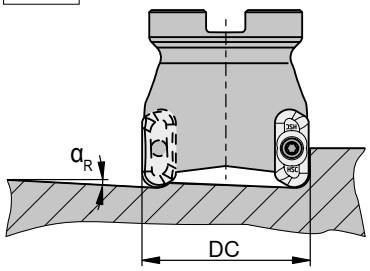
Machining strategy

Axial ramping



DC mm	11 RE 0,2–4,0 $x_{max.}$ mm
16	1,70
18	2,11
19	2,24
20	2,39
22	2,70
25	2,55
32	2,40
40	2,28
50	2,26
63	2,10
80	1,75
100	1,79

Angled ramping



DC mm	α_R °
16	18,8
18	16,3
19	15,3
20	14,8
22	13,8
25	10,3
32	6,8
40	4,8
50	3,5
63	2,5
80	1,8
100	1,3

Milling strategy for roughing and finishing

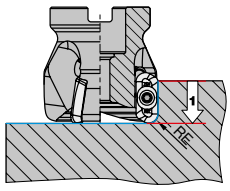
With maximum chip volume

Indexable Insert	RE mm	a_p mm	$a_{p\,max.}$ mm
XDHT 11T302FR-ALP	0,2	10	9,8
XDHT 11T304FR-ALP	0,4	10	9,6
XDHT 11T308FR-ALP	0,8	10	9,2
XDHT 11T312FR-ALP	1,2	10	8,8
XDHT 11T316FR-ALP	1,6	10	8,4
XDHT 11T320FR-ALP	2,0	10	8,0
XDHT 11T325FR-ALP	2,5	10	7,5
XDHT 11T332FR-ALP	3,2	10	6,8
XDHT 11T340FR-ALP	4,0	10	6,0
XDHT 11T350FR-ALP	5,0	10	5,0

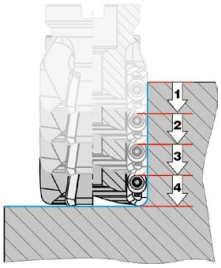
With maximum side wall quality

Indexable Insert	RE mm	$a_{p\,max.}$ mm
XDHT 11T302FR-ALP	0,2	7,8
XDHT 11T304FR-ALP	0,4	7,6
XDHT 11T308FR-ALP	0,8	7,2
XDHT 11T312FR-ALP	1,2	6,5
XDHT 11T316FR-ALP	1,6	6,8
XDHT 11T320FR-ALP	2,0	6,4
XDHT 11T325FR-ALP	2,5	5,5
XDHT 11T332FR-ALP	3,2	4,8
XDHT 11T340FR-ALP	4,0	4,0
XDHT 11T350FR-ALP	5,0	3,0

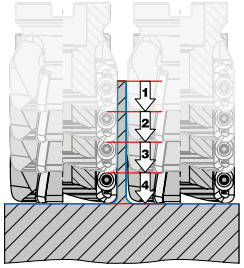
Shoulder milling



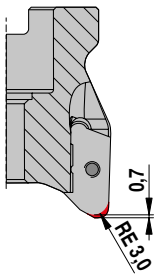
Pocket milling

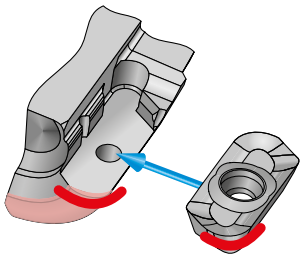


Pocket milling with thin walled components



Modification to front profile



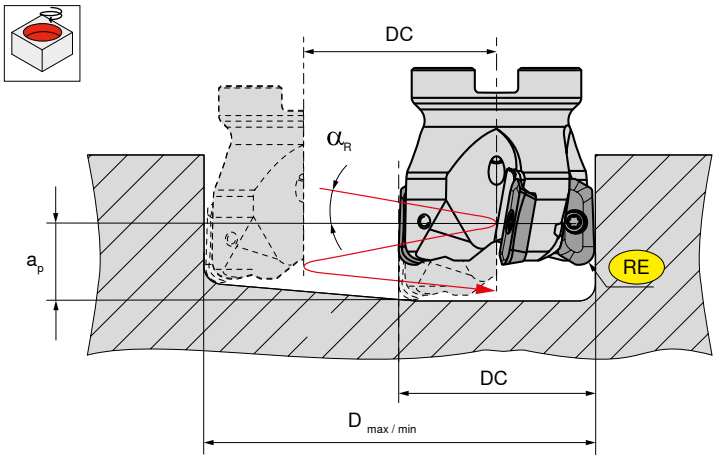


For inserts with a corner radius larger than 3.2 mm the basic body of the tool must be modified according to the drawing above.

System MaxiMill HSC-11

Machining strategy

Helical plunging



RE = Insert radius
α_R in mm = Maximum ramping angle (related to centre of tool)

a_p in mm = pitch → D x π x tan (α_R)

D in mm = → D_{max} – DC and/or D_{min} – DC

For flat bottom hole

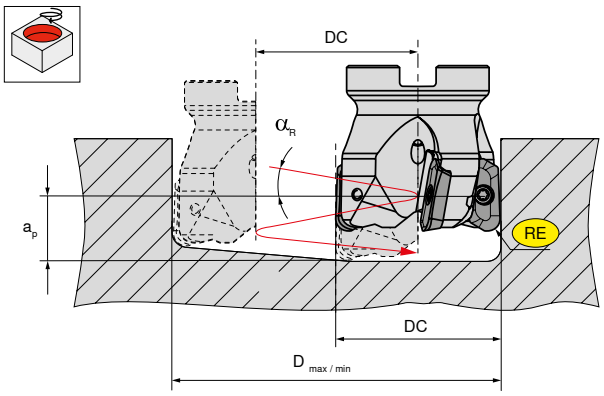
$D_{max.}$ in mm = largest drilling diameter
$D_{min.}$ in mm = smallest drilling diameter
$DN_{max.}$ in mm = Maximum hole diameter for non flat bottom

DC mm		XDHT-11 (HSC-11)								
(DN_{max})		RE = 0,2	RE = 0,4	RE = 0,8	RE = 1,2	RE = 1,6	RE = 2,0	RE = 2,5	RE = 3,2	RE = 4,0
16	α_R	9,7°	10,0°	9,9°	9,4°	8,9°	8,4°	7,9°	7,0°	6,1°
	$D_{max.}$	30	30	29	28	27	27	26	24	23
(31)	$D_{min.}$	18	18	18	18	18	18	18	18	18
18	α_R	9,4°	9,1°	8,7°	8,3°	7,9°	7,5°	6,9°	6,2°	5,3°
	$D_{max.}$	34	34	33	32	31	31	30	28	27
(35)	$D_{min.}$	22	22	22	22	22	22	22	22	22
19	α_R	8,8°	8,6°	8,3°	7,9°	7,5°	7,5°	6,5°	5,9°	5,1°
	$D_{max.}$	36	36	35	34	33	33	32	30	29
(37)	$D_{min.}$	24	24	24	24	24	24	24	24	24
20	α_R	8,4°	8,2°	7,8°	7,4°	7,7°	6,7°	6,2°	5,5°	4,8°
	$D_{max.}$	38	38	37	36	35	35	34	32	31
(39)	$D_{min.}$	26	26	26	26	26	26	26	26	26
22	α_R	7,6°	7,4°	7,8°	6,7°	6,4°	6,5°	5,6°	5,2°	4,3°
	$D_{max.}$	42	42	41	40	39	39	38	36	35
(43)	$D_{min.}$	30	30	30	30	30	30	30	30	30
25	α_R	6,7°	6,5°	6,2°	5,9°	5,6°	5,3°	4,9°	4,4°	3,8°
	$D_{max.}$	48	48	47	46	45	45	44	42	41
(49)	$D_{min.}$	36	36	36	36	36	36	36	36	36
32	α_R	4,7°	4,7°	4,8°	4,6°	4,3°	4,1°	3,8°	3,4°	2,9°
	$D_{max.}$	62	62	61	60	59	59	58	56	55
(63)	$D_{min.}$	50	50	50	50	50	50	50	50	50
40	α_R	3,3°	3,3°	3,4°	3,4°	3,5°	3,3°	3,0°	2,7°	2,3°
	$D_{max.}$	78	78	77	76	75	75	74	72	71
(79)	$D_{min.}$	66	66	66	66	66	66	66	66	66
50	α_R	2,4°	2,5°	2,5°	2,5°	2,6°	2,6°	2,4°	2,2°	1,9°
	$D_{max.}$	98	98	97	96	95	95	94	92	91
(99)	$D_{min.}$	86	86	86	86	86	86	86	86	86
63	α_R	1,7°	1,7°	1,7°	1,8°	1,8°	1,8°	1,8°	1,7°	1,5°
	$D_{max.}$	124	124	123	122	121	121	120	118	117
(125)	$D_{min.}$	112	112	112	112	112	112	112	112	112
80	α_R	1,1°	1,1°	1,1°	1,1°	1,1°	1,1°	1,1°	1,2°	1,2°
	$D_{max.}$	158	158	157	156	155	155	154	152	151
(159)	$D_{min.}$	146	146	146	146	146	146	146	146	146
100	α_R	0,8°	0,8°	0,9°	0,9°	0,9°	0,9°	0,9°	0,9°	0,9°
	D_{max}	198	198	197	196	195	195	194	192	191
(199)	$D_{min.}$	186	186	186	186	186	186	186	186	186

System MaxiMill HSC/HPC-19

Machining strategy

Helical plunging



RE = Insert radius
α_R in mm = Maximum ramping angle (related to centre of tool)

a_p in mm = pitch → D x π x tan (α_R)

D in mm = → D_{max} – DC and/or D_{min} – DC

For flat bottom hole

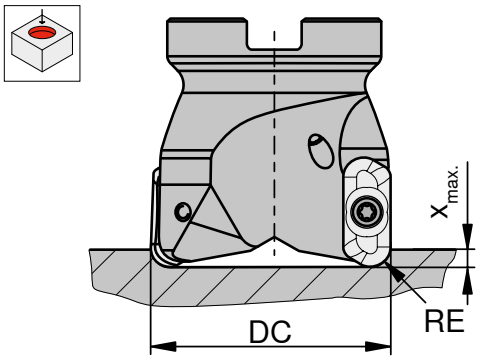
$D_{max.}$ in mm = largest drilling diameter
$D_{min.}$ in mm = smallest drilling diameter
$DN_{max.}$ in mm = Maximum hole diameter for non flat bottom

	DC mm	DN_{max} mm	α_R °	D_{max} mm	D_{min} mm
RE = 0,2 mm	**25**	49	7°02‘	48	32
	32	63	4°34‘	62	46
	40	79	3°47‘	78	62
	50	99	3°01‘	97	81
	63	125	2°17‘	124	107
	80	159		158	141
	100	199		198	181
RE = 0,4 mm	**25**	49	7°08‘	48	32
	32	63	4°37‘	62	46
	40	79	3°49‘	78	62
	50	99	3°02‘	98	81
	63	125	2°18‘	124	107
	80	159		158	141
	100	199		198	181
RE = 0,8 mm	**25**	49	7°21‘	47	32
	32	63	4°44‘	61	46
	40	79	3°53‘	77	62
	50	99	3°05‘	97	81
	63	125	2°20‘	123	107
	80	159		157	141
	100	199		197	181
RE = 2,0 mm	**25**	49	8°40‘	45	32
	32	63	5°04‘	59	46
	40	79	4°06‘	75	62
	50	99	3°13‘	95	81
	63	125	2°25‘	121	107
	80	159		155	141
	100	199		195	181
RE = 2,5 mm	**25**	49	8°24‘	44	32
	32	63	5°13‘	58	46
	40	79	4°12‘	74	62
	50	99	3°17‘	94	81
	63	125	2°27‘	120	107
	80	159		154	141
	100	199		194	181
RE = 3,2 mm	**25**	49	8°54‘	42	32
	32	63	5°26‘	56	46
	40	79	4°20‘	72	62
	50	99	3°21‘	92	81
	63	125	2°30‘	118	107
	80	159		152	141
	100	199		192	181
RE = 4,0 mm	**25**	49	9°32‘	41	32
	32	63	5°42‘	55	46
	40	79	4°30‘	71	62
	50	99	3°28‘	91	81
	63	125	2°33‘	117	107
	80	159		151	141
	100	199		191	181
RE = 5,0 mm	**25**	49	6°49‘	39	32
	32	63	3°59‘	53	46
	40	79	3°20‘	69	62
	50	99	2°13‘	89	81
	63	125	1°52‘	115	107
	80	159		149	141
	100	199		189	181

System MaxiMill HSC/HPC-19

Machining strategy

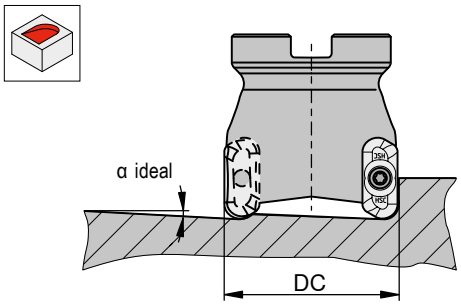
Axial ramping



HSC 19	DC mm	19 RE 0,2–4,0 $x_{max.}$ mm	19 RE 5,0 $x_{max.}$ mm
CHSC 19 / GHSC 19 / MHSC 19	25	5,0	4,0
CHSC 19 / GHSC 19 / MHSC 19	32–40	4,0	3,0
AHSC 19	40–100	4,0	3,0

HPC 19	DC mm	19 RE 0,2–4,0 $x_{max.}$ mm	19 RE 5,0 $x_{max.}$ mm
CHPC 19 / MHPC 19	22–25	5,0	4,0
CHPC 19 / MHPC 19	32–50	6,0	5,0
AHPC 19	40–63	6,0	5,0

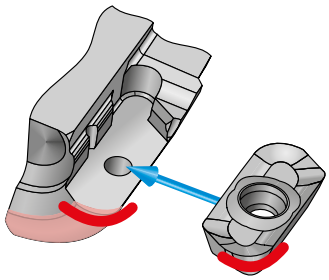
Angled ramping

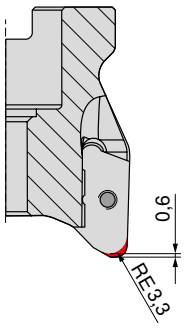


DC mm	α ideal HSC 19	α ideal HPC 19
25	11°	11°
32	7°	7°
40	5°	5°
50	4°	4°
63	3°	3°
80	2°	
100	2°	

Modification to basic body

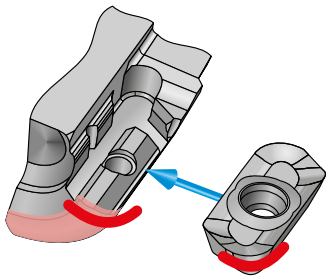
HSC 19





Modification to front profile

HPC 19



For inserts with a corner radius larger than 4.0 mm the basic body of the tool must be modified according to the drawing above.

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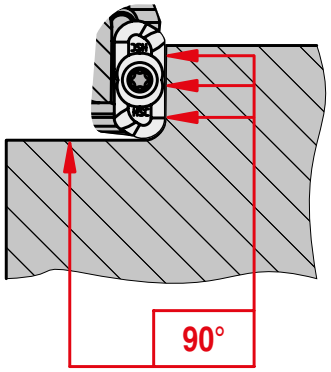
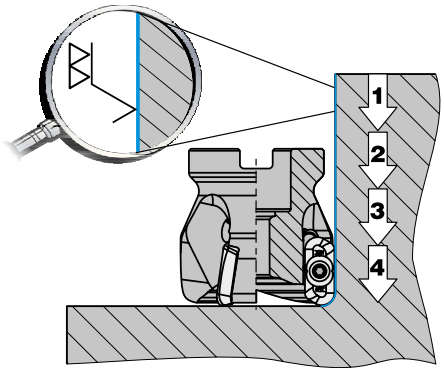
System MaxiMill HSC/HPC-19

Machining strategy

▽ + ▽▽ Excellent side wall quality after roughing operation.
Additional finishing operations minimized or no longer required.





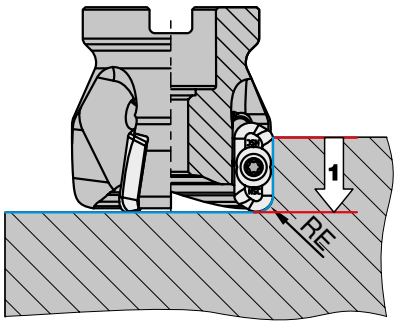
With maximum chip volume

Indexable Insert	RE mm	a_p mm	$a_{p\ max.}$ mm
XDH. 190402FR-ALP	0,2	18,0	17,8
XDH. 190404FR-ALP	0,4	18,0	17,6
XDH. 190408FR-ALP	0,8	18,0	17,2
XDH. 190420FR-ALP	2,0	18,0	16,0
XDH. 190425FR-ALP	2,5	18,0	15,0
XDH. 190432FR-ALP	3,2	18,0	14,8
XDH. 190440FR-ALP	4,0	18,0	14,0
XDH. 190450FR-ALP	5,0	17,0	13,0

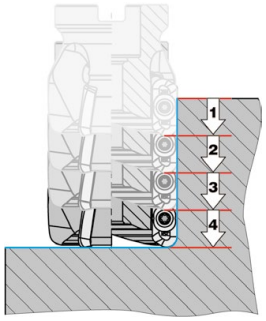
With maximum side wall quality

Indexable Insert	RE mm	$a_{p\ max.}$ mm
XDH. 190402FR-ALP	0,2	11,8
XDH. 190404FR-ALP	0,4	11,6
XDH. 190408FR-ALP	0,8	11,2
XDH. 190420FR-ALP	2,0	10,0
XDH. 190425FR-ALP	2,5	9,5
XDH. 190432FR-ALP	3,2	8,8
XDH. 190440FR-ALP	4,0	8,0
XDH. 190450FR-ALP	5,0	7,0

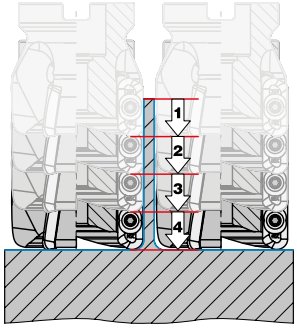
Shoulder milling



Pocket milling



Pocket milling with
thin walled components



This information applies to the inserts type XDHT 19 and XDHX 19.

System MaxiMill HPC-04/12

Machining strategy

What do you have to take into account?

- ▲ Machine stability.
- ▲ Stable work piece clamping and tool adapter.
- ▲ Use of coolant generally not necessary, however, this will facilitate the removal of the chips - also improved surface quality.
- ▲ Take into account thermal stress and critical temperature of 600°C! If required for material, work with coolant.
- ▲ Avoid vibration.
- ▲ Observe balancing quality class.
- ▲ Observe chemical reactions of diamond to carbide forming elements (Fe, Ti, Ta, Co, Ni)

Excellent suitability

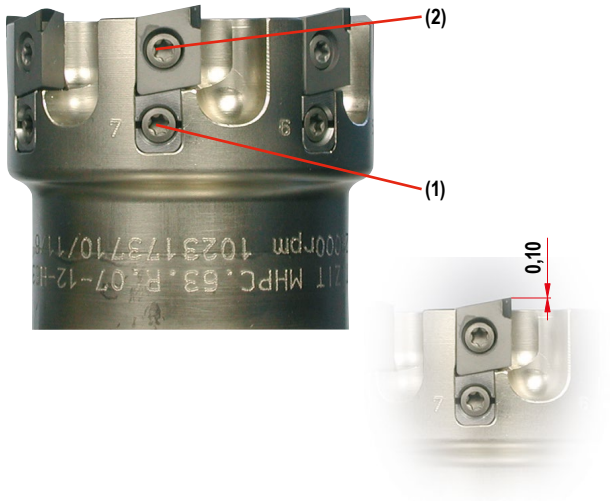
- ▲ for components made of light metals and non-ferrous metals, plastic, fibre composite materials, graphite ...
- ▲ when the simplest setting method saves cost for tool presetting.
- ▲ for high-volume production.
- ▲ for high surface quality of the work pieces.
- ▲ when long tool life is necessary to reduce tool changes and expensive machine downtime.
- ▲ when the tool is already on site (presetting, etc.)

Quality class check

After assembly, clamping of the inserts and adjustment of the axial run-out the balancing quality class of the tools should be checked. When applying shell milling cutters, after assembly with an adapter balancing is necessary.

Setting trailing edge inserts

As in the setting procedure described above the standard inserts are adjusted to a radial run-out of = 0.02 mm. The inserts with Masterfinish edge are then set to 0.02–0.03 mm above the highest cutting edge.



The adjustment procedure

1 Mount Adjustment wedgesin the tools (as delivered). Tighten adjustment screw (1) without deforming the wedges.

2 Mount the PCD inserts and tighten the clamping screws (2) with 1.0 Nm.

3 Mark " highest edge" with the help of pre-setting equipment.

4 Adjust the PCD insert by 0.02 mm turning the clamping screw (1) clockwise.

Pre-loading must be reached. Use the angled TORX screwdrivers

5 Set other cutting edges to this level, maximum deviation of 0.005 mm. Maximum length adjustment = 0.10 mm.

6 Tighten all insert tightening screws (2) to 5,0 Nm.

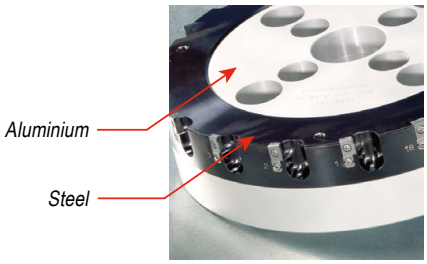
7 Check axial run-out of all inserts: Target = 0.005 mm.

Perfect precision – MaxiMill HPC-12

The adjustable high-performance tool for the finishing of aluminium components

Tool body made of steel

- For highest stability
- Maximum abrasion resistance
- Bimetallic version from diameter 160 mm easier handling and spindle protection with large tools



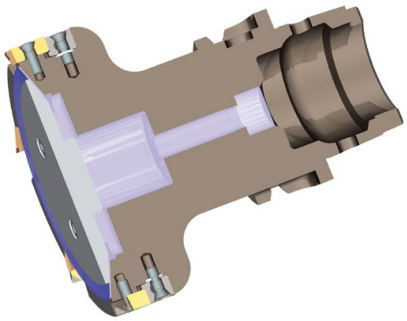
Picture shows bimetallic version

Available as shell milling cutters and monobloc type

- Direct HSK63 connection as monobloc type
- Monobloc tools balanced to G2.5 at n=20,000 min^{-1} (ISO1940)

Particularly for HSC applications with internal coolant supply

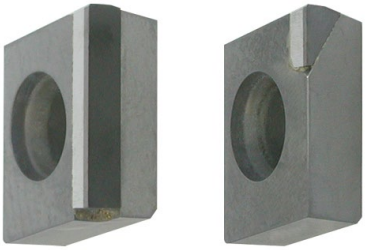
- Improved chip evacuation
- High surface quality
- Optimum application conditions
- Suitability for minimum quantity lubrication



Time is money – the system MaxiMill HPC-12 is simple and quick to adjust!

Highly positive rake angle of +25°

- Low cutting forces
- Increased parallelism of surfaces
- Minimised component deformation



Tangential concept

- Stable location for the PCD segment and maximum process security

Adapted PCD cutting edge

- High impact strength when milling!
- Maximum edge stability
- Reduced built-up edge on the work piece
- The machining of Al-Si alloys with over 12 % silicon is possible without problems

Inserts Selection

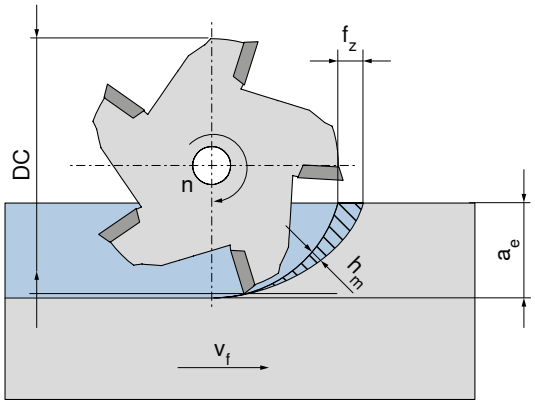
- Standard insert
- Insert with corner radius
- Insert with trailing edge

Average chip thickness [h_m] – the approach

Shoulder milling

1 Select appropriate average chip thickness [h_m] for the steel from the table.

Material	Tensile strength N/mm²	h_m mm
for steel	...–800	0,16
for steel	800–1000	0,14
for steel	1000–1200	0,12
for steel	1200–...	0,10
for stainless steel	...–750	0,15
for stainless steel	750–900	0,13
for stainless steel	900–1150	0,11
for stainless steel	1150–...	0,09 *

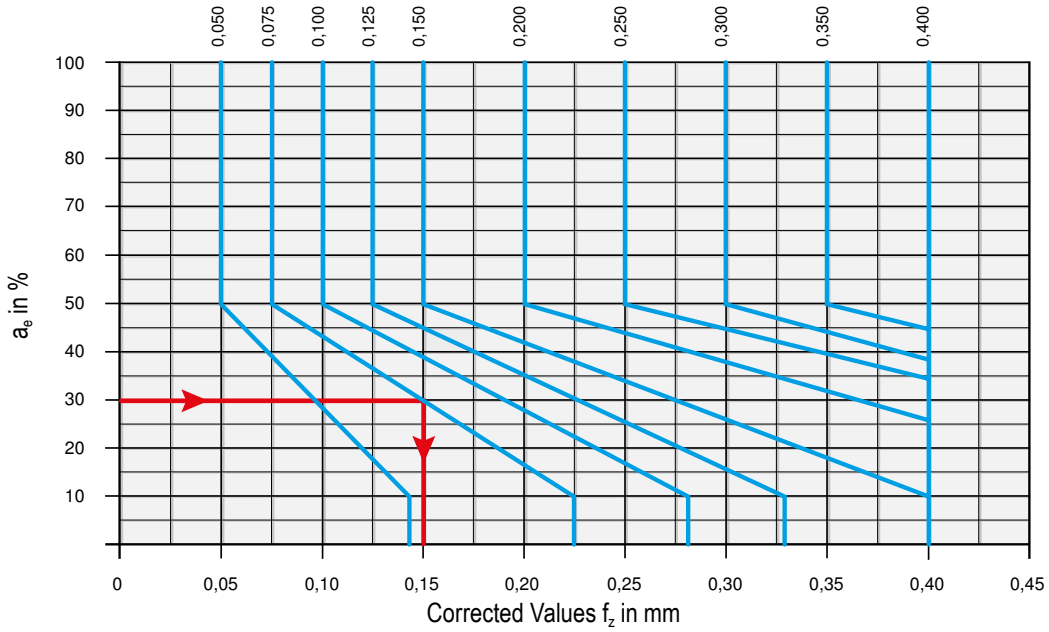


2 Select the corrected feed rate value from the table based on the appropriate chip thickness [h_m] and depth of cut [a_e].

h_m mm	Corrected feed value f_z for h_m				
0,16	0,36	0,29	0,25	0,18	0,16
0,14	0,31	0,26	0,22	0,16	0,14
0,12	0,27	0,22	0,19	0,14	0,12
0,10	0,22	0,18	0,16	0,12	0,10
0,15	0,34	0,27	0,24	0,17	0,15
0,13	0,29	0,24	0,21	0,15	0,13
0,11	0,25	0,20	0,17	0,13	0,11
0,09 *	0,20	0,16	0,14	0,10	0,09 *
a_e =	**0,2 x DC**	**0,3 x DC**	**0,4 x DC**	**0,75 x DC**	**1 x DC**

* f_z < 0,08 mm: Danger, as tool is not working and cutting

Start values f_z in mm from starting parameter diagram



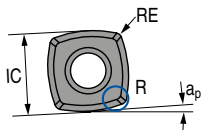
Example:
Start value (f_z) = 0.075 mm
a_e = 30 %
corrected value (f_z) = 0.15 mm

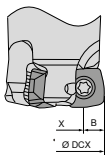
15

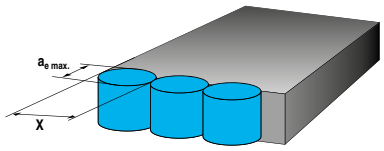
System MaxiMill HFC-06

Machining strategy

Programmed radius R = 1.2 mm



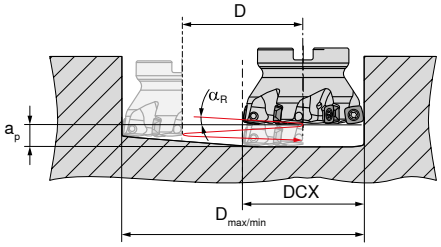




Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\ max.}$ in mm	DCX in mm	X in mm	B in mm	$a_{e\ max.}$ in mm	f_z in mm			X
							initial	min.	max.	
6,35	0,5	0,8	16–32	DCX–(2 x B)	4,3	5,3	0,10	0,08	0,15	<0,7 x DCX

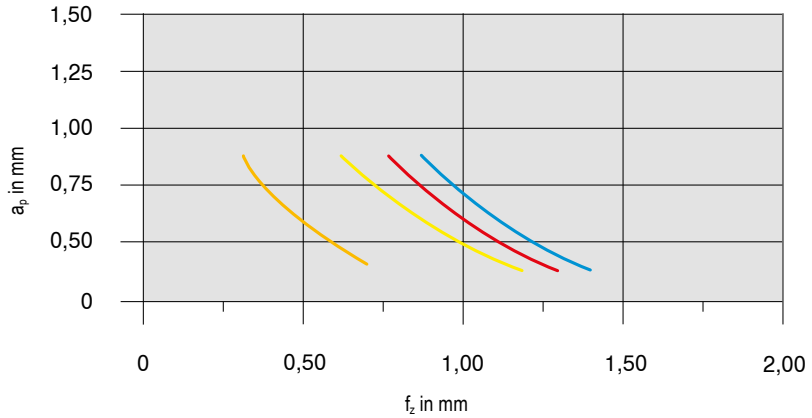
	circular		
	Helical plunging (helical plunging into solid material)		
DCX	$D_{min.}$	$D_{max.}$	$\alpha_{R\ max.}$
mm	mm	mm	°
16	22	31	4,5°
20	30	39	2,3°
25	40	49	1,3°
32	54	63	0,9°
42	74	83	0,6°

	axial	Angled
	Plunging	
DCX	$X_{max.}$	$\alpha_{R\ max.}$
mm	mm	°
16		5,9°
20		3,2°
25	0,5	2°
32		1,3°
42		0,7°



Starting Parameter

XPLX 06



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**XPLX 060305SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XPLX 060305ER-M50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XPLX 060305ER-M50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XPLX 060305SR-F40**	**CTC5240**	35	Emulsion

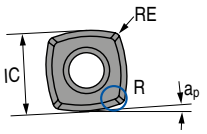
Detailed information on cutting speed for each grade can be found on → page 146–148

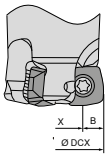
From v_c > 400 m/min, the tool must be balanced!

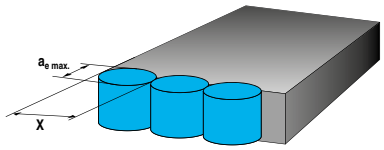
System MaxiMill HFC-09

Machining strategy

Programmed radius R = 2 mm



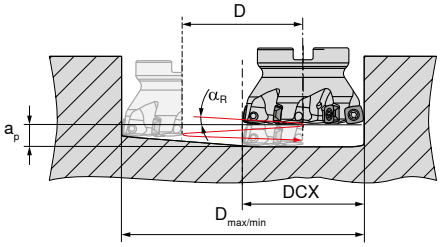




Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\,max.}$ in mm	DCX in mm	X in mm	B in mm	$a_{e\,max.}$ in mm	f_z in mm			X
							initial	min.	max.	
9	0,8	1	25–66	DCX–(2 x B)	5,9	7,5	0,10	0,08	0,15	<0,7 x DCX

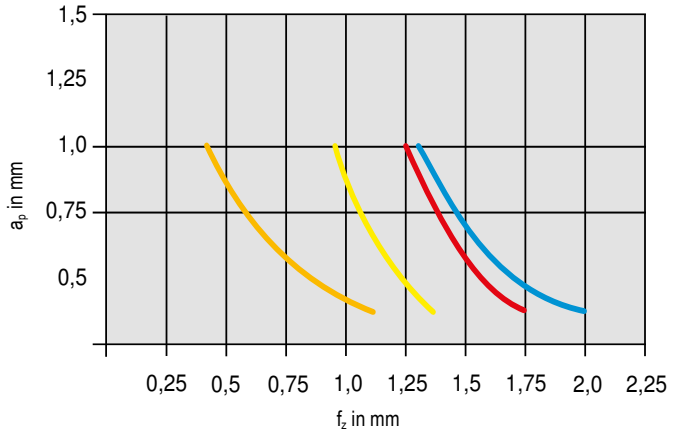
	circular		
	Helical plunging (helical plunging into solid material)		
DCX mm	$D_{min.}$ mm	$D_{max.}$ mm	$\alpha_{R\,max.}$ °
25	35	48	3,1°
32	49	62	1,7°
35	55	68	1,4°
40	65	78	1,0°
42	69	82	0,9°
50	85	98	0,8°
52	89	102	0,7°
63	111	124	0,7°
66	117	130	0,6°

	axial	Angled
	Plunging	
DCX mm	$X_{max.}$ mm	$\alpha_{R\,max.}$ °
25		3,6°
32		2,0°
35		1,6°
40		1,2°
42	0,75	1,1°
50		0,9°
52		0,8°
63		0,8°
66		0,7°



Starting Parameter

XDLX 09



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**XDLX09T308SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XDLX09T308SR-M50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XDLX09T308SR-M50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XDLX09T308ER-F40**	**CTC5240**	35	Emulsion

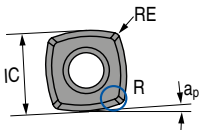
Detailed information on cutting speed for each grade can be found on → page 146–148

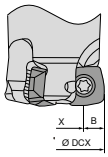
From v_c > 400 m/min, the tool must be balanced!

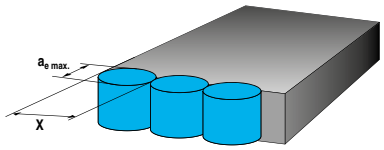
System MaxiMill HFC-12

Machining strategy

Programmed radius R = 3 mm



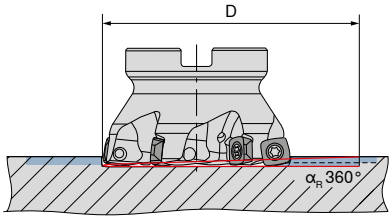




Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\,max.}$ in mm	DCX in mm	X in mm	B in mm	$a_{e\,max.}$ in mm	f_z in mm			X
							initial	min.	max.	
12	1,0	2	32–100	DCX–(2 x B)	8,3	10	0,15	0,10	0,20	<0,7 x DCX

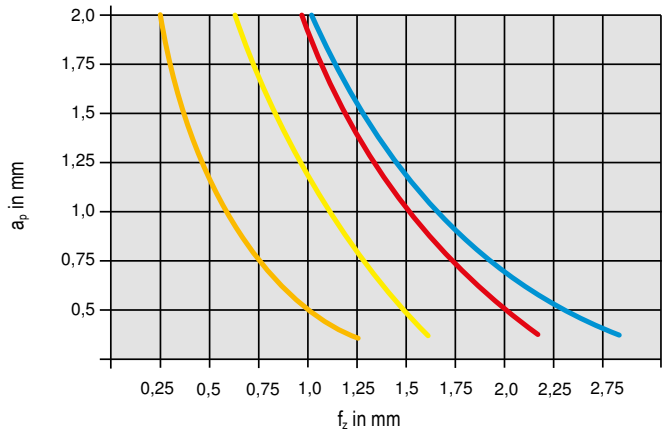
	circular		
	Helical plunging (helical plunging into solid material)		
DCX mm	$D_{min.}$ mm	$D_{max.}$ mm	$\alpha_{R\,max.}$ °
32	44	62	6,1°
35	50	68	3,7°
40	60	78	2,5°
42	64	82	2,3°
50	80	98	1,3°
52	84	102	1,3°
63	106	124	0,9°
66	112	130	0,9°
80	140	158	1,1°
100	180	198	0,6°

	axial	Angled
	Plunging	
DCX mm	$X_{max.}$ mm	$\alpha_{R\,max.}$ °
32	1,15	7,2°
35		4,4°
40		2,9°
42		2,7°
50 + 52		1,5°
63 + 66		1,1°
80		1,3°
100		0,7°



Starting Parameter

XOLX 12



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**XOLX120410SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XOLX120410ER-M50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XOLX120410ER-M50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XOLX120410ER-F40**	**CTC5240**	35	Emulsion

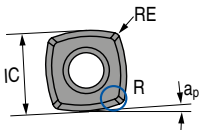
Detailed information on cutting speed for each grade can be found on → page 146–148

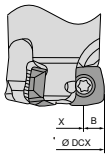
From v_c > 400 m/min, the tool must be balanced!

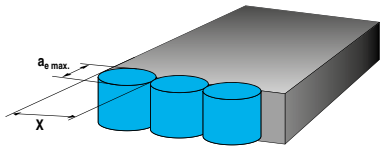
System MaxiMill HFC-19

Machining strategy

Programmed radius R = 5 mm



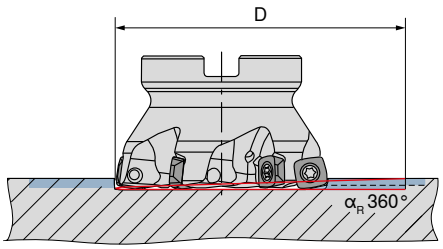




Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\,max.}$ in mm	DCX in mm	X in mm	B in mm	$a_{e\,max.}$ in mm	f_z in mm			X
							initial	min.	max.	
19,14	1,5	3,3	63–160	DCX–(2 x B)	13,1	12	0,2	0,10	0,25	<0,65 x DCX

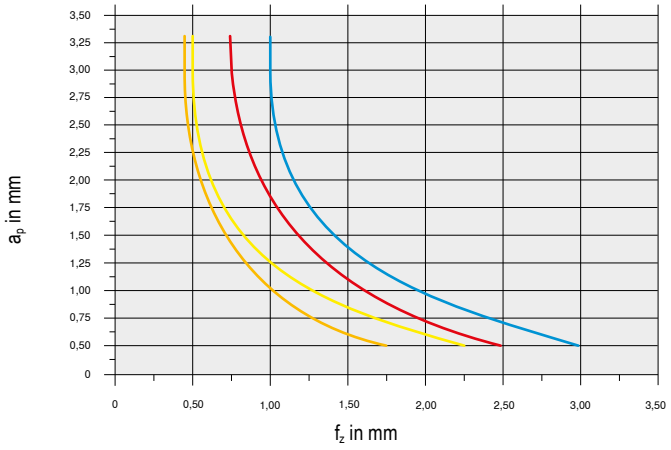
DCX	circular		
	Helical plunging (helical plunging into solid material)		
	$D_{min.}$	$D_{max.}$	$\alpha_{R\,max.}$
mm	mm	mm	°
63	97	123	2,5°
80	131	157	1,4°
100	171	197	1,0°
125	221	247	0,7°
160	291	317	0,5°

DCX	axial	Angled	
		Plunging	
	$X_{max.}$	$\alpha_{R\,max.}$	$a_{p\,max}$
mm	mm	°	mm
63		2,9°	
80		1,8°	
100	1,7	1,3°	3,3
125		1,0°	
160		0,7°	



Starting Parameter

XOLX 19



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**XOLX190615SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XOLX190615SR-M50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XOLX190615SR-M50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XOLX190615ER-F40**	**CTC5240**	35	Emulsion

15

Detailed information on cutting speed for each grade can be found on → page 146–148

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill DHFC

Cutting data standard values

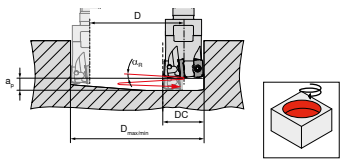
for standard inserts

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	130–300	0,25–1,0	0,7	130–300	0,25–1,0	0,75			
Stainless steel				90–210	0,25–1,0	0,60			
Cast iron				120–270	0,2–1,1	0,70	120–270	0,2–1,2	0,75
Non-ferrous metals									
Heat-resistant				40–80	0,15–0,75	0,6			
Tempered steel									
Non-metal materials									

Machining strategy

Programmed Radius R = 1,4 mm

Helical plunging



DC mm	D_{min} mm	D_{max} mm	α°
16	23	31	2,5
20	31	39	1,9
25	41	49	1,5
32	55	63	1,2
35	61	69	1,0
42	75	83	0,9

Axial plunging into solid material

DC mm	X_{max} mm
16	0,35
20	0,40
25	0,45
32–35	0,50
40	0,55

Angled ramping

DC mm	α°	y mm
16	<2,5	7
20	<1,9	11
25	<1,5	16
32	<1,2	23
35	<1,0	26
42	<0,9	33

Detailed information on cutting speed for each grade can be found on → page 146–148

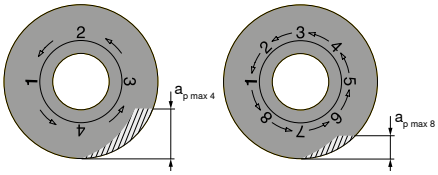
MaxiMill 251/251 RS system

Technical data

Recommended cutting depth

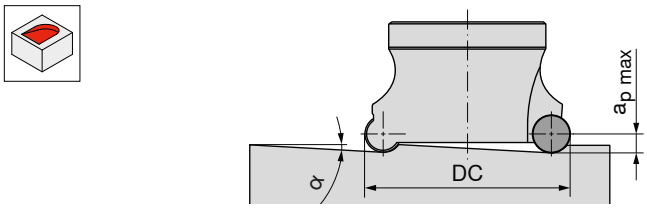
Ø mm	4-position $a_{p\,max.}$ mm	4-position $a_{p\,max}$ theoretical mm	8-face $a_{p\,max.}$ mm
5	1,0	2,0	0,7
8	1,5	3,5	1,1
10	2,5	4,5	1,4
12	3,0	5,5	1,7
16	4,0	7,5	2,3
20	4,0	9,5	2,9

Average depth for the 4/8 index use of the insert



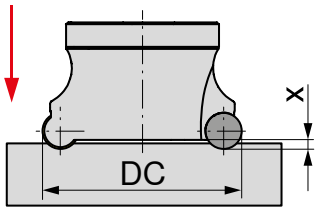
Detailed information on cutting speed for each grade can be found on → page 146–148

Angled ramping



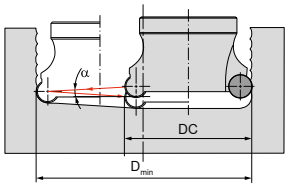
Ø DC mm	05 α °	08 α °	10 α °	12 α °	16 α °	20 α °
10	3,4					
12	16,0					
16	8,0	5,0				
20	5,5	20,0	1,3			
25	4,0	13,0	2,0	6,0		
32	3,0	8,0	3,0	4,0		
40			3,3	2,8		
42			3,1			
50			2,4	2,6	4,0	
52			2,2	2,3		
63				1,9	2,8	
66				1,6		
80				1,3	2,0	3,2
100				1,0	1,5	2,3
125						1,7

Axial ramping

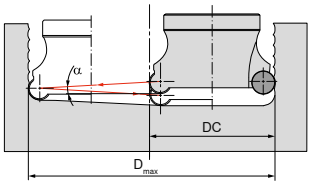


Ø DC mm	05 $X_{max.}$ mm	08 $X_{max.}$ mm	10 $X_{max.}$ mm	12 $X_{max.}$ mm	16 $X_{max.}$ mm	20 $X_{max.}$ mm
10	0,5					
12	1,3					
16	1,3	0,5				
20	1,3	2,7	0,2			
25	1,3	2,7	0,4	1,0		
32	1,3	2,7	0,8	1,1		
40			1,5	1,2		
42			1,5	1,5		
50			1,5	1,5	2,0	
52			1,5	1,5	2,0	
63				1,5	2,0	
66				1,5	2,0	
80				1,5	2,0	3,0
100				1,5	2,0	3,0
125						3,0

Helical plunging



$D_{min.}$ = smallest drilling diameter depending on the tool diameter



$D_{max.}$ = Maximum hole diameter Depending on the tool diameter

maximum possible hole diameter = 2 x DC – 1 mm

Ø DC mm	05 D_{min} mm	05 D_{max} mm	05 α_R °	08 D_{min} mm	08 D_{max} mm	08 α_R °	10 D_{min} mm	10 D_{max} mm	10 α_R °	12 D_{min} mm	12 D_{max} mm	12 α_R °	16 D_{min} mm	16 D_{max} mm	16 α_R °	20 D_{min} mm	20 D_{max} mm	20 α_R °
10	12	15	2,5															
12	16	19	2,1															
16	24	27	1,5	21	24	2,4												
20	32	35	1,2	27	32	1,9	26	30	1,3									
25	42	45	1,0	37	42	1,5	37	40	1,8	31	38	2,2						
32	56	59	0,7	51	56	1,2	50	54	1,5	46	52	1,7						
40							64	70	1,1	62	68	1,4						
42							68	74	1,1									
50							84	90	0,9	81	88	1,1	75	84	1,5			
52							88	94	0,9	86	92	1,0						
63										107	114	0,9	101	110	1,1			
66										113	120	0,8						
80										142	148	0,7	135	144	0,9	128	140	1,1
100										181	188	0,5	175	184	0,7	168	180	0,9
125																218	230	0,7

R100. system

Cutting data standard values

Index	WTN1205	WTN1205	WAN2225	WAN2225	WAN1240	WAN1240	WAX1240	WAX1240	WUN4210	WUN4210
	v_c (m/min)									
P.1.1	**275**	150			**300**	180	**200**	100		
P.1.2	**230**	130			**270**	160	**170**	90		
P.1.3	**190**	100			**225**	130	**140**	80		
P.1.4	**230**	130			**270**	160	**170**	90		
P.1.5	**210**	110			**240**	140	**160**	90		
P.2.1	**230**	130			**270**	160	**170**	90		
P.2.2	**170**	100			**200**	120	**130**	70		
P.2.3	**230**	130			**270**	160	**170**	90		
P.2.4	**160**	90			**180**	110	**120**	60		
P.3.1	**230**	130			**270**	160	**170**	90		
P.3.2	**150**	110			**180**	140	**140**	80		
P.3.3	**130**	90			**150**	120	**120**	70		
P.4.1	**150**	110			**180**	140	**140**	80		
P.4.2	**150**	100			**170**	130	**130**	70		
M.1.1	**230**	130	**230**	**140**	270	160	170	90		
M.2.1			**200**	**120**						
M.3.1										
K.1.1	**275**	200			360	90	150	110	200	150
K.1.2	**150**	100			360	90	150	110	150	120
K.2.1	**180**	100			230	170	150	110	200	150
K.2.2	**150**	100			160	110	150	110	160	130
K.3.1	**180**	100			210	160			200	150
K.3.2	**180**	100			210	160			150	120
N.1.1										**1200**
N.1.2										**800**
N.2.1										**880**
N.2.2										**800**
N.2.3										**230**
N.3.1										**280**
N.3.2										**280**
N.3.3										**160**
N.4.1										**260**
S.1.1				**50**						
S.1.2				**45**						
S.2.1				**24**						
S.2.2				**16**						
S.2.3				**20**						
S.3.1				**50**						
S.3.2				**32**						
S.3.3				**25**						
H.1.1	**140**	80								
H.1.2	**120**	70								
H.1.3	80	40								
H.1.4										
H.2.1										
H.3.1										
O.1.1									180	150
O.1.2										
O.2.1									260	230
O.2.2										
O.3.1									450	

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

System R 1000, 1002, 1007

Cutting data standard values

		f_z / a_p mm	WTN1205	WAN2225	WAN1240	WAX1240	WUN4210
Steel							
	0702	f_z	**0,1–0,7**			**0,2–0,5**	0,1–0,2
		a_p	**0,1–0,7**			**0,1–0,75**	0,1–0,2
	1003	f_z	**0,1–0,3**		**0,2–0,9**	**0,2–0,7**	0,15–0,3
		a_p	**0,1–1,0**		**0,2–1,5**	**0,2–1,5**	0,1–0,3
	12T3	f_z	**0,1–0,3**		**0,25–1,0**	**0,–0,8**	0,15–0,3
		a_p	**0,1–1,5**		**0,2–2,0**	**0,2–2,0**	0,1–0,3
	1604	f_z	**0,2–0,3**		**0,3–1,2**	**0,25–1,0**	0,15–0,3
		a_p	**0,2–1,5**		**0,25–3,0**	**0,2–3,0**	0,1–0,4
Stainless steel							
	0702	f_z	0,1–0,2			0,2–0,5	0,1–0,2
		a_p	0,1–0,2			0,1–0,75	0,1–0,2
	1003	f_z	0,15–0,3	**0,15–0,6**		0,2–0,7	0,15–0,3
		a_p	0,1–0,3	**0,4–1,0**		0,2–1,5	0,1–0,3
	12T3	f_z	0,15–0,3	**0,2–0,8**		0,–0,8	0,15–0,3
		a_p	0,1–0,3	**0,5–2,0**		0,2–2,0	0,1–0,3
	1604	f_z	0,15–0,3	**0,3–1,0**		0,25–1,0	0,15–0,3
		a_p	0,1–0,3	**0,6–3,0**		0,2–3,0	0,1–0,3
Cast iron							
	0702	f_z	**0,1–0,3**			0,1–0,3	0,1–0,3
		a_p	**0,1–0,7**			0,1–0,7	0,1–0,7
	1003	f_z	**0,15–0,3**		0,1–0,3	0,1–0,3	0,15–0,3
		a_p	**0,1–1,0**		0,1–1,0	0,1–1,0	0,1–1,0
	12T3	f_z	**0,15–0,4**		0,1–0,4	0,1–0,4	0,15–0,4
		a_p	**0,1–1,5**		0,1–1,15	0,1–1,5	0,1–1,5
	1604	f_z	**0,2–0,5**		0,2–0,05	0,2–0,5	0,2–0,5
		a_p	**0,2–3,0**		0,2–2,0	0,2–3,0	0,2–3,0

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System R 1000, 1002, 1007

Cutting data standard values

		f_z / a_p mm	WTN1205	WAN2225	WAN1240	WAX1240	WUN4210
Non-ferrous metals							
	0702	f_z					**0,1–0,3**
		a_p					**0,1–1,0**
	1003	f_z					**0,1–0,3**
		a_p					**0,1–1,5**
	12T3	f_z					**0,1–0,4**
		a_p					**0,1–2,0**
	1604	f_z					**0,2–0,5**
		a_p					**0,2–4,0**
Heat-resistant							
	1003	f_z		**0,1–0,4**			
		a_p		**0,2–1,0**			
	12T3	f_z		**0,15–0,5**			
		a_p		**0,3–1,5**			
	1604	f_z		**0,15–0,5**			
		a_p		**0,3–2,0**			
Tempered steel							
	0702	f_z	**01–0,2**				
		a_p	**0,1–0,3**				
	1003	f_z	**0,1–0,2**				
		a_p	**0,1–0,5**				
	12T3	f_z	**0,1–0,25**				
		a_p	**0,1–0,7**				
	1604	f_z	**0,15–0,3**				
		a_p	**0,2–1,0**				
Non-metal materials							
	0702	f_z					0,1–0,3
		a_p					0,1–1,0
	1003	f_z					0,1–0,3
		a_p					0,1–1,5
	12T3	f_z					0,1–0,4
		a_p					0,1–2,0
	1604	f_z					0,2–0,5
		a_p					0,2–4,0

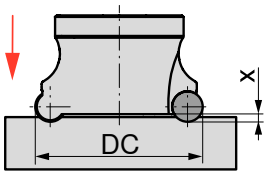
WTN 1205

Up to 48 HRC: a_p-range as indicated in the table
Up to 55 HRC: maximum value a_p x 0,7
Up to 65 HRC: maximum value a_p x 0,5

System R 1000, 1002, 1007

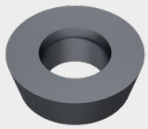
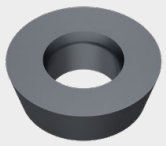
Machining strategy

Axial ramping

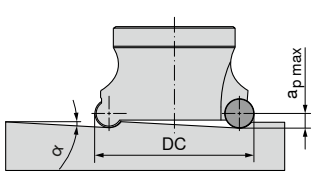


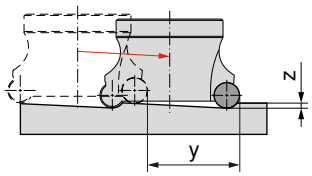
reduce f_z to 30% according to application table

→ v_c Page 182–184

	07	10	12 	16 
Ø DC mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm
8–160	1,2	2,5	3,0	4,0

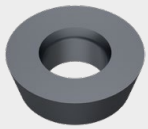
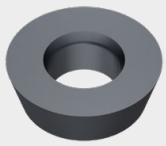
Angled ramping





y = minimum cutter movement
z = minimum cutter movement
a_p / f_z application table

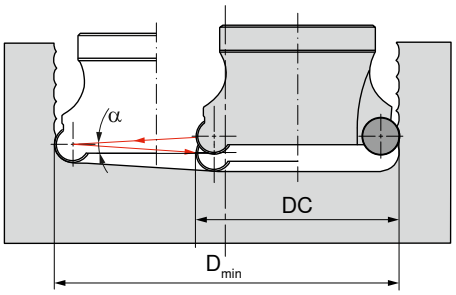
→ v_c Page 182–184

	07			10			12 			16 		
Ø DC mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm
8												
10												
12												
14												
15	26,5	2	< 1,2									
16	14,0	4	< 1,2									
18	11,3	6	< 1,2									
20	8,5	8	< 1,2									
22												
24												
25	5,3	13	< 1,2	19,7	7	< 2,5						
30	3,8	18	< 1,2	11,7	12	< 2,5						
32												
35	3,0	23	< 1,2	8,4	17	< 2,5	13,0	13	< 3,0	38,7	5	< 4,0
40												
42	2,3	30	< 1,2	5,9	24	< 2,5	8,5	20	< 3,0			
50												
52				4,2	34	< 2,5	5,7	30	< 3,0	10,3	22	< 4,0
66							3,9	44	< 3,0	6,4	36	< 4,0
80							3,0	58	< 3,0	4,6	50	< 4,0
100										3,3	70	< 4,0
125										2,4	95	< 4,0
160										1,8	130	< 4,0

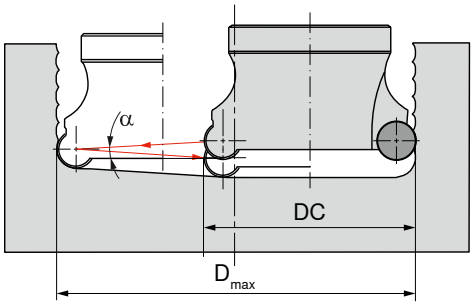
System R 1000, 1002, 1007

Machining strategy

Helical plunging



D_{min} = smallest drilling diameter depending on the tool diameter



D_{max} = largest drilling diameter depending on the tool diameter

a_p / f_z according to table
→ v_c Page 182–184

	07			10			12			16		
ØDC mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm
8												
10												
12	24											
14	28											
15	30											
16	32											
18	36	20	36									
20	40	22	40									
22				24	44							
24				26	48							
25	50	32	50									
30	60	42	60									
32						34	64					
35	80	72	70	48	70	40	70			38,7	5	< 4,0
40								42	80			
42	84	66	84	62	84							
50								62	100			
52		86	104	82	104	74	104			10,3	22	< 4,0
66				110	132	102	132	94	132	6,4	36	< 4,0
80				138	160	130	160	122	160	4,6	50	< 4,0
100						170	200	162	200	3,3	70	< 4,0
125						220	250	212	250	2,4	95	< 4,0
160						290	320	282	320	1,8	130	< 4,0

System MaxiMill 252

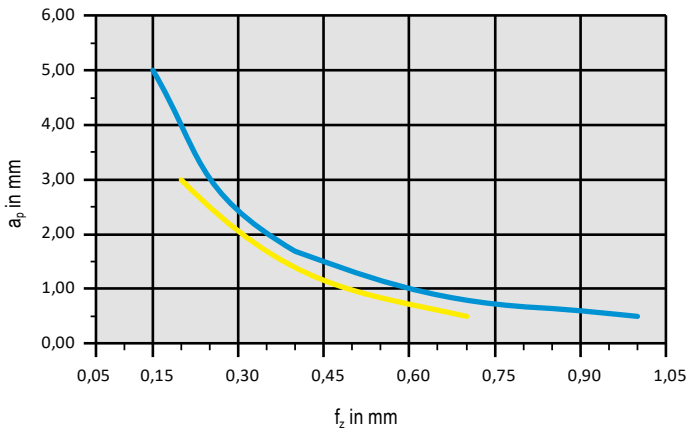
Machining strategy

Recommended cutting depth

Ø mm	4-position $a_{p\,max}$ mm	mm
10	2,5	4,5
12	3,0	5,5

Starting Parameter

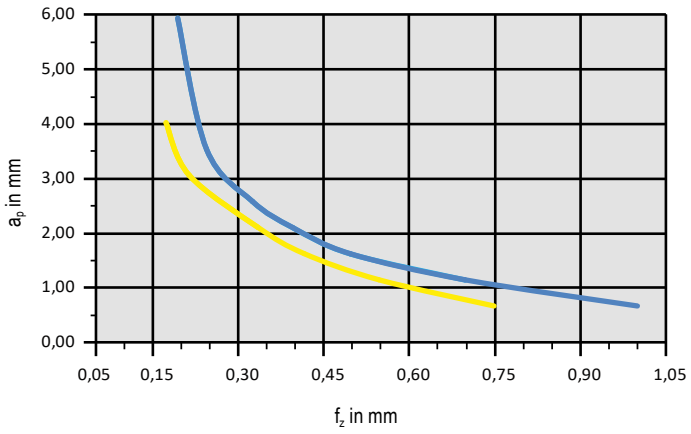
RNHU 10



Material			Inserts		v_c in m/min	Cooling
Steel	P.2.2	40CrMnMoS 8-6	XOLX120410SR-M50	CTPP235	180	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	XOLX120410ER-M50	CTPM240	180	Dry

Starting Parameter

RNHU 12



Material			Inserts		v_c in m/min	Cooling
Steel	P.2.2	40CrMnMoS 8-6	XOLX120410SR-M50	CTPP235	180	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	XOLX120410ER-M50	CTPM240	180	Dry

Detailed information on cutting speed for each grade can be found on → page 146–148

From v_c > 400 m/min, the tool must be balanced!

Cutting data standard values for copy milling cutter K200.

Index	CTPK226		CTPP211		CTPK231		CTCN211		CTPP216		● 1st choice ○ suitable		
	R	F	R	F	R	F	R	F	R	F	Emulsion	Compressed air	MMS
	v_c (m/min)												
P.1.1		280–300	180–220	220–280	160–200				220–300	280–300	○	●	●
P.1.2		220–240	180–220	220–280	160–200				220–300	280–300	○	●	●
P.1.3		220–240	180–220	220–280	160–200				220–300	280–300	○	●	
P.1.4		220–240	180–220	220–280	160–200				220–300	280–300	○	●	
P.1.5		220–240	180–220	220–280	160–200				220–300	280–300	○	●	
P.2.1		280–300	180–220	220–280	160–200				220–300	280–300	○	●	●
P.2.2		280–300	180–220	220–300	160–200				220–300	280–300	○	●	●
P.2.3		280–300	180–220	240–320	160–200				250–360	240–320	○	●	
P.2.4		280–300	180–220	240–320	160–200				250–360	240–320	○	●	
P.3.1		280–300	180–220	220–280	160–200				220–300	280–300	○	●	
P.3.2		280–320	180 – 220	240–320	160–200				250–360	240–320	○	●	●
P.3.3		280–320	180 – 220	240–320	160–200				250–360	240–320	○	●	●
P.4.1		220–220	140–180	200–240	120–180				140–180	200–240	○	●	
P.4.2		220–220	140–180	200–240	120–180				140–180	200–240	○	●	
M.1.1		180–200	140–160	180–200	120–160				220–250	220–240	●	○	
M.2.1		180–200	140–160	180–240	120–160				220–250	220–240	●		
M.3.1		220–220	140–180	200–240	120–180				140–180	200–240	●		
K.1.1		280–300	160–200	200–300	120–200				240–350	240–260		●	○
K.1.2		280–300	160–200	200–300	120–200				240–350	240–260		●	○
K.2.1		280–300	160–200	200–300	120–200				240–350	240–260		●	○
K.2.2		300–350	180–220	240–350	180–200				340–400	240–360		●	○
K.3.1		300–350	180–220	240–350	180–200				340–400	240–360		●	○
K.3.2		240–260	160–200	220–260	160–200				280–340	220–300		●	○
N.1.1			240–280	300–600	300–600					400–450	●		
N.1.2			240–280	300–600	300–600					400–450	●		
N.2.1			240–280	300–600	300–600					400–450	●		
N.2.2			240–280	300–600	300–600					400–450	●		
N.2.3										300–400	●		
N.3.1			240–280	280–320	240–280					300–400	●		
N.3.2			240–280	280–320	240–280					300–400	●		
N.3.3			240–280	280–320	240–280					300–400	●		
N.4.1			300–400	300–400				300–400			●		
S.1.1				80–120	80–120					60–80	●		
S.1.2				80–120	80–120					60–80	●		
S.2.1				80–120	80–120					60–80	●		
S.2.2				80–120	80–120					60–80	●		
S.2.3				80–120	80–120					60–80	●		
S.3.1				60–80	80–120					60–80	●		
S.3.2				60–80	60–80					60–80	●	○	
S.3.3				60–80	60–80					60–80	●	○	
H.1.1		240–260		280–300	140–160				240–260	240–260		●	
H.1.2		240–260		280–300	80–100				220–240	160–240		●	○
H.1.3		200–220		240–260					120–140	100–140		●	○
H.1.4		120–140		160–200								●	○
H.2.1		240–260		280–300	80–100				220–240	160–240		●	○
H.3.1		240–260		280–300	80–100				220–240	160–240		●	
O.1.1			300–400	300–400						300–350		●	
O.1.2			500–600	500–600						600–800		●	
O.2.1			300–400	300–400								●	
O.2.2			300–400	300–400								●	
O.3.1							400–600	600–800				●	

Cutting data standard values for copy milling cutter K200.

Index	Roughing (R)		Finishing (F)		only for -MR3 Roughing (R)		● 1st choice ○ suitable		
	Ø 6-16	Ø 20-32	Ø 6-16	Ø 20-32	Ø 6-16	Ø 20-32	Emulsion	Compressed air	MMS
	f_z (mm/tooth)								
P.1.1	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○	●	●
P.1.2	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○	●	●
P.1.3	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○		●
P.1.4	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○		●
P.1.5	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○		●
P.2.1	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○	●	●
P.2.2	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○	●	●
P.2.3	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○		●
P.2.4	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○		●
P.3.1	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○		●
P.3.2	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○	●	●
P.3.3	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○	●	●
P.4.1	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○		●
P.4.2	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○		●
M.1.1	0,08–0,4	**0,25–0,5**	0,08–0,3	0,2–0,5	**0,3–0,6**	0,8–1,5	●	○	
M.2.1	0,08–0,4	**0,25–0,5**	0,08–0,4	0,2–0,6	**0,3–0,6**	0,8–1,25	●		
M.3.1	0,08–0,4	**0,25–0,5**	0,08–0,5	0,2–0,7	**0,3–0,6**	0,8–1,25	●		
K.1.1	0,08–0,4	**0,25–0,5**	0,08–0,3	0,2–0,5	**0,3–0,8**	1,0–1,5		●	○
K.1.2	0,08–0,5	**0,25–0,6**	0,08–0,4	0,2–0,6	**0,3–0,8**	1,0–1,5		●	○
K.2.1	0,08–0,6	**0,25–0,7**	0,08–0,5	0,2–0,7	**0,3–0,8**	1,0–1,5		●	○
K.2.2	0,08–0,7	**0,25–0,8**	0,08–0,6	0,2–0,8	**0,3–0,6**	0,8–1,25		●	○
K.3.1	0,08–0,8	**0,25–0,9**	0,08–0,7	0,2–0,9	**0,3–0,6**	0,8–1,25		●	○
K.3.2	0,08–0,9	**0,25–0,10**	0,08–0,8	0,2–0,10	**0,3–0,6**	0,8–1,25		●	○
N.1.1	0,08–0,35	0,25–0,45	0,06–0,25	0,025–0,45			●		
N.1.2	0,08–0,36	0,25–0,46	0,06–0,26	0,025–0,46			●		
N.2.1	0,08–0,37	0,25–0,47	0,06–0,27	0,025–0,47			●		
N.2.2	0,08–0,38	0,25–0,48	0,06–0,28	0,025–0,48			●		
N.2.3	0,08–0,39	0,25–0,49	0,06–0,29	0,025–0,49			●		
N.3.1	0,08–0,40	0,25–0,50	0,06–0,30	0,025–0,50			●		
N.3.2	0,08–0,41	0,25–0,51	0,06–0,31	0,025–0,51			●		
N.3.3	0,08–0,42	0,25–0,52	0,06–0,32	0,025–0,52			●		
N.4.1	0,08–0,43	0,25–0,53	0,06–0,33	0,025–0,53			●		
S.1.1	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.1.2	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.2.1	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.2.2	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.2.3	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.3.1	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.3.2	0,08–0,35	0,4–0,5	0,08–0,3	0,25–0,5	0,25–0,5	0,6–1,0	●	○	
S.3.3	0,08–0,35	0,4–0,5	0,08–0,3	0,25–0,5	0,25–0,5	0,6–1,0	●	○	
H.1.1								●	
H.1.2								●	○
H.1.3								●	○
H.1.4								●	○
H.2.1								●	○
H.3.1								●	
O.1.1								●	
O.1.2								●	
O.2.1								●	
O.2.2								●	
O.3.1								●	

Maximum axial depths of cut a_p for copy milling cutter K200.

Ball nose insert									
Insert Ø in mm		6	8	10	12	16	20	25	32
		$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$
ROHX-FM3	**R**	0,8	1,0	1,5	2,0	3,0	4,0	5,0	6,0
	F	0,4	0,8	1,0	1,2	1,5	1,5	2,0	2,0
ROHX-FM4	**R**	0,8	1,0	2,0	3,0	4,0	5,0	6,0	8,0
	F	0,4	0,8	1,0	1,2	1,5	1,5	2,0	2,0
ROHX-FM6	**R**	0,8	1,0	1,5	2,0	3,0	4,0	5,0	6,0
	F	0,4	0,8	1,0	1,2	1,5	1,5	2,0	2,0
ROGX-MR4	**R***				4,0	6,0	8,0	12,0	16,0
	F				2,0	3,0	4,0	5,0	6,0
ROHX-MR5	**R**		1,5	2,0					
	F		0,8	1,0					

*a_p with full interference 25 % of Ø DC maximum!

Torus inserts									
Insert Ø in mm		6	8	10	12	16	20	25	32
		$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$
XOHX-FM5	**R**		2,0	3,0	3,0	4,0	5,0	6,0	8,0
	F		0,6	2,0	2,4	3,2	4,0	5,0	6,4
XOHX-MR6	**R**		2,0	3,0	3,0	4,0	5,0	6,0	8,0
	F		0,6	2,0	2,4	3,2	4,0	5,0	6,4
XOHX-FM1	**R**			1,5	2,0	3,0	4,0		
	F			0,8	0,8	1,0	1,0		
XOHX-FM2	**R**		1,0	1,5	2,0	3,0	4,0	5,0	
	F		0,5	0,7	0,8	1,0	1,0	1,5	
XOHX-MR2	**R**	0,8	1,0	1,5	2,0	3,0	4,0	5,0	
	F	0,5	0,5	0,7	0,8	1,0	1,0	1,5	
XOGX-MF4	**R**			1,5	2,0	3,0	4,0		
	F			0,7	0,8	1,0	1,0		
XOHX-MR3	**R**			0,5	0,6	0,8	1,0		
	F								

Ranges of application of geometry

Inserts	F	M	R	Main Application
XOHX-FM1	●	●		Steel, steel casting, heat resistant steel, hardened steel to 63 HRc
XOHX-FM2	●	●		Steel, steel casting, heat resistant steel, hardened steel to 60 HRc
ROHX-FM3	●	●		Steel, steel casting, heat resistant steel
ROHX-FM4	●	●		Steel, steel casting, heat resistant steel, hardened steel to 60 HRc
XOHX-FM5	●	●		Steel, steel casting, heat resistant steel, hardened steel to 60 HRc
ROHX-FM6	●	●	●	Non ferrous metals, plastics, graphite
XOHX-MR2		●	●	long-chipping ferrous metals
XOHX-MR3		●	●	Steel, steel casting, heat resistant steel
ROGX-MR4		●	●	Steel, steel casting, heat resistant steel
XOGX-MF4	●	●		Steel, steel casting, heat resistant steel
ROHX-MR5		●	●	long-chipping ferrous metals
XOHX-MR6		●	●	long-chipping ferrous metals

Cutting data standard values for MaxiMill Slot-SX saws

Index	CTCP335	CTP1340	H216T
	v_c in m/min.		
P.1.1	240	190	
P.1.2	210	160	
P.1.3	180	140	
P.1.4	160	130	
P.1.5	140	120	
P.2.1	220	170	
P.2.2	160	130	
P.2.3	140	120	
P.2.4	100	80	
P.3.1	130	120	
P.3.2	110	100	
P.3.3	90	80	
P.4.1	140	120	
P.4.2	120	110	
M.1.1	110	130	
M.2.1	100	120	
M.3.1	80	100	
K.1.1	300	200	140
K.1.2	240	180	115
K.2.1	200	120	150
K.2.2	160	100	110
K.3.1	190	120	170
K.3.2	160	100	140
N.1.1		300	500
N.1.2		200	330
N.2.1		250	370
N.2.2		220	330
N.2.3		200	280
N.3.1		300	350
N.3.2		300	350
N.3.3		200	320
N.4.1		200	320
S.1.1		70	
S.1.2		60	
S.2.1		35	
S.2.2		25	
S.2.3		30	
S.3.1		60	
S.3.2		50	
S.3.3		40	
H.1.1			
H.1.2			
H.1.3			
H.1.4			
H.2.1			
H.3.1			
O.1.1			160
O.1.2			
O.2.1			240
O.2.2			
O.3.1			

average chip thickness

h_m in mm

$$h_m = f_z \sqrt{\frac{a_e}{DC}}$$

Feed per tooth

f_z in mm

$$f_z = h_m \sqrt{\frac{DC}{a_e}}$$

Feed rate

v_f in mm/min

$$v_f = f_z \times ZNF \times n$$

DC = Ø of the disc cutters

ZNF = Number of teeth of the cutter

	Reference tool 50 386 12504 – ASLOT.125.R.8.32.DC-SX4											
	SX4 -F2				SX4 -M1				SX4 -M7			
	a_e	10	20	30	a_e	10	20	30	a_e	10	20	30
	hm	f_z in mm			hm	f_z in mm			hm	f_z in mm		
P	**0,08**	0,28	0,20	0,16	**0,1**	0,30	0,25	0,20	**0,09**	0,30	0,23	0,18
M	**0,05**	0,18	0,13	0,10					**0,06**	0,21	0,15	0,12
K					**0,12**	0,30	0,30	0,24	**0,09**	0,30	0,23	0,18
N	**0,08**	0,28	0,20	0,16								
S	**0,04**	0,14	0,10	0,08								
H												
O												

	Reference tool 50 386 12504 – ASLOT.125.R.8.32.DC-SX4							
	SX4 -M8				SX4 -27P			
	a_e	10	20	30	a_e	10	20	30
	hm	f_z in mm			hm	f_z in mm		
P	**0,08**	0,28	0,20	0,16				
M	**0,05**	0,18	0,13	0,10				
K					**0,06**	0,21	0,15	0,12
N	**0,08**	0,28	0,20	0,16	**0,09**	0,30	0,23	0,18
S	**0,04**	0,14	0,10	0,08				
H								
O					**0,05**	0,18	0,13	0,10

Caution: For narrower and wider indexable inserts, reduce or increase the feed per tooth accordingly!

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data for side and face milling cutters TX

Index	CWX500		CWK10
	v_c (m/min)	hm (mm)	v_c (m/min)
P.1.1	160	0,10	
P.1.2	140	0,10	
P.1.3	110	0,08	
P.1.4	110	0,10	
P.1.5	90	0,08	
P.2.1	110	0,10	
P.2.2	90	0,08	
P.2.3	90	0,10	
P.2.4	80	0,08	
P.3.1	80	0,05	
P.3.2	60	0,10	
P.3.3	50	0,08	
P.4.1	100	0,05	
P.4.2	90	0,08	
M.1.1	110	0,08	
M.2.1	90	0,08	
M.3.1	70	0,08	
K.1.1	140	0,10	
K.1.2	100	0,10	
K.2.1	90	0,08	
K.2.2	80	0,05	
K.3.1	140	0,10	
K.3.2	120	0,10	
N.1.1	600	0,12	250
N.1.2	400	0,12	230
N.2.1	220	0,10	210
N.2.2	180	0,10	190
N.2.3	140	0,10	120
N.3.1	240	0,12	200
N.3.2	200	0,12	180
N.3.3	180	0,12	160
N.4.1	180	0,12	160
S.1.1	60	0,05	
S.1.2	50	0,05	
S.2.1	60	0,05	
S.2.2	50	0,05	
S.2.3	40	0,05	
S.3.1	60	0,06	
S.3.2	40	0,06	
S.3.3	30	0,06	
H.1.1			
H.1.2			
H.1.3			
H.1.4			
H.2.1			
H.3.1			
O.1.1	180	0,10	160
O.1.2	180	0,10	160
O.2.1	150	0,10	120
O.2.2	110	0,10	100
O.3.1	170	0,10	160

average chip thickness

h_m in mm

$$h_m = f_z \sqrt{\frac{a_e}{DC}}$$

Feed per tooth

f_z in mm

$$f_z = h_m \sqrt{\frac{DC}{a_e}}$$

Feed rate

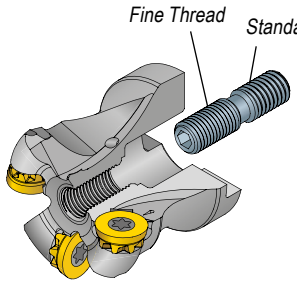
v_f in mm/min

$$v_f = f_z \times ZNF \times n$$

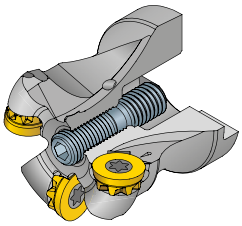
DC = Ø of the disc cutters

ZNF = Number of teeth of the cutter

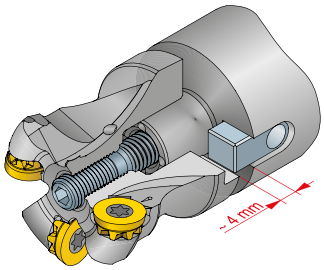
Easy and safe clamping – with the CERATIZIT power screw



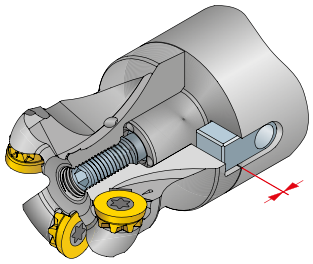
The fine-pitch part of the power screw is threaded into the milling cutter.



The power screw is turned carefully until the stop (as screw was delivered).



In order to guarantee an optimum connection of tool and shank, a gap of 4 mm is required between cutter body and adapter prior to final clamping. Using standardised adpaters this is automatically guaranteed. If necessary, you can read just by means of the power screw with 0.5 mm/rev.



Turn clamping screw to tighten

Torque moments for clamping screws for mounting the milling cutter to the shell mill adapter

	10				12				16			
Cutter Ø mm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm
40			70 950 151	15			70 950 151	15				
42			70 950 151	15			70 950 151	15				
50	M10x25	80			M10x25	80					70 950 154	20
52					M10x25	80					70 950 154	20
63					M10x25	80			M10x25	80		
66					M10x25	80			M10x25	80		

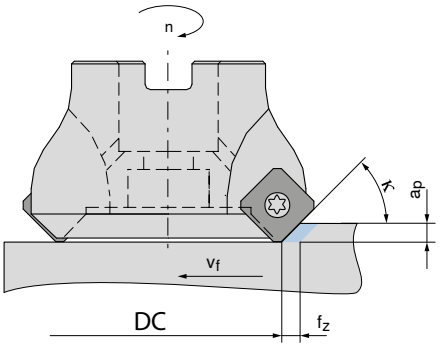
	12				16				20			
Cutter Ø mm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm
80	M12x30	140			M12x30	140			M12x30	140		
100	M16x35	180			M16x35	180			M16x35	180		
125					M16x35	180			M16x35	180		

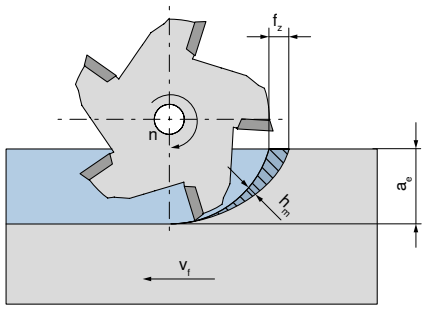
15

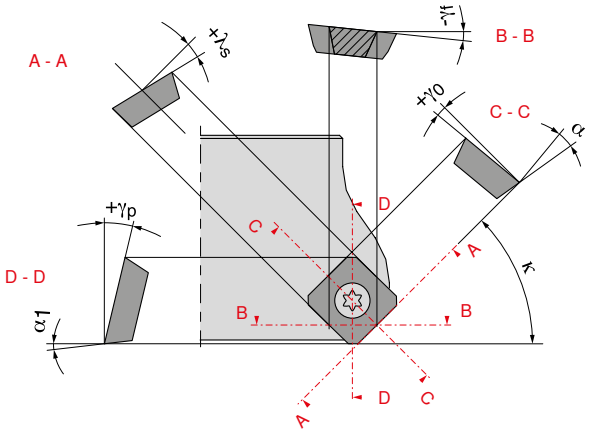
Abbreviations & dimensions

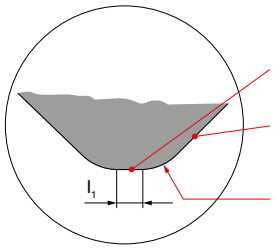
a_e	cutting width	mm
a_p	Cutting depth	mm
DC	Tool diameter	mm
D_w	Workpiece diameter	mm
f_z	Feed per tooth	mm
h_m	Average Chip Thickness	mm
k	Number of teeth	
k_c	Specific cutting force	N/mm²
$k_{c1.1}$	Specific cutting force for 1 mm ² chip area	N/mm²
BS	Length of trailing edge land	mm
m_c	Increase of specific cutting force	
n	rpm	rpm
Q	Chip volume	cm³/min
v_c	Cutting speed	m/min
v_f	Feed rate	mm/min.
ZNF	Number of Effective Teeth	

γ_0	Effective cutting angle	degree
γ_f	Side clearance angle	degree
γ_p	Axial cutting angle	degree
κ	Cutting edge angle	degree
λ_s	Angle of inclination	degree
α	Clearance angle	degree
α_1	Side clearance angle	degree









Trailing edge land

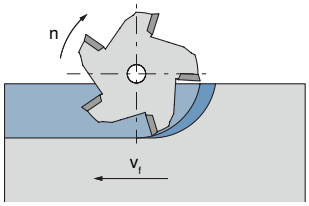
Main cutting edge

Corner radius

Engagement conditions

Recommended

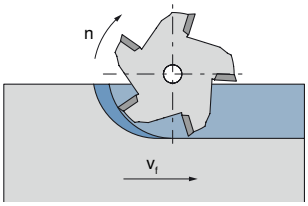
Climb milling



The feed direction of the workpiece is the same as the direction of rotation of the milling cutter in the cutting zone. The chips have maximum thickness at the beginning, chip thickness then decreases until it becomes zero at the end of the cut.

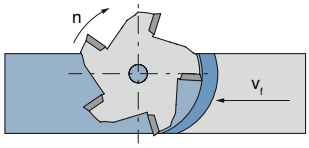
Unsuitable

Conventional milling

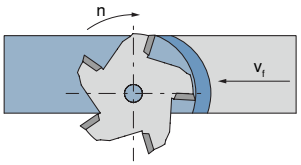


The feed direction of the workpiece is opposite to the direction of rotation of the milling cutter in the cutting zone. Chip thickness is zero at the beginning and increases until it reaches its maximum at the end of the cut.

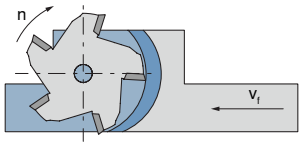
Cutter positioning



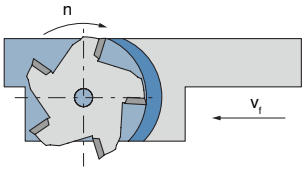
If possible the cutter should exit tangentially of the workpiece.



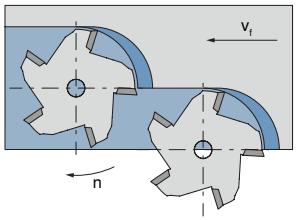
Workpiece situation



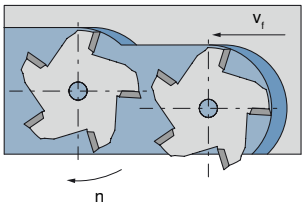
The workpiece should be clamped in such a way as to allow the cutter to emerge tangentially of the workpiece along the whole machining length.



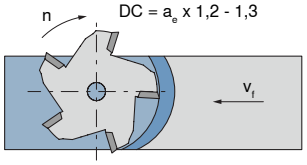
Overlapping



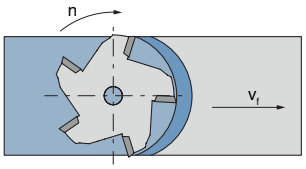
Either employ climb milling or ensure that the cutter comes out of the workpiece tangentially, as in the illustration on the left.



Cutter size



When face milling the diameter of the cutter should be 20–30 % larger than that of the workpiece.



15

ISO designation indexable milling inserts

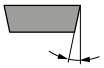
X	D	K	T	11	T3	08	S	R	-	F50
1	2	3	4	5	6	7	8	9		10

Z	N	H	W	12	05	PO	S	R	-	15	06	-	R
1	2	3	4	5	6	7	8	9		11	12		13

1 Insert shape

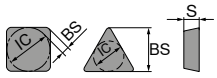
A	85°	
B	82°	
K	55°	
H	120°	
L	90°	
O	135°	
P	108°	
C	80°	
D	55°	
E	75°	
M	86°	
V	35°	
R		
S	90°	
T	60°	
W	80°	
X Z	Special version	

2 Clearance angle

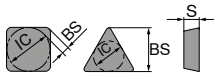


	α
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Special version

3 Tolerances

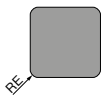


	IC ±mm	BS ±mm	S ±mm	IC = 6,35 / 9,52	IC = 12,7	IC = 15,8 / 19,05
A	0,025	0,005	0,025	●	●	●
C	0,025	0,013	0,025	●	●	●
E	0,025	0,025	0,025	●	●	●
F	0,013	0,005	0,025	●	●	●
G	0,025	0,025	0,13	●	●	●
H	0,013	0,013	0,025	●	●	●
J	0,05	0,005	0,025	●		
	0,08	0,005	0,025		●	
	0,10	0,005	0,025			●
K	0,05	0,013	0,025	●		
	0,08	0,013	0,02		●	
	0,10	0,013	0,02			●



	IC ±mm	BS ±mm	S ±mm	IC = 6,35 / 9,52	IC = 12,7	IC = 15,8 / 19,05
M	0,05	0,08	0,13	●		
	0,08	0,13	0,13		●	
	0,10	0,15	0,13			●
N	0,05	0,08	0,025	●		
	0,08	0,13	0,025		●	
	0,10	0,15	0,025			●
U	0,08	0,13	0,13	●		
	0,13	0,20	0,13		●	
	0,18	0,27	0,13			●

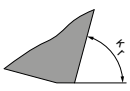
7 Trailing edge land / corner radius



Radius

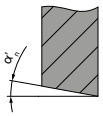
	RE in mm
M0*	
02	0,2
04	0,4
08	0,8
12	1,2

* Only with insert type "R"



1. Designation

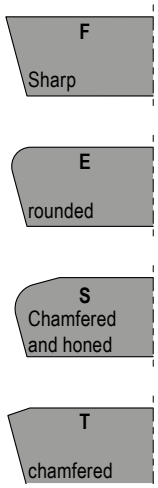
	K_r
A	45°
D	60°
E	75°
F	85°
P	90°
Z	Alternative



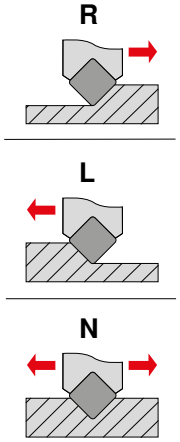
2. Designation

	α'_n
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
Z O	Alternative

8 Cutting edge



9 Direction of cut



4

Characteristics

A	
F	
G	
M	
N	
Q	
R	
T	
U	
W	
X	Special version

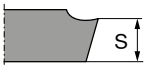
5

Cutting length

IC mm	A	T	C/S	H	L	R	V	W	O	X	Z
4,90										07	
5,00						05					
5,56			05		08			03			
6,00											
6,35		11	06		10			04		06	
6,65	10										
6,80										11	
7,00											04
7,94			07								
8,00						08					
9,00					12						
9,30										15	
9,52	16	16	09		15			06	04		
9,57	15										
9,60										09	
10,00			10		11	10					12
12,00						12					
12,50										20	
12,70		12/22	12		20		22	08		12	
15,81			15		22			10			
16,00						16					
16,20				09							
16,74			16								
17,00			17								
17,18									06		
18,18									07		
19,05			19					13			
20,00						20					

6

Insert thickness



	S mm
01	1,59
T1	1,98
02	2,38
03	3,18
T3	3,97
04	4,76
05	5,56
06	6,35
07	7,94
09	9,52

10

Chip groove

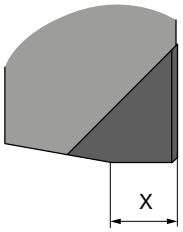
Chip breaker designation
F.. = fine
M.. = medium
R.. = roughing

Additional characteristics:
R = transition radius main/ secondary cutting edge
Q = Smoothing edge

11

Manufacturer specification

Length of the finishing cutting edge

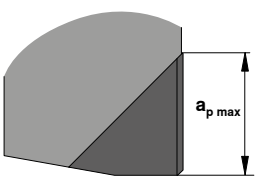


00 = 0,0 mm
10 = 1,0 mm
12 = 1,2 mm
15 = 1,5 mm
30 = 3,0 mm
50 = 5,0 mm

12

Manufacturer specification

$a_{p\,max}$



02 = 2,0 mm
03 = 3,0 mm
04 = 4,0 mm
06 = 6,0 mm
07 = 7,0 mm
11 = 11,0 mm

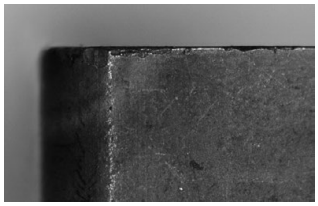
13

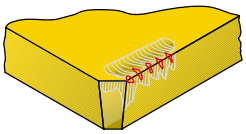
Manufacturer specification

F = Fine
M = Medium
R = Rough

15

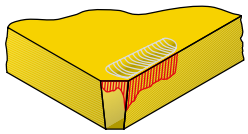
Cutting demands when milling





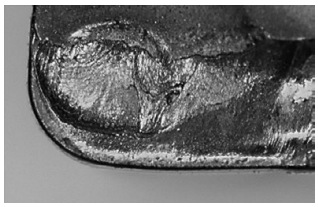
Edge chipping

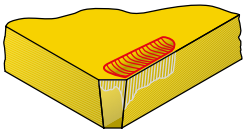
Cutting speed ↑
Feed per tooth ↓
Toughness of grade ↑
Cutting edge chamfer ↑



Wear on clearance face

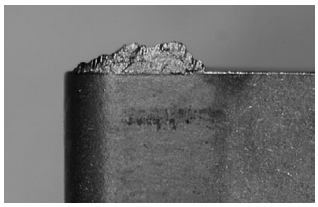
Cutting speed ↓
Feed per tooth ↑
Abrasion resistant grade ↑

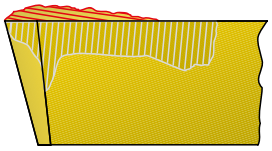




Cratering

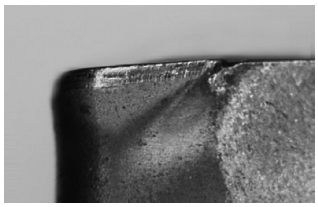
Cutting speed ↓
Feed per tooth ↓
Abrasion resistant grade ↑

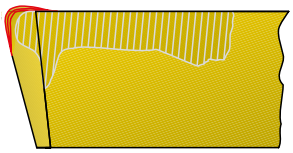




Built-up edge

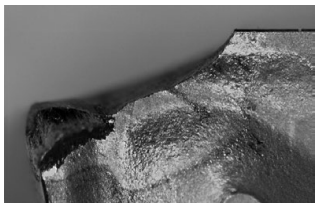
Cutting speed ↑
Feed per tooth ↑
Wear resistance ↑

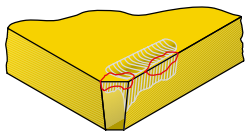




Cutting-edge deformation

Cutting speed ↓
Feed per tooth ↓
Abrasion resistant grade ↑

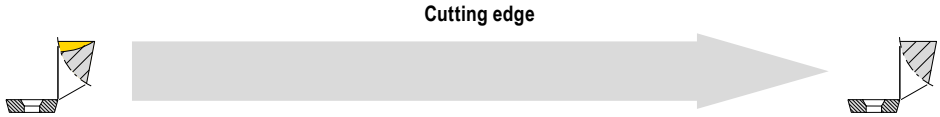




Cutting Edge Breakage

Cutting speed ↓
Toughness of grade ↑

Chip Breakers Overview



			Sharp ●		medium ● ●		stable ● ● ●	
			10	20	30	40	50	60
increasing wedge angle	fine	F	-F10 -27 -27P	-F20		-F40	-F50	-ER -FN -33P -33
	medium	M			-M31 -M30 -M32		-M50 -31	-EN -29
	rough	R			-R30		-R50	-SN -R60 -SR

Chip breaker code

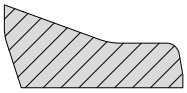
			Cutting edge		
			Sharp	medium	stable
			10–20	30–40	50–60
Application type	light	F	●	● ●	● ● ●
	universal	M	●	● ●	● ● ●
	difficult	R	●	● ●	● ● ●

Example: Chip breaker -M50

Chip breaker description

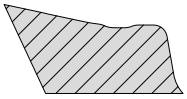
-27P

- Highly positive geometry
- Ground, sharp cutting edge
- Low adhesion
- Recommendation for non-ferrous metals



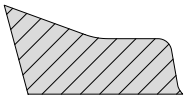
-F10

- Highly positive geometry
- Ground, sharp cutting edge
- Low adhesion
- Recommendation for non-ferrous metals



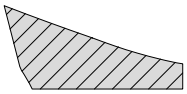
-27

- Highly positive geometry
- Sharp cutting edges
- First choice for non-ferrous metals



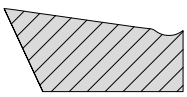
-F20

- Highly positive geometry
- Lightly rounded cutting edge
- Recommendation for non-ferrous metals



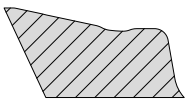
-F40

- Positive geometry
- Rounded cutting edge
- Finish and rough machining
- For unstable clamping situations
- Recommendation for heat-resistant materials, titanium and super alloys



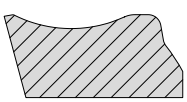
-F50

- Streamlined geometry with protective chamfer
- Rounded cutting edge
- Light rough machining
- For unstable clamping situations
- Recommendation for stainless steel materials



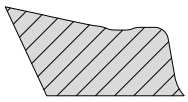
-33P

- Positive geometry with small neutral protective chamfer
- Low adhesion
- Rounded cutting edge
- Low cutting force and good stability
- For unstable clamping situations
- Light rough machining
- First choice for stainless steels



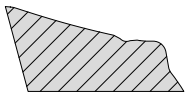
-M30

- Positive geometry
- Rounded cutting edge
- Medium rough machining
- For unstable clamping situations
- Recommendation for martensitic stainless steels (blade machining only with MaxiMill 251)



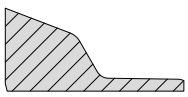
-M31

- Positive geometry
- Rounded cutting edge
- Finish and rough machining
- For unstable clamping situations
- For heat-resistant materials, titanium and super alloys



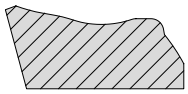
-M32

- Positive geometry
- Rounded cutting edge
- Low cutting force and good stability
- Medium rough machining
- First choice for martensitic stainless steels



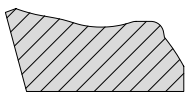
-M50

- Universal geometry with protective chamfer
- Rounded cutting edge
- Light to medium rough machining
- Recommendation for general steel materials



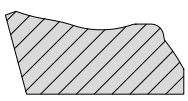
-31

- Positive geometry with neutral protective chamfer
- Rounded cutting edge
- Heavy rough machining
- Strongly interrupted cuts
- First choice for cast iron materials



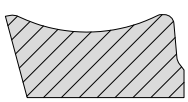
-29

- Positive geometry with slightly negative protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



-33

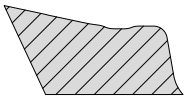
- Positive geometry with small neutral protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- For unstable clamping situations
- Light rough machining
- First choice for stainless steels



Chip breaker description

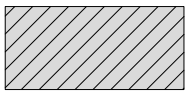
-29R

- Positive geometry with slightly negative protective chamfer
- Heavily rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



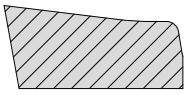
-ER

- Neutral Geometry
- Rounded cutting edge
- Universal application
- High surface quality due to face chamfer
- First choice for machining cast iron and non-ferrous metals



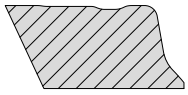
-R30

- Slightly positive geometry
- Rounded cutting edge
- Medium rough machining
- Strongly interrupted cuts
- First choice for cast iron materials



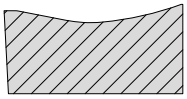
-EN

- Neutral geometry
- Rounded cutting edge
- High surface quality due to face chamfer (radial protective chamfer on indexable insert)
- First choice for machining cast iron and non-ferrous metals



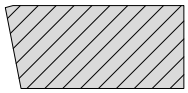
-R50

- Rugged geometry with protective chamfer
- Rounded cutting edge
- Rough machining
- Interrupted cuts
- Recommendation for cast iron materials



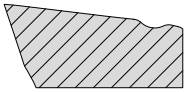
-SN

- Neutral geometry
- Rounded cutting edge
- High surface quality due to face chamfer (radial protective chamfer on indexable insert)
- Low cutting forces
- First choice for good flatness



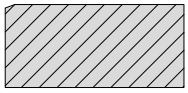
-R60

- Rugged geometry with protective chamfer
- Rounded cutting edge
- Rough machining
- For stable clamping situations
- Recommendation for high-strength steel materials



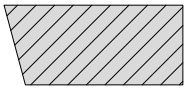
-SR

- Neutral geometry with negative protective chamfer
- Rounded cutting edge
- Robust indexable insert
- For poor machining conditions
- First choice for machining cast iron and steels



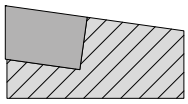
-FN

- Neutral and highly stable geometry
- Heavily rounded cutting edge
- For stable machining conditions
- First choice for hard machining up to approx. 50 HRC



-FR

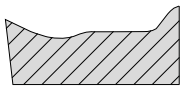
- Neutral Geometry
- Slightly rounded and stable cutting edge
- Associated with Ceramic and CBN cutting materials.
- For stable machining situations
- First choice for machining cast irons



Chip breaker description for MaxiMill Slot-SX

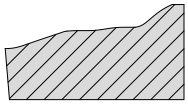
-27P

- Positive geometry
- Ground, sharp cutting edge
- Polished chip breaker
- Low cutting forces
- Fine to medium machining
- First choice for non-ferrous metals



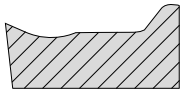
-M8

- Extremely positive geometry
- Ground cutting edge
- Low cutting forces
- Fine to medium machining
- First choice for difficult-to-machine and stainless materials
- Alternatively, can also be used for non-ferrous metals



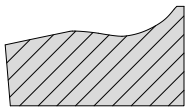
-F2

- Positive geometry
- Ground cutting edge
- Low cutting forces
- Fine to medium machining
- For stainless and steel materials



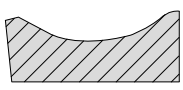
-M7

- Positive geometry
- Medium machining
- Universal application



-M1

- Stable cutting edge
- Medium to rough machining
- Best suited to steel materials



Grades Overview

Grade designation	Standard designation	ISO application range	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O
CTEP210	HE-P10	01 10 20 30 40 50 / 05 15 25 35 45	●		●				
	HE-K05								
TCM10	HT-P15		●		○				
	HT-K10								
WTN1205	HC-P10		●	○	●			●	
	HC-M15								
	HC-K05								
	HC-H10								
CTPP211	HC-P10		●	○	○	○	○	○	○
	HC-M15								
	HC-K10								
	HC-N10								
	HC-S15								
	HC-H10								
	HC-O10								
CTPP216	HC-P10		●	○	●	○	○	●	○
	HC-M20								
	HC-K15								
	HC-N15								
	HC-S20								
	HC-H15								
	HC-O15								
CTCP220	HC-P20		●		●				
	HC-K20								
CTPP225	HC-P25		●		●				
	HC-K25								
CTCP230	HC-P30		●		●				
	HC-K25								
CTPP231	HC-P30		●		○				
	HC-K25								
CTPP235	HC-P35		●	○	○				
	HC-M30								
	HC-K30								
CTPP236	HC-P35		●	○	○				
	HC-M35								
	HC-K30								
WAN1240	HC-P40		●	○	○				
	HC-M35								
	HC-K30								
WAX1240	HC-P30		●	○	○				
	HC-M25								
	HC-K25								
CTPM225	HC-P25		●	●					
	HC-M25								
WAN2225	HC-M25			●			●		
	HC-S30								
CTCM235	HC-P40		●	●					
	HC-M35								
CTPM240	HC-P40		○	●					
	HC-M40								
CWK10	HC-N10					●			○
	HC-O10								

● **Main Application**
○ Extended application

wear-resistant v_c+ ⟷ v_c– tough

Grades Overview

Grade designation	Standard designation	ISO application range	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O
CTPM241	HC-P40	01 05 10 15 20 25 30 35 40 45 50	●	●			○		
	HC-M40								
	HC-S40								
CTPM245	HC-P45		●	●					
	HC-M50								
CTCM245	HC-P45		●	●			○		
	HC-M50								
	HC-S35								
CTN3105	CN-K05				●				
CTL3215	BC-K10				●			○	
	BC-H10								
CTCK215	HC-K15				●				
CTPK220	HC-K20				●				
CTPK221	HC-P15		○		●				
	HC-K10								
CTPK226	HC-P15		●	●	●			○	
	HC-M20								
	HC-K15								
	HC-H15								
CTPK231	HC-P30		●	●	●	○	○	○	
	HC-M35								
	HC-K30								
	HC-N30								
	HC-S35								
	HC-H30								
CTD4205	DP-N05					●			○
	DP-O05								
CTPX715	HC-P15		○	○	●	●	○		○
	HC-M15								
	HC-K15								
	HC-N15								
	HC-S20								
	HC-O10								
WUN4210	HT-K10				○	●			
	HT-N15								
CTCN211	HC-N10					○			●
	HC-O10								
CTWN215	HC-K15				○	●			○
	HC-N10								
	HC-O10								
H216T	HW-K15				○	●			○
	HW-N15								
	HW-O15								
CTC5240	HC-S35						●		
CTCS245	HC-S45						●		
CTP6215	HC-K15				●			●	
	HC-H15								
CWX500	HC-P15		●	●	○	●	○		○
	HC-M15								
	HC-K15								
	HC-N15								
	HC-S15								
	HC-O15								

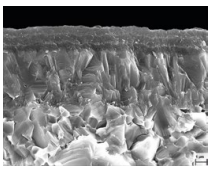
● **Main Application**
○ Extended application

wear-resistant v_c+ ⟷ v_c− tough

15

Grade description

CTEP210



P10 | **K05**

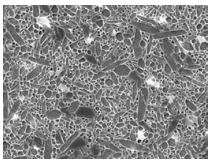
Specification:
Composition: Cermet Co/Ni 12.2%; mixed carbide 71.4%; others; WC balance | Fine grain size | Hardness: HV_{30} 1620 |
Layer system: CVD TiCN-Al_3O_3
Application:
Coated Cermet grade with reserves of toughness for finish machining at high cutting speeds

TCM10

P15 | K10

Specification:
Composition: Co/Ni 12.2%; WC 15; TaNbC10.0%; TiCn balance | Hardness: HV_{30} 1620 | Layer system: uncoated
Application:
Uncoated Cermet grade for the finishing of hardened steel

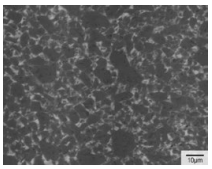
CTN3105



CN-K05

Specification:
Composition: ß – Si_3N_4 | Fine grain size | Hardness: HV_{30} 1620 | Layer system: uncoated
Application:
Universal silicon nitride for the machining of cast iron materials

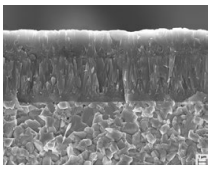
CTL3215



BC-K10 | BC-H10

Specification:
Composition: Cubic boron nitride (CBN) | 85 vol. + metallic binder phase | Cutting system: PVD
Application:
Coated cubic boron nitride with very good cutting toughness and good wear resistance for the machining of cast iron materials

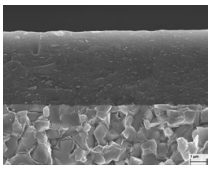
CTCP220



HC-P20 | **HC-K20**

Specification:
Composition: Co 8.0%; mixed carbide 2.0%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1500 |
Layer system: CVD TiCN-Al_3O_2
Application:
Dry machining, high cutting speed + more wear resistant grades to CTCP230
Material example:
Low material strength up to approx. 250 HB / 840 N/mm²

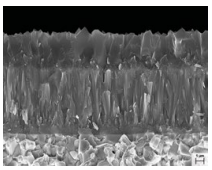
CTPP225



HC-P25 | **HC-K25**

Specification:
Composition: Co 8.0%; mixed carbide 2.0%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1500 | Layer system: PVD TiAlTaN
Application:
Dry or wet machining, face milling of steel materials, higher cutting speeds + more wear resistant grades to CTPP235
Material example:
Medium material strength up to approx. 300 HB / 1000 N/mm²

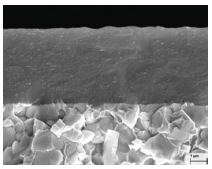
CTCP230



HC-P30 | HC-M25 | **HC-K25**

Specification:
Composition: Co 10.5%; mixed carbide 2.0%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1400 |
Layer system: CVD TiCN-Al_2O_3
Application:
Dry machining, universal grade for higher cutting speeds

CTPP235

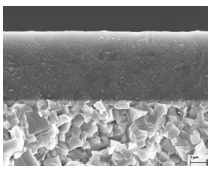


HC-P35 | HC-M30

Specification:
Composition: Co 10.5%; mixed carbide 2.0%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1400 | Layer system: PVD TiAlTaN
Application:
Wet machining, universal grade for medium cutting speeds

Grade description

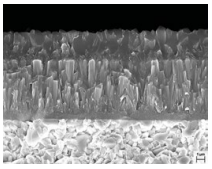
CTPM225



HC-P25 | **HC-M25**

Specification:
Composition: Co 9.0%; mixed carbide 0.75%; WC balance | Fine grain size 0.7-1µm | Hardness: HV_{30} 1590 | Layer system: PVD TiAlTaN
Application:
Dry or wet machining at medium cutting speeds
Material example:
Austenitic stainless steels

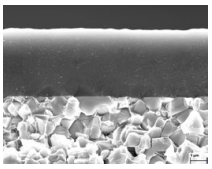
CTCM235



HC-P40 | **HC-M35**

Specification:
Composition: Co 12.5%; mixed carbide 2.0%; WC balance | Fine grain size 1µm | Hardness: HV_{30} 1380 | Layer system: CVD TiCN-Al_2O_3
Application:
Dry machining for medium cutting speeds
Material example:
Martensitic stainless steels

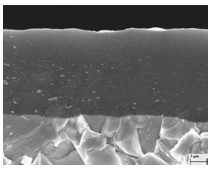
CTPM240



HC-P40 | **HC-M40**

Specification:
Composition: Co 12.0%; mixed carbide 2.0%; WC balance | Fine grain size 1µm | Hardness: HV_{30} 1380 | Layer system: PVD TiAlTaN
Application:
Wet machining, universal grade for higher cutting speeds
Material example:
Austenitic stainless steels

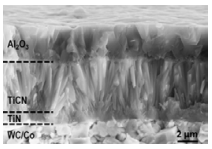
CTPM245



HC-P45 | **HC-M45**

Specification:
Composition: Co 10.0%; others 1.5%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1330 | Layer system: PVD TiAlTaN
Application:
Dry or wet machining
Material example:
High-alloy martensitic and austenitic stainless steel

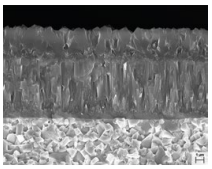
CTCM245



HC-P45 | **HC-M50** | HC-S35

Specification:
Composition: Co 10.0%; others 1.5%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1330 | Layer system: CVD TiCN-Al_2O_3
Application:
Dry machining
Material example:
High-alloy martensitic and austenitic stainless steel

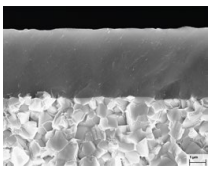
CTCK215



HC-K15

Specification:
Composition: Co 6.0%; mixed carbide 2.0%; WC balance | Fine grain size 1µm | Hardness: HV_{30} 1630 | Layer system: CVD TiCN-Al_2O_3
Application:
Special grade for the dry machining of cast iron materials at high cutting speeds
Material example:
Cast iron materials such as GG25 and GGG40

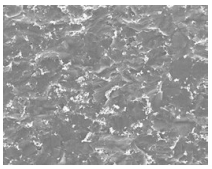
CTPK220



HC-K20

Specification:
Composition: Co 6.0%; mixed carbide 2.0%; WC balance | Fine grain size 1µm | Hardness: HV_{30} 1630 | Layer system: PVD TiAlTaN
Application:
Special grade for the wet machining of cast iron materials in demanding application ranges
Material example:
High-strength cast iron materials such as GGG50 and GGG70

CTD4205

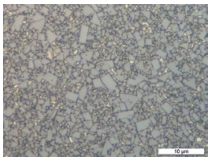


DP-N05

Specification:
Composition: Polycrystalline diamond (PKD) | grain size 2-5µm | Layer system: uncoated
Application:
For the machining of aluminium and non-ferrous metals
Material example:
Non-ferrous metals such as AlMgSi1

Grade description

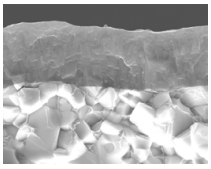
CTWN215 (H216T)



K15 | **N15** | O15

Specification:
Composition: Co 6.0%; WC balance | Fine grain size 1µm | Hardness: HV_{30} 1650 | Layer system: uncoated
Application:
Uncoated carbide for the machining of aluminium and non-ferrous metals
Material example:
Non-ferrous metals such as AlMgSi1

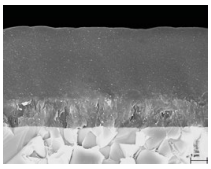
CTPX715



ISO | **P15** | **M15** | K15 | **N15** | **S20** | O10

Specification:
Composition: Co 6.0%; WC balance | Fine grain size 1µm | Hardness: HV_{30} 1650 | Layer system: PVD AlTiN
Application:
For the machining of aluminium and non-ferrous metals
Material example:
Non-ferrous metals such as AlMgSi1 or GGG30 cast iron

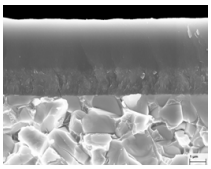
CTC5240



HC-S40

Specification:
Composition: Co 10.0%; WC balance | Medium grain size 2µm | Hardness: HV_{30} 1330 | Layer system: CVD TiN-TiB_2
Application:
Special wet machining grade for the machining of titanium materials
Material example:
Titanium Ti6Al4V

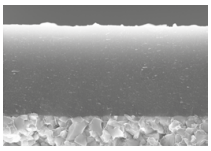
CTCS245



HC-S45

Specification:
Composition: Co 12.0%; mixed carbide 1.8%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1260 | Layer system: CVD TiN-TiB_2
Application:
Wet machining special grade for the machining of nickel-based alloys or the dry machining of austenitic stainless steels
Material example:
Heat-resistant materials such as Inconel, Rene, Nimonic, etc.

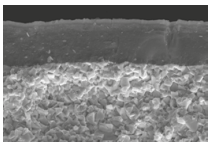
CTP6215



HC-H15 | **HC-K15**

Specification:
Composition: Co 12.0%; WC balance | Ultra-fine grain size 0.4µm | Hardness: HV_{30} 1630 | Layer system: PVD TiAlN
Application:
For the machining of high-strength martensitic tool steels 400HB / 1300 N/mm^2
Material example:
Tool steel 1.2379, 1.2312

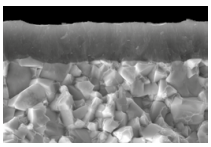
CTPK231



P30 | **M35** | **K30** | N30 | S35 | H30

Specification:
Composition: Co 9.8%; WC balance | Fine grain size 1µm | Hardness: HV_{30} 1612 | Layer system: PVD TiN / TiAlN / ZS / TiAlN / Al_2O_3 / TiN
Application:
Dry machining, tough carbide grade for the medium and rough machining of steel and cast iron metals

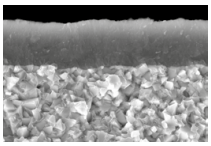
CTPP216



P10 | M20 | **K15** | N15 | S20 | **H15** | O15

Specification:
Composition: Co 9.6%; WC balance | Fine grain size 0,7-1µm | Hardness: HV_{30} 1824 | Layer system: PVD TiN / TiAlN / DS
Application:
Highly wear-resistant carbide grade with high cutting edge stability for the machining of high-strength materials, non-alloyed tool steels, cast iron and hardened steel up to 54 HRC

CTPK226

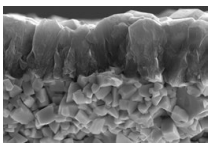


P10 | M20 | **K15** | H15

Specification:
Composition: Co 11.6%; WC balance | Fine grain size 0.7-1µm | Hardness: HV_{30} 1711 | Layer system: PVD TiN / AlTiN / DS
Application:
Highly wear-resistant ultra-fine grain carbide grade for the machining of cast iron metals and hardened steels up to 62 HRC

Grade description

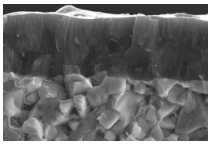
CTCN211



N10 | **O15**

Specification:
Composition: Co 6.5%; WC balance | Fine grain size 0.7-1µm | Hardness: HV_{30} 1827 | Layer system: PVD diamond
Application:
Diamond-coated carbide grade for the machining of graphite and non-ferrous metals

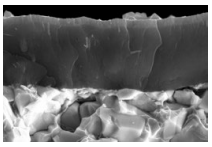
WAN1240



P40 | M35 | K30

Specification:
Composition: Co 9%; mixed carbide 3.8%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1449 | Layer system: PVD TiAlN / TiN
Application:
Tough special grade for the machining of steel at medium to high cutting speeds. Also suitable for the machining of cast iron in secondary applications

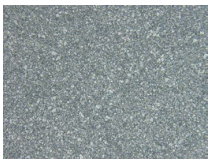
WAN2225



M25 | **S25**

Specification:
Composition: Co 11.3%; WC balance | Medium grain size 2µm | Hardness: HV_{30} 1307 | Layer system: PVD TiAlN / TiN
Application:
Dry and wet machining, fine grain grade with high toughness and temperature resistance. For rough and finish machining of rust and acid-resistant steels

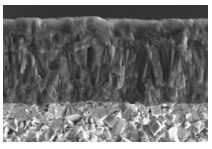
WUN4210



K15 | **N10** | O10

Specification:
Composition: Co 8.1%; WC balance | Fine grain size 0.7-1µm | Hardness: HV_{30} 1715 | Layer system: uncoated
Application:
Uncoated carbide for the machining of aluminium and non-ferrous metals
Material example:
Non-ferrous metals such as AlMgSi1

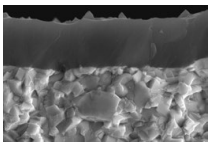
WAX1240



P40 | M25 | K30

Specification:
Composition: Co 10.5%; mixed carbide 2.1%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1345 |
Layer system: CVD TiN / TiCN / TiN / Al_2O_3
Application:
High-strength special grade for medium and rough machining at medium cutting speeds and extreme feed rates per tooth

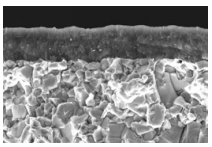
WTN1205



P10 | M15 | **K05** | **H10**

Specification:
Composition: Co 7.3%; WC balance | Fine grain size 0.7-1µm | Hardness: HV_{30} 1801 | Layer system: PVD TiN / TiAlN
Application:
Special grade for the machining of steel, hardened steel, cast iron, and non-ferrous metals and graphite

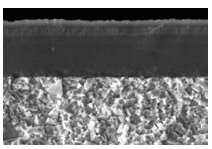
CTPP231



P30 | K25

Specification:
Composition: Co 9.5%; mixed carbide 2%; WC balance | Medium grain size 2-3µm | Hardness: HV_{30} 1400 | Layer system: PVD TiAlN
Application:
A very tough special grade for the medium and rough machining of steel at medium cutting speeds and extremely high feed rates

CTPP211

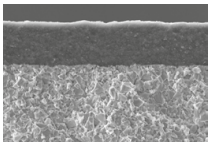


P10 | M15 | K10 | N10 | S15 | H10 | O10

Specification:
Co 6.3%; WC balance | Fine grain size 0.7-1µm | Hardness: HV_{30} 1843 | Layer system: PVD TiN / TiAlN / ZS / TiAN / Al_2O_3 / ZS / TiN
Application:
universal grade for medium cutting speeds

Grade description

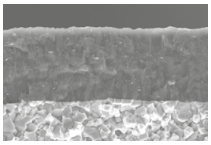
CTPP236



P35 | M35 | K30

Specification:
Composition: Co 9.5%; mixed carbide 2%; WC balance | Medium grain size 2-3µm | Hardness: HV_{30} 1370 | Layer system: PVD TiAlN
Application:
Tough special grade for the medium and rough machining of steel at high cutting speeds. Also suitable for the machining of cast iron and stainless steels in secondary applications

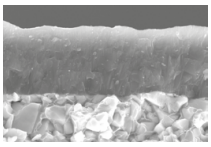
CTPK221



P15 | **K10**

Specification:
Composition: Co 6%; WC balance | Medium grain size 1µm | Hardness: HV_{30} 1600 | Layer system: PVD TiAlN
Application:
Standard grade for the fine machining of cast iron and non-ferrous metals at medium cutting speeds

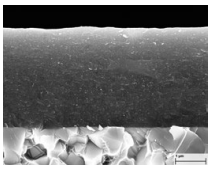
CTPM241



P40 | **M40** | S40

Specification:
Composition: Co 12%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1450 | Layer system: PVD TiAlN
Application:
Tough special grade for the machining of stainless and heat-resistant steels

CTP1340

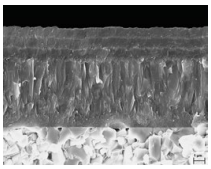


ISO | **P30** | **K30** | N30 | **S30** | O30

Specifications:
Composition: Co 9.0%; mixed carbide 0.75%; WC balance | grain size: 0.7–1 µm | Hardness: HV_{30} 1590 | Layer system: PVD TiAlTaN

Recommended use:
The universal high-performance grade for steels, austenitic steel, cast iron materials and heat-resistant alloys

CTCP335

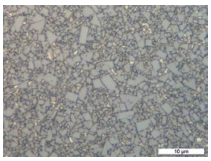


ISO | **P35** | M30 | **K35**

Specifications:
Composition: Co 10.5%; mixed carbide 1.9%; WC balance | grain size: 1 µm | Hardness: HV_{30} 1370 |
Layer system: CVD TiCN-Al_2O_3 Multilayer

Recommended use:
The reliable choice for machining steel and cast iron materials.

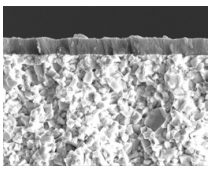
CWK10



N10 | O10

Specification:
Composition: Co 6.0%; WC balance | Fine grain size 1µm | Hardness: HV_{30} 1650 | Layer system: uncoated
Application:
Uncoated carbide for the machining of aluminium and non-ferrous metals
Material example:
Non-ferrous metals such as AlMgSi1

CWX500

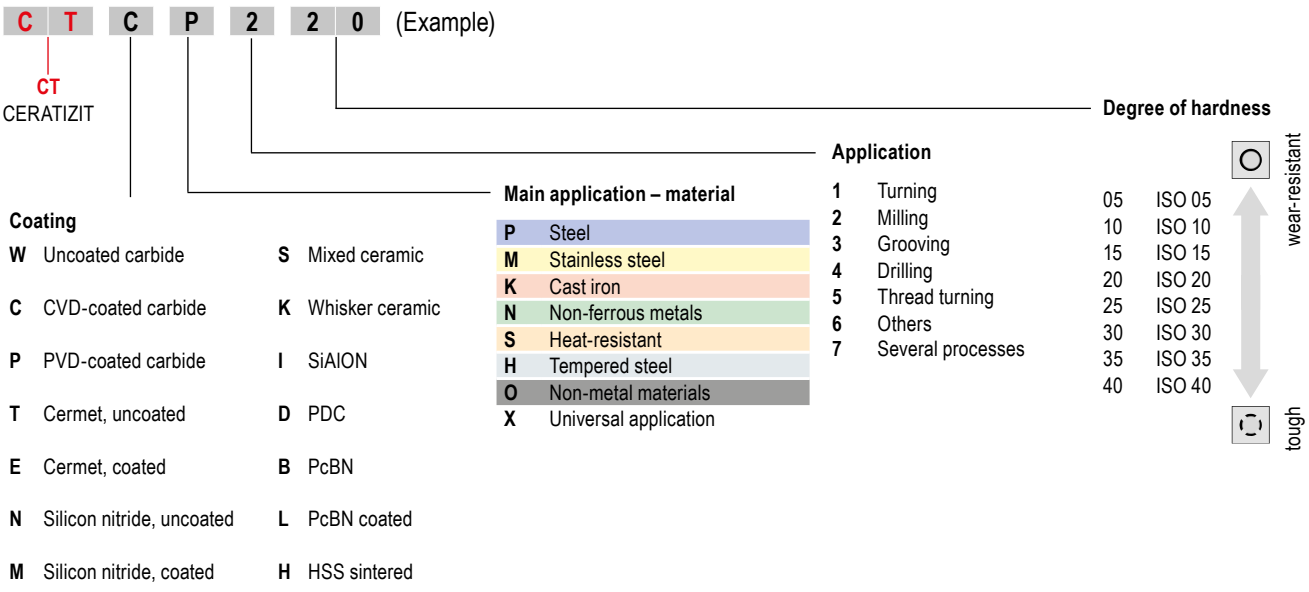


ISO | **P30** | **M30** | **K35** | **N35** | **S15** | H05 | **O10**

Specification:
Composition: Co 10.0%; Others 0.7 %, WC balance | Grain size: 1 µm | Hardness: HV_{30} 1660

Recommended application:
The universal carbide grade for almost all materials

Grade description



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NEW PSC parting blade holders and square shank holders with DirectCooling

Our new DirectCooling turning and grooving tool holders in specially tailored PSC adapters. The DirectCooling interface is perfectly adapted and the holders have been specially developed for these tools.

NEW VDI holders with DirectCooling

The VDI holder with DirectCooling is incredibly versatile owing to its 4-in-1 functionality. Thanks to its double tooth profile, only one holder is needed. The clamping rails can be attached at the top or bottom, as an optional extra.

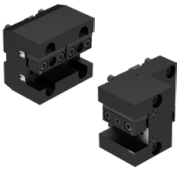
NEW Shell mill adapter

These shell mill adapters, which were developed specially for the MaxiMill 211-KN porcupine cutters, are being added to our product range. Now the porcupine cutters can be securely clamped thanks to the adapted flange diameters.

NEW Torsional vibration dampers with ABS connection

The popular and very useful torsional vibration damper with ABS connection has been supplemented with the PSC interface. This extension is enhancing our complete range and we can now also clamp without an adapter directly on machines with the PSC interface.

NEW BMT holders with DirectCooling



We have expanded our portfolio to include various BMT systems with DirectCooling.

Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories **16**

17 Workpiece clamping

18 Material examples and article no. Index

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Compensation holder DAH 315

WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Coolant supply version

without coolant supply (Form A)

Coolant supply central
Steep taper Form AD

Coolant supply either via the flange, or central (Form AD/B)

with eroded cooling ducts

Direct Cooling
DC = DirectCooling

TG
specially matched adapter for ThermoGrip® shrinking process

Coolant supply centrally or via the collar
with eroded cooling channels

Adapter with two additional coolant holes

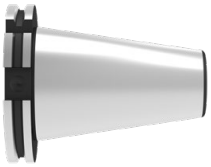
Coolant supply centrally or via the collar
also additional coolant holes

Central coolant supply or via a coolant nozzle

ER-B
2 µm
Collet description
▲ Type version
▲ Radial run-out accuracy

Toolfinder – Machine interface

ISO 7388-1 – SK steep taper holders

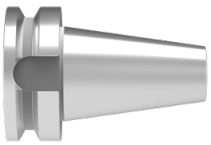


- ▲ SK 30
- ▲ SK 40
- ▲ SK 50
- ▲ SK-FC 50

Toolfinder – Adapters, rotating 6+7
Product programme 14–60

ISO 7388-2 – MAS-BT taper shank

MAS-BT / MAS-BT-FC with face contact

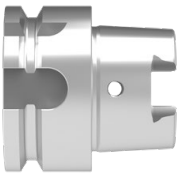


- ▲ BT 30
- ▲ BT 40
- ▲ BT 50
- ▲ BT-FC 30
- ▲ BT-FC 40
- ▲ BT-FC 50

Toolfinder – Adapters, rotating 6+7
MAS-BT product range 61–101 / 110+111
MAS-BT-FC product range 102–109

HSK hollow taper adapters with face contact

ISO 12164 – HSK-A / HSK-E



- ▲ HSK-A 40
- ▲ HSK-A 50
- ▲ HSK-A 63
- ▲ HSK-A 100
- ▲ HSK-E 25
- ▲ HSK-E 32
- ▲ HSK-E 40
- ▲ HSK-E 50

Toolfinder – Adapters, rotating 6+7
HSK-A product range 112–152 / 156
HSK-E product range 153–155

ISO 12164-3 – HSK-T

- ▲ HSK-T 63
- ▲ HSK-T 100

Toolfinder – Adapters, stationary 8+9
Product programme 193–195

ISO 26623-1 – PSC polygon hollow adapters with face contact

PSC, rotating

- ▲ PSC 32
- ▲ PSC 40
- ▲ PSC 50
- ▲ PSC 63
- ▲ PSC 80

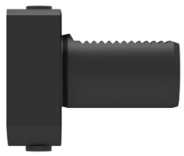
Toolfinder – Adapters, rotating 6+7
Product programme 157–176

PSC, stationary

- ▲ PSC 32
- ▲ PSC 40
- ▲ PSC 50
- ▲ PSC 63
- ▲ PSC 80
- ▲ PSC 80X

Toolfinder – Adapters, stationary 8+9
Product programme 198–204

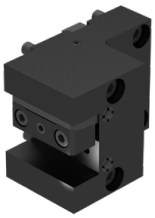
ISO 10889 – VDI tool holders with cylindrical shank



- ▲ VDI 16
- ▲ VDI 20
- ▲ VDI 25
- ▲ VDI 30
- ▲ VDI 40
- ▲ VDI 50

Toolfinder – Adapters, stationary 10+11
Product programme 205–226
Driven Tools 303+304

BMT tool holders



- ▲ Doosan/Spinner – BMT 45
- ▲ Doosan – BMT 55
- ▲ EMAG – BMT 55
- ▲ HAAS/Doosan – BMT 65
- ▲ Mori/Seiki – BMT 40
- ▲ Mori/Seiki – BMT 60
- ▲ Mazak – BMT 68

Toolfinder – Adapters, stationary – BMT tool holders 12
Product programme 227–240

Toolfinder – Adapters, rotating

Holder Type		ISO 7388-1 SK	ISO 7388-1 SK-FC	ISO 7388-2 MAS-BT	ISO 7388-2 MAS-BT-FC	ISO 12164 HSK-A	ISO 12164 HSK-E	ISO 26623-1 PSC	ABS	Morse taper	Cylindrical shank
Accuracy											
Maximum											
ER Precision Collet chuck											
▲ Centro-P		14–16		61–63	102	112–114	153+154	157			252
▲ HDC		17		64	103	115					
HyPower – High Pressure Milling Chuck		18–21		65–68	105	116–119		158			
HyTens – Hydraulic chuck		22+23		69+70	120–122	120+122			177		248+249
Heat Shrink Adapter		30–29		71–75	104	123–130	155	159–161	178		247
Micro-Precision Collet Chuck											250
High											
Cylindrical shank adapter											
▲ Weldon		30–32		76+78	106	131+132		162	179		251
▲ Whistle Notch		33+34		79+80		133		163	180+181		
Indexable insert drill adapter		42		81		134		164			
Collet Chuck											
▲ Precision Collet chuck – PCC		36		82		135					
▲ ER Collet chuck		37+38		83	107	136+137		165+166	182		253+254
Short drill chuck		39		84		138		167	183	243	243
Quick change tapping chuck											
▲ With minimum length compensation		40+41		85+86		139		168	184		244
▲ with length compensation		42		87		140		169	183	245	245
ABS adapters		43+44	45	88–90	108	141+142		170+171	187–191		84 232 ...
Compensation holder DAH		The DAH length compensation chucks are available in our online shop. Technical information on the products can be found on **page 315**.									

Main Application	Finishing	Roughing - Finishing	Roughing
Extended application			

Toolfinder – Adapters, rotating

Holder Type	ISO 7388-1 SK	ISO 7388-1 SK-FC	ISO 7388-2 MAS-BT	ISO 7388-2 MAS-BT-FC	ISO 12164 HSK-A	ISO 12164 HSK-E	ISO 26623-1 PSC	ABS	Morse taper	Cylindrical shank
Accuracy										
Medium										
Adapter for milling cutters with threaded end	46+47		91		143+144		172			255+256
Face mill adapter										
▲ Combination shell mill adapter	48		92		145			186		
▲ Shell mill adapter	49–51		93–95	109	146–148		173	185		
▲ Large diameter facemill adapter	52		96							
Drill chuck adapter									242	
Taper adapter for Morse taper	53		97		149		174		242	
Adapter										
▲ SK	54									
▲ MAS-BT			98							
▲ HSK-A	55		99		150					
▲ PSC	56		100		151		202+203			
Blank	57		101		152		175	192		
Test bar	57		101		152		176			

Main Application		Finishing		Roughing - Finishing		Roughing
Extended application						

16

Toolfinder – Stationary adapters – HSK-T and PSC tool holders

Toolholders for negative turning inserts

	Type Machining	Article no.	Illustration
CN..	DCLN 95° Internal + External	74 503 + 74 504	
	DCMN 95° External	74 506	
	DCMN+ DDMN External	74 600	

All tool holders for negative rotary indexable inserts CN..
can be found in → **Section 9, Turning Tools**

DN..	DCMN+ DDMN External	74 600	
	DDUN 93° Internal + External	74 515 + 74 516	
	DDJN 93° Internal + External	74 511 + 74 512	
	DDHN 107,5° Internal + External	74 507 + 74 508	
	DDMN 48° External	74 519	

All tool holders for negative rotary indexable inserts DN..
can be found in → **Section 9, Turning Tools**

SN..	DSDN 45° External	74 522	
VN..	DVMN 50° External	74 525	
WN..	DWLN 95° Internal + External	74 528 + 74 529	

All tool holders for negative rotary indexable inserts SN.., VN.. and WN..
can be found in → **Section 9, Turning Tools**

Toolholders for positive turning inserts

	Type Machining	Article no.	Illustration
CC..	SCLC 95° Internal + External	74 540 + 74 541	
	SCMC 50° External	74 542	

All tool holders for positive rotary indexable inserts CC..
can be found in → **Section 9, Turning Tools**

DC..	SDJC 93° Internal + External	74 543 + 74 544	
	SDNC 62,5° Internal + External	74 677	
	SDMC 48° External	74 546	

All tool holders for positive rotary indexable inserts DC..
can be found in → **Section 9, Turning Tools**

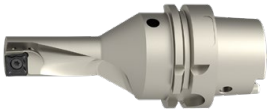
RC..	PRDC 0° External	74 548	
	PRSC Internal + External	74 551 + 74 552	

All tool holders for positive rotary indexable inserts RC..
can be found in → **Section 9, Turning Tools**

VC..	SVUC 93° Internal + External	74 557 + 74 558	
	SVJC 93° Internal + External	74 555 + 74 556	
	SVHC 107,5° Internal + External	74 553 + 74 554	
	SVMC 50° External	74 560	

All tool holders for positive rotary indexable inserts VC..
can be found in → **Section 9, Turning Tools**

You can find more information on the multifunction tool EcoCut in
→ **Section 10, Multifunctional Tools – EcoCut and FreeTurn**



2,25xD

Toolfinder – Stationary adapters – HSK-T and PSC tool holders

Holders for grooving and threading inserts

Type	Article no.	Illustration
0°	74 580 + 74 581	

All tool holders for grooving and threading inserts can be found in
→ **Section 11, Grooving tools**

Toolholders for threading inserts

Type	Article no.	Illustration
Internal thread	84 196 + 84 197	
External thread	84 190 + 84 191	

All tool holders for threading inserts can be found in
→ **Section 8, Thread turning**

Boring bars for negative inserts

	Type	Article no.	Illustration
CN..	DCLN 95°	74 528 + 74 529	
DN..	DDUN 93°	74 532 + 74 533	
WN..	DWLN 95°	74 536 + 74 537	

All boring bars for negative indexable inserts can be found in
→ **Section 9, Turning Tools**

Boring bars for positive inserts

	Type	Article no.	Illustration
CC..	SCLC 95°	74 563 + 74 564	
DC..	SDUC 93°	74 565 + 74 566	
VC..	SVUC 93°	74 567 + 74 568	
	SVQC 107,5°	70 748 + 70 749	

All boring bars for positive indexable inserts can be found in
→ **Section 9, Turning Tools**

Basic holder

Type	Illustration		HSK-T ISO 12164	PSC ISO 26623
Square shank holder 0°		Direct Cooling	194+195	196
				198
Square shank holder 45°		Direct Cooling	194+195	197
				199
Square shank holder 90°		Direct Cooling	194+195	197
				198
Square shank holder 2 face 0°				199
Square shank holder 3 face 0°			195	199
Boring bar holder			195	200

Parting blade holders

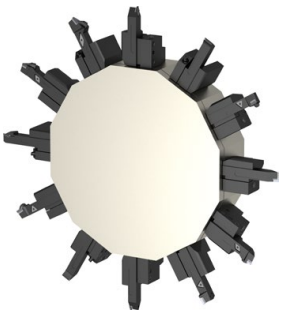
Type	Illustration		HSK-T ISO 12164	PSC ISO 26623
Parting blade holder 0°		Direct Cooling	193	196
Parting blade holder 90°		Direct Cooling	193	196
				198

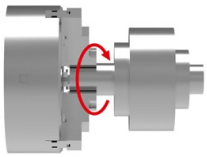
Accessories

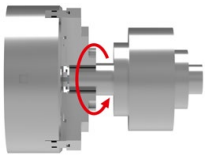
Protection plug			204
Hollow nose keys			204

16

Toolfinder – Stationary adapters – VDI adapters for star turrets







Toolholders above

Upper turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters / DirectCooling	B2/B3/B6/B7/C1/C2/D1/D2	205–207 209–212	B2/B3/B6/B7/C3/C4/D1/D2	205–207 209–212
	Parting blade holders / DirectCooling	double	208 216+217	double – overhead	208 216+217
	Adapter VDI to VDI	Left-hand	222	Left-hand	222
	Boring bar holder	Left-hand	222	Left-hand	222

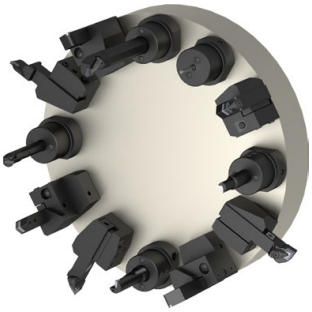
Lower turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters / DirectCooling	B2/B3/B6/B7/C3/C4/D1/D2	205–207 209–212	B2/B3/B6/B7/C1/C2/D1/D2	205–207 209–212
	Parting blade holders / DirectCooling	double – overhead	208 216+217	double	208 216+217
	Adapter VDI to VDI	Right-hand	222	Right-hand	222
	Boring bar holder	Right-hand	222	Right-hand	222

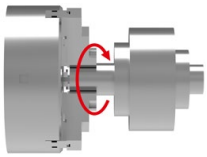
Toolholders below

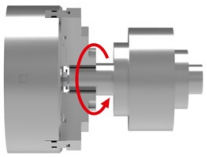
Upper turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters / DirectCooling	B2/B3/B6/B7/C3/C4/D1/D2	205–207 209–212	B2/B3/B6/B7/C1/C2/D1/D2	205–207 209–212
	Parting blade holders / DirectCooling	double	208 216+217	double – overhead	208 216+217
	Adapter VDI to VDI	Right-hand	222	Right-hand	222
	Boring bar holder	Right-hand	222	Right-hand	222

Lower turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters / DirectCooling	B2/B3/B6/B7/C1/C2/D1/D2	205–207 209–212	B2/B3/B6/B7/C3/C4/D1/D2	205–207 209–212
	Parting blade holders / DirectCooling	double – overhead	208 216+217	double	208 216+217
	Adapter VDI to VDI	Left-hand	222	Left-hand	222
	Boring bar holder	Left-hand	222	Left-hand	222

Toolfinder – Stationary adapters – VDI adapters for disc turrets







Upper turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters / DirectCooling	B1/B5/C1/C2/D1	205–207 209–212	B3/B7/C3/C4/D2	205–207 209–212
	Part Off Holder	Right-hand	208 216+217	Overhead right	208 216+217

Lower turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters / DirectCooling	B4/B8/C3/C4/D2	205–207 209–212	B2/B6/C1/C2/D1	205–207 209–212
	Part Off Holder	Overhead left	208 216+217	Left-hand	208 216+217

General VDI adapters			
	Cylindrical Shank Adapters	E/E1/E2/E3/E4	212–214
	Taper Adapters	F1	215
	Short drill chuck	NC 2010	218
	ER Collet chuck		215
	Hydraulic chuck		219
	VDI to PSC adapter		223
	VDI to HSK-T adapter		224
	VDI adapter with ABS-N connection	This article can be found in our online shop at cuttingtools.ceratizit.com	84 231 ...

Accessories		
	Test arbors	220
	Tool holders	220
	Bar pullers	225
	Gripper accessories	226
	Protection plug	226

16

Toolfinder – Adapters, stationary – BMT tool holders

Doosan/Spinner – BMT 45

	Axial square section tool holder	Left-hand	Direct Cooling	227
	Square section adapter	Left-hand	Direct Cooling	227
	Square multiple tool holder		Direct Cooling	228
	Combi tool holder	with thro' coolant		228

Mori/Seiki – BMT 40

	Axial square section tool holder	Left-hand	Direct Cooling	235
	Square section adapter	Left-hand	Direct Cooling	235
	Square multiple tool holder		Direct Cooling	236
	Combi tool holder	with thro' coolant		236

Doosan – BMT 55

	Axial square section tool holder	Left-hand	Direct Cooling	229
	Square section adapter	Left-hand	Direct Cooling	229
	Square multiple tool holder		Direct Cooling	230
	Boring bar holder	with thro' coolant		230

Mori/Seiki – BMT 60

	Axial square section tool holder	Left-hand	Direct Cooling	237
	Square section adapter	Left-hand	Direct Cooling	237
	Square multiple tool holder		Direct Cooling	238
	Combi tool holder	with thro' coolant		238

EMAG – BMT 55

	Axial square section tool holder	Left-hand	Direct Cooling	231
	Square section adapter	Left-hand	Direct Cooling	231
	Boring bar holder	with thro' coolant		232

HAAS/Doosan – BMT 65

	Axial square section tool holder	Left-hand	Direct Cooling	233
	Square section adapter	Left-hand	Direct Cooling	233
	Square multiple tool holder		Direct Cooling	234
	Combi tool holder	with thro' coolant		234

Mazak – BMT 68

	Axial square section tool holder	Left-hand	Direct Cooling	239
	Square section adapter	Left-hand	Direct Cooling	239
	Square multiple tool holder		Direct Cooling	240
	Combi tool holder	with thro' coolant		240

Toolfinder – accessories

Type			Page No.
Pull stud	SK		58–60
	MAS-BT		110+111
	PSC		176
Coolant pipe/key	HSK-A		156
	PSC		176
Drill chuck with internal taper			241
Tap clamping sleeve for Weldon adapters			246
Extension for Shell mill arbors			262
Milling adapter ring			263
Lock nuts ER-Standard and ER-Mini			287
Y clamping key and ER-Mini clamping key			287
Spare parts Centro-P			285
Roll key			286
ER collets			268–278
Sealing discs			280+281

Type		Page No.
Spare parts for VDI		264–266
Spare parts driven tools		267
Quick change applications		288–292
Reduction sleeve and reducing bushings		282+283
3D tester and zero setting device		299+300
Cleaning propeller		302
TORX® screwdrivers, TORX® interchangeable blades, TORX® bit holders and adapters		294–298
Assembly device for SK, HSK and PSC adapters		284
MultiChange – Holder		259–261
MultiChange key		293
Cool-jet		301
Taper wiper		284

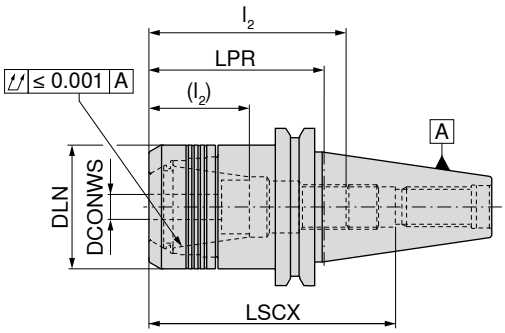
16

ER Precision Collet chuck – Centro-P

- ▲ for standard or sealed nuts
- ▲ maximum size collet to ISO tolerance field H10
- ▲ for clamping a roll key is required
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Holder **without** nut, **without** backstop



AD
G 2,5 n_{max} 25000

AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	84 424 ...		84 414 ...
SK 30	2 - 16	70	40	66	35 - 49 (18 - 31)	430E (ER25)	**016**		
SK 40	1 - 10	70	30	110	28 - 45 (16 - 31)	426E (ER16)	**102**		
SK 40	1 - 10	100	30	140	28 - 45 (16 - 31)	426E (ER16)	**103**		
SK 40	1 - 10	130	30	140	28 - 50 (14 - 34)	426E (ER16)			**510**
SK 40	1 - 10	160	30	200	28 - 45 (16 - 31)	426E (ER16)			**910**
SK 40	2 - 16	45	40	85	35 - 60 (20 - 42)	430E (ER25)			**816**
SK 40	2 - 16	70	40	110	35 - 60 (20 - 42)	430E (ER25)	**162**		
SK 40	2 - 16	100	40	113	35 - 60 (20 - 42)	430E (ER25)	**163**		
SK 40	2 - 16	130	40	140	38 - 67 (21 - 49)	430E (ER25)			**516**
SK 40	2 - 16	160	40	118	35 - 60 (20 - 42)	430E (ER25)			**916**
SK 40	2 - 20	50	50	85	52 - 70 (26 - 52)	470E (ER32)	**201**		
SK 40	2 - 20	70	50	111	55 - 75 (42 - 62)	470E (ER32)	**202**		
SK 40	2 - 20	100	50	114	52 - 70 (32 - 52)	470E (ER32)	**203**		
SK 40	2 - 20	130	50	114	50 - 74 (36 - 55)	470E (ER32)			**620**
SK 40	2 - 20	160	50	119	52 - 70 (32 - 52)	470E (ER32)			**920**
SK 40	3 - 26	70	63	105	48 - 55	472E (ER40)	**261** [1)]		
SK 50	2 - 16	100	40	150	35 - 64 (20 - 48)	430E (ER25)	**167**		
SK 50	2 - 20	70	50	120	59 - 85 (40 - 70)	470E (ER32)			**320**
SK 50	2 - 20	100	50	150	53 - 81 (35 - 63)	470E (ER32)			**520**
SK 50	2 - 20	130	50	150	53 - 81 (35 - 63)	470E (ER32)			**52100**
SK 50	2 - 20	160	50	200	53 - 83 (35 - 65)	470E (ER32)			**720**
SK 50	3 - 26	70	63	120	48 - 60	472E (ER40)			**26600**
SK 50	3 - 26	100	63	90	48 - 70	472E (ER40)			**26700**
SK 50	3 - 26	130	63	90	47 - 57	472E (ER40)			**26800**
SK 50	3 - 26	160	63	90	47 - 57	472E (ER40)			**26900**

1) Non standard groove before tool change collar not according to DIN, not suitable for automatic tool change

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 3 mm longer

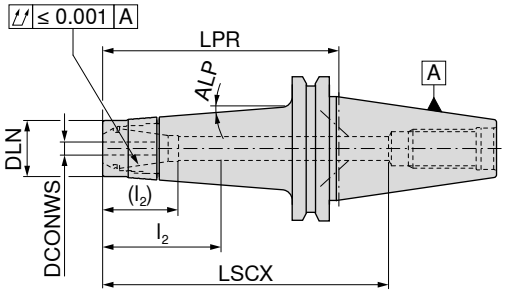
Spare parts
ER precision collet chuck – Centro-P

	Lock nut IK	Lock nut		Stop screw 2		Stop screw 1
	84 950 ...	84 950 ...		83 950 ...		83 950 ...
Spare parts for collet						
426E (ER16)	**011**	**001**	M11x1 - SW6	**341**	M11x1 - SW6	**337**
430E (ER25)	**013**	**003**	M18x1,5 - SW6	**432**	M18x1,5 - SW6	**431**
470E (ER32)	**015**	**005**	M22x1,5 - SW6	**402**	M22x1,5 - SW6	**401**
472E (ER40)	**017**	**007**			M28x1,5 - SW6	**400**

ER Precision tapered collet chuck – Centro-P

- ▲ for special tapered nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:
Holder **without** nut, **without** backstop



AD/B
G 2,5 n_{max} 25000
84 417 ...

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	ALP	
SK 40	1 - 10	100	24	140	28 - 48 (20 - 35)	426E (ER16)	4,5°	**410**
SK 40	1 - 10	130	24	105	28 - 48 (20 - 35)	426E (ER16)	3,5°	**61000**
SK 40	1 - 10	160	24	200	28 - 48 (20 - 35)	426E (ER16)	2,5°	**910**

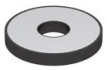
→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

	Tapered lock nut IK	Tapered lock nut		Stop screw 2		Stop screw 1
	84 950 ...	84 950 ...		83 950 ...		83 950 ...
Spare parts for collet						
426E (ER16)	**033**	**031**	M11x1 - SW6	**341**	M11x1 - SW6	**337**

Accessories

ER collet
→ 268–276, 279


Sealing ring
→ 280

Roll key
→ 286

Roll key device
→ 286

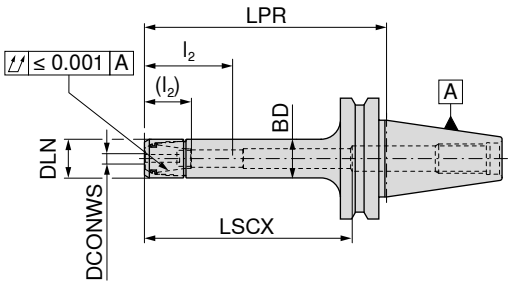
Pull studs
→ 58, 60

Others
→ 284

ER Precision collet chuck, slim version – Centro-P

- ▲ for Mini Clamping Nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:
Holder **without** nut, **without** backstop



AD/B
G 2,5 n_{max} 25000

84 412 ...

Adapter	DCONWS mm	LPR mm	DLN mm	BD mm	LSCX mm	l_2 (l_2) mm	for collet	
SK 40	1 - 7	70	16	16	60	15 - 32 (7 - 22)	4008E (ER11)	**207**
SK 40	1 - 7	100	16	16	68	18 - 36 (12 - 26)	4008E (ER11)	**407**
SK 40	1 - 7	130	16	16	110	15 - 32 (7 - 22)	4008E (ER11)	**607**
SK 40	1 - 7	160	16	16	68	18 - 36 (12 - 26)	4008E (ER11)	**907**
SK 40	1 - 10	70	22	22	90	28 - 50 (14 - 36)	426E (ER16)	**210**
SK 40	1 - 10	100	22	22	110	28 - 50 (14 - 36)	426E (ER16)	**310**
SK 40	1 - 10	130	22	22	140	28 - 50 (14 - 36)	426E (ER16)	**410**
SK 40	1 - 10	160	22	22	170	28 - 50 (14 - 36)	426E (ER16)	**510**

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

Mini lock nut IK
84 950 ...

Mini lock nut
84 950 ...

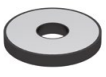
Stop screw 2
83 950 ...

Stop screw 1
83 950 ...

Spare parts for collet							
4008E (ER11)			**041**	M8x1 - SW4	**340**	M8x1 - SW4	**336**
426E (ER16)	**035**		**034**	M11x1 - SW6	**341**	M11x1 - SW6	**337**

Accessories

ER collet
→ 268–276, 279


Sealing ring
→ 280

Device
→ 285

Roll key
→ 286

Roll key device
→ 286

Pull studs
→ 58, 60

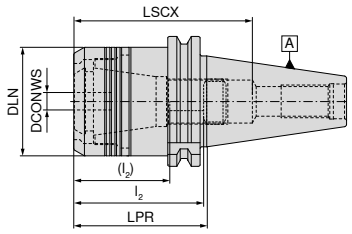
Others
→ 284

ER precision collet chuck – HDC

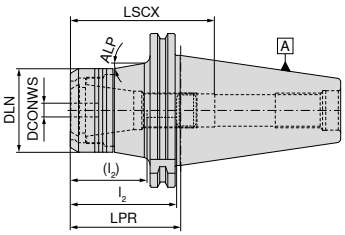
- ▲ HDC = Heavy Duty Chuck, an adapter specially designed for rough machining
- ▲ For heavy duty lock nut
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Base body **including** lock nut, **without** backstop screw



cylindrical



Conical

AD
G 6,3 n_{max} 18000
cylindrical

AD
G 6,3 n_{max} 18000
conical

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	ALP °	for collet	84 400 ...	84 400 ...
SK 40	2 - 20	65	53	85	41 - 65 (27 - 47)		470E (ER32)	**12079**	
SK 50	2 - 20	70	53	91	41 - 71 (27 - 53)	10	470E (ER32)		**12078**
SK 50	2 - 20	100	53	121	41 - 74 (27 - 56)	10	470E (ER32)		**22078**

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without backstop screw
l_2 = Clamping depth backstop screw 1, dimension in brackets (l_2) = Clamping depth backstop screw 2

Lock nut

Stop screw 2

Stop screw 1

Spare parts DCONWS	84 950 ...		83 950 ...		83 950 ...	
2 - 20	**30100**	M22x1,5 - SW6	**402**	M22x1,5 - SW6	**401**	

Accessories

ER collet
→ 268–276, 278–279

Roll key
→ 286

Roll key device
→ 286

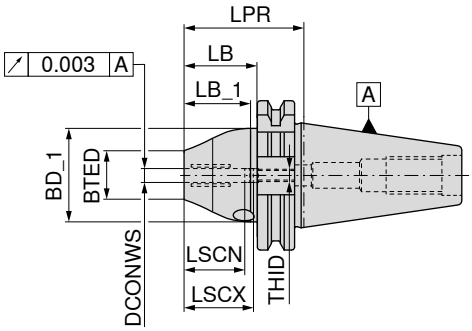
Pull studs
→ 58, 60

Others
→ 284

HyPower – Rough

- ▲ High pressure chuck – especially for milling
- ▲ Ideal for HSC and HPC applications
- ▲ High temperature resistance
- ▲ **Also available** with Balluff chip on request

Scope of supply:
Base body with backstop screw and pressure screw



NEW

AD/B
G 2,5 n_{max} 25000

84 254 ...

Adapter	DCONWS	LPR	BTED	BD_1	LB_1	LB	LSCX	LSCN	THID	
	mm	mm	mm	mm	mm	mm	mm	mm		
SK 40	6	50,0	26	42	27,1	30,9	37	27	M5	**10679**
SK 40	8	50,0	28	42	27,1	30,9	37	27	M6	**10879**
SK 40	10	50,0	30	42	27,1	30,9	41	31	M8x1	**11079**
SK 40	12	50,0	32	49	27,1	30,9	46	36	M10x1	**11279**
SK 40	16	64,5	38	49	41,6	45,4	49	39	M12x1	**11679**
SK 40	20	64,5	38	49	41,6	45,4	51	41	M16x1	**12079**

→ Min. clamping depth, Page 312

Clamping key – T

80 397 ...

Pressure screw

83 950 ...

Stop screw IK

83 950 ...

Spare parts DCONWS							
6	SW5	**050**	M10x12	**55000**	M5x12,5 - SW2,5	**418**
8	SW5	**050**	M10x12	**55000**	M6x12,5 - SW3	**419**
10	SW5	**050**	M10x12	**55000**	M8x1x13,5 - SW3	**420**
12	SW5	**050**	M10x12	**55000**	M10x1x13,5 - SW5	**421**
16	SW5	**050**	M10x12	**55000**	M12x1x13,5 - SW5	**422**
20	SW5	**050**	M10x12	**55000**	M16x1x13,5 - SW8	**424**

Accessories

Reduction sleeve
→ 282

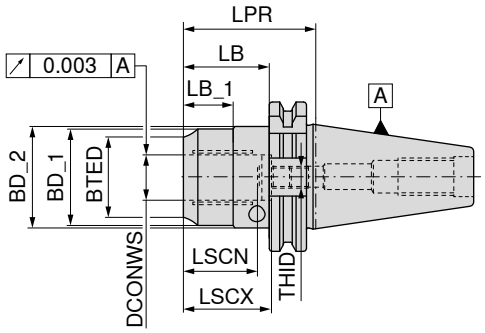
Pull studs
→ 58, 60

Others
→ 284

HyPower – Complus

▲ High pressure chuck, short and stable version
▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw



NEW

AD/B
G 2,5 n_{max} 25000

83 427 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LB mm	LB_1 mm	LSCX mm	LSCN mm	THID	
SK 40	20	64,5	38					51	40	M16x1x13,5	**120**
SK 40	32	81,0	57	63	70	61,9	26	61	51	M16x1x13,5	**13279**
SK 50	20	64,5	38	49		45,4		51	41	M16x1x13,5	**12078**
SK 50	32	81,0	57	68	72	61,9	35	61	51	M16x1x13,5	**13278**

→ Min. clamping depth, Page 312

Cylindrical screw

Clamping key – T

Pressure screw

Stop screw IK

Spare parts for Article no.		83 950 ...		80 397 ...		83 950 ...		83 950 ...	
83 427 13279	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x14	**429**	M16x1x13,5 - SW8	**424**
83 427 12078	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x14	**429**	M16x1x13,5 - SW8	**424**
83 427 13278	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x14	**429**	M16x1x13,5 - SW8	**424**

Accessories

Reduction sleeve
→ 282

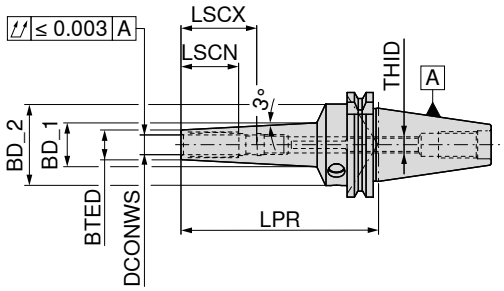
Pull studs
→ 58, 60

Others
→ 284

HyPower – Access 3°

▲ High pressure chuck, slim 3°
▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw, pressure screw and screw plug



AD/B
G 2,5 n_{max} 25000

83 421 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LSCX mm	LSCN mm	THID	
medium length	SK 40	3	120	9	17,40	49,5	28	12	M3	**103**
	SK 40	4	120	10	18,40	49,5	28	16	M3	**104**
	SK 40	5	120	11	19,40	49,5	28	20	M3	**105**
	SK 40	6	120	12	20,40	49,5	37	27	M5	**106**
	SK 40	8	120	14	22,40	49,5	37	27	M6	**108**
	SK 40	10	120	16	24,50	49,5	41	31	M8x1	**110**
	SK 40	12	120	18	26,60	49,5	46	36	M10x1	**112**
	SK 40	16	120	24	32,30	49,5	49	39	M12x1	**116**
	SK 40	20	120	28	36,40	49,5	51	41	M16x1	**120**
	SK 40	6	160	16	34,37	49,5	37	27	M5	**206**
	SK 40	8	160	18	35,45	49,5	37	27	M6	**208**
	SK 40	10	160	20	37,10	49,5	41	31	M8x1	**210**
	SK 40	12	160	22	38,72	49,5	46	36	M10x1	**212**
	SK 40	6	200	16	38,72	49,5	37	27	M5	**306**
	SK 40	8	200	18	39,74	49,5	37	27	M6	**308**
	SK 40	10	200	20	41,40	49,5	41	31	M8x1	**310**
	SK 40	12	200	22	43,02	49,5	46	36	M10x1	**312**

→ Min. clamping depth, Page 312

Cylindrical screw

Clamping key – T

Pressure screw

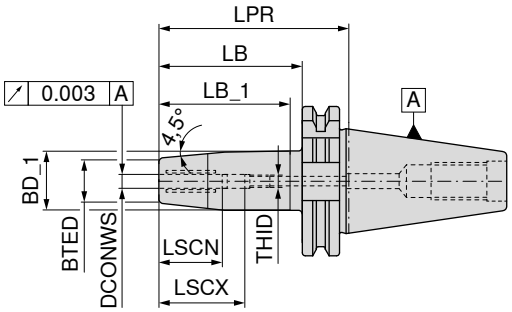
Stop screw IK

	83 950 ...		**80 397 ...**		**83 950 ...**		**83 950 ...**	
Spare parts for Article no.								
83 421 103	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x10	**158**	M3x20 - SW1,5	**172**
83 421 104	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x10	**158**	M3x20 - SW1,5	**172**
83 421 105	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x10	**158**	M3x20 - SW1,5	**172**
83 421 106	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x10	**158**	M5x12,5 - SW2,5	**418**
83 421 108	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x10	**158**	M6x12,5 - SW3	**419**
83 421 110	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x12	**159**	M8x1x13,5 - SW3	**420**
83 421 112	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x12	**159**	M10x1x13,5 - SW5	**421**
83 421 116	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x12	**159**	M12x1x13,5 - SW5	**422**
83 421 120	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x12	**159**	M16x1x13,5 - SW8	**424**
83 421 206	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x10	**158**	M5x12,5 - SW2,5	**418**
83 421 208	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x10	**158**	M6x12,5 - SW3	**419**
83 421 210	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x12	**159**	M8x1x13,5 - SW3	**420**
83 421 212	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x12	**159**	M8x1x13,5 - SW3	**420**
83 421 306	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x10	**158**	M5x12,5 - SW2,5	**418**
83 421 308	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x10	**158**	M6x12,5 - SW3	**419**
83 421 310	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x12	**159**	M8x1x13,5 - SW3	**420**
83 421 312	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x12	**159**	M8x1x13,5 - SW3	**420**

HyPower – Access 4.5°

- ▲ High pressure chuck with slim contour, original dimensions of a 4.5° shrink contour
- ▲ Especially for reaming and drilling applications
- ▲ Ideal for tool and die production
- ▲ **Also available** with Balluff chip on request

Scope of supply:
Base body with backstop screw and pressure screw



NEW

AD/B
G 2,5 n_{max} 25000

84 255 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
SK 40	6	80	21	27	55,7	60,9	37	27	M5	**10679**
SK 40	8	80	21	27	55,7	60,9	37	27	M6	**10879**
SK 40	10	80	24	32	55,7	60,9	41	31	M8x1	**11079**
SK 40	12	80	24	32	55,7	60,9	46	36	M10x1	**11279**
SK 40	16	80	27	34	55,8	60,9	49	39	M12x1	**11679**
SK 40	20	80	33	42	57,2	60,9	51	41	M16x1	**12079**

→ Min. clamping depth, Page 312

Clamping key – T

80 397 ...

Pressure screw

83 950 ...

Stop screw IK

83 950 ...

Spare parts DCONWS							
6	SW5	**050**	M10x12	**55000**	M5x12,5 - SW2,5	**418**
8	SW5	**050**	M10x12	**55000**	M6x12,5 - SW3	**419**
10	SW5	**050**	M10x12	**55000**	M8x1x13,5 - SW3	**420**
12	SW5	**050**	M10x12	**55000**	M10x1x13,5 - SW5	**421**
16	SW5	**050**	M10x12	**55000**	M12x1x13,5 - SW5	**422**
20	SW5	**050**	M10x12	**55000**	M16x1x13,5 - SW8	**424**

Accessories

Reduction sleeve
→ 282

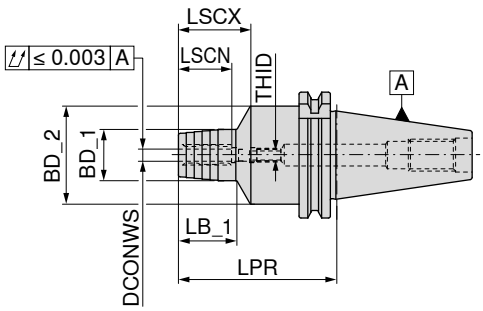
Pull studs
→ 58, 60

Others
→ 284

HyTens – Fit

▲ Hydraulic chuck, short and slim version
▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw



AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	BD_1 mm	BD_2 mm	LSCX mm	LSCN mm	LB_1 mm	THID	83 402 ...
SK 40	6	80,5	26	49,5	37	27	29,5	M5	**106**
SK 40	8	80,5	28	49,5	37	27	30,0	M6	**108**
SK 40	10	80,5	30	49,5	41	31	35,0	M8x1	**110**
SK 40	12	80,5	32	49,5	46	36	40,0	M10x1	**112**
SK 40	16	80,5	38	49,5	49	39	45,0	M12x1	**116**
SK 40	20	80,5	42	49,5	51	41	47,0	M16x1	**120**
SK 40	25	80,5	55	63,0	57	47	28,0	M16x1	**125**
SK 40	32	80,5	63	70,0	61	51	25,5	M16x1	**132**
SK 50	6	80,5	26	49,5	37	27	29,5	M5	**306**
SK 50	8	80,5	28	49,5	37	27	30,0	M6	**308**
SK 50	10	80,5	30	49,5	41	31	35,0	M8x1	**310**
SK 50	12	80,5	32	49,5	46	36	40,0	M10x1	**312**
SK 50	16	80,5	38	49,5	49	39	45,0	M12x1	**316**
SK 50	20	80,5	42	49,5	51	41	42,0	M16x1	**320**
SK 50	25	100,0	55	63,0	57	47	48,0	M16x1	**325**
SK 50	32	100,0	63	70,0	61	51	51,0	M16x1	**332**

→ Min. clamping depth, Page 312

Pressure screw

Stop screw IK

Stop screw IK

Spare parts DCONWS		83 950 ...			83 950 ...			83 950 ...
6	M8x1x10	**439**				M5x12,5 - SW2,5	**418**
8	M8x1x10	**439**	M6x14 - SW2	**417**		M6x12,5 - SW3	**419**
10	M10x1x12	**440**				M8x1x13,5 - SW3	**420**
12	M10x1x12	**440**				M10x1x13,5 - SW5	**421**
16	M10x1x12	**440**				M12x1x13,5 - SW5	**422**
20 - 32	M10x1x12	**440**				M16x1x13,5 - SW8	**424**

Accessories

Reduction sleeve
→ 282

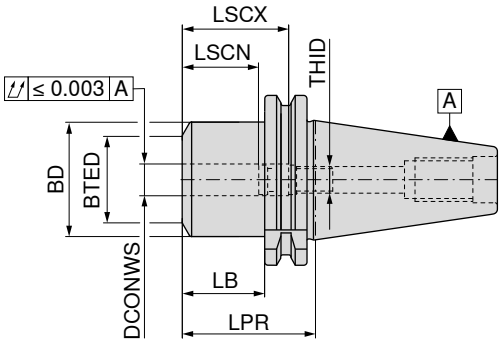
Pull studs
→ 58, 60

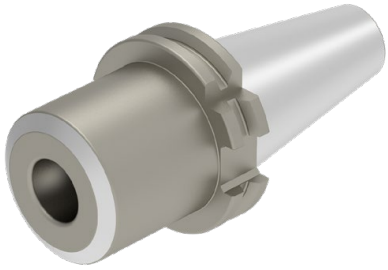
Others
→ 284

HyTens – Compact

▲ Hydraulic chuck, short and stable version
▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw





AD
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	BD mm	BTED mm	LB mm	LSCN mm	LSCX mm	THID	83 430 ...
SK 40	12	50,0	42	32	31,0	46	56	M8x1	**01279**
SK 40	20	64,5	49	38	45,5	41	51	M16x1	**02079**
SK 50	20	64,5	49	38	45,5	41	51	M16x1	**02078**

→ Min. clamping depth, Page 312

Clamping key – T
80 397 ...

Pressure screw
83 950 ...

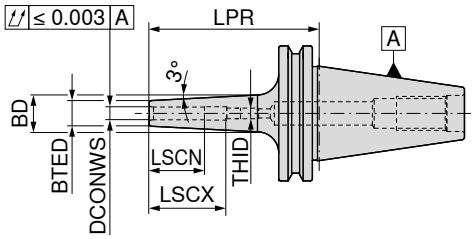
Stop screw IK
83 950 ...

Spare parts DCONWS							
12	SW5	**050**	M10x1x12	**440**	M8x1x13,5 - SW3	**420**
20	SW5	**050**	M10x1x12	**440**	M16x1x13,5 - SW8	**424**

Heat shrink adapter, slim 3°

▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

TG



AD/B
G 2,5 n_{max} 25000

84 320 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	
short	SK 40	3	80	9	14	28	12	M6	**103**
	SK 40	4	80	10	15	28	16	M6	**104**
	SK 40	5	80	11	16	30	20	M6	**105**
	SK 40	6	80	12	17	36	26	M5	**106**
	SK 40	8	80	14	19	36	26	M6	**108**
	SK 40	10	80	16	21	41	31	M8x1	**110**
	SK 40	12	80	18	23	47	37	M10x1	**112**
	SK 40	14	80	20	26	47	37	M10x1	**114**
	SK 40	16	80	22	28	50	40	M12x1	**116**
	SK 40	18	80	24	30	50	40	M12x1	**118**
	SK 40	20	80	26	32	52	42	M16x1	**120**
medium length	SK 40	3	120	9	16	12	12		**203**
	SK 40	4	120	10	17	16	16		**204**
	SK 40	5	120	11	18	20	20		**205**
	SK 40	6	120	12	22	36	26	M5	**206**
	SK 40	8	120	14	24	36	26	M6	**208**
	SK 40	10	120	16	26	41	31	M8x1	**210**
	SK 40	12	120	18	28	47	37	M10x1	**212**
	SK 40	14	120	20	30	47	37	M10x1	**214**
	SK 40	16	120	22	32	50	40	M12x1	**216**
	SK 40	18	120	24	34	50	40	M12x1	**218**
	SK 40	20	120	26	36	52	42	M16x1	**220**
extra-long	SK 40	3	160	9	19	12	12		**303**
	SK 40	4	160	10	20	16	16		**304**
	SK 40	5	160	11	21	20	20		**305**
	SK 40	6	160	12	24	36	26	M5	**306**
	SK 40	8	160	14	26	36	26	M6	**308**
	SK 40	10	160	16	28	41	31	M8x1	**310**
	SK 40	12	160	18	30	47	37	M10x1	**312**
	SK 40	14	160	20	32	47	37	M10x1	**314**
	SK 40	16	160	22	34	50	40	M12x1	**316**
	SK 40	18	160	24	36	50	40	M12x1	**318**
	SK 40	20	160	26	38	52	42	M16x1	**320**

→ Min. clamping depth, Page 312

Stop screw IK

83 950 ...

Stop screw IK

83 950 ...

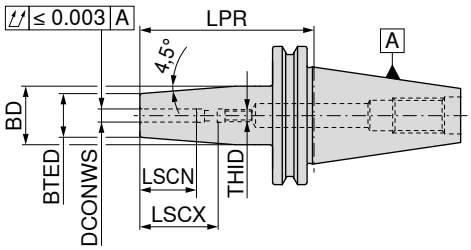
Spare parts

DCONWS				
3 - 5	M6x14 - SW2	**417**		
6			M5x12,5 - SW2,5	**418**
8			M6x12,5 - SW3	**419**
10			M8x1x13,5 - SW3	**420**
12 - 14			M10x1x13,5 - SW5	**421**
16 - 18			M12x1x13,5 - SW5	**422**
20			M16x1x13,5 - SW8	**424**

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

TG



AD/B
G 2,5 n_{max} 25000

84 300 ...

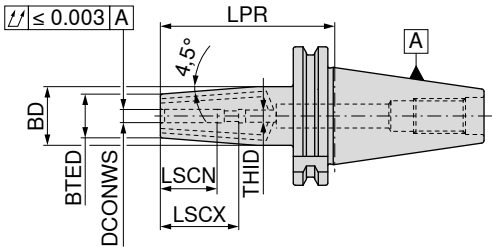
	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	
short	SK 40	3	80	10	17	22	12	M6	**103**
	SK 40	4	80	15	22	26	16	M6	**104**
	SK 40	5	80	15	22	30	20	M6	**105**
	SK 40	6	80	21	27	36	26	M5	**106**
	SK 40	8	80	21	27	26	26	M6	**108**
	SK 40	10	80	24	32	41	31	M8x1	**110**
	SK 40	12	80	24	32	47	37	M10x1	**112**
	SK 40	14	80	27	34	47	37	M10x1	**114**
	SK 40	16	80	27	34	50	40	M12x1	**116**
	SK 40	18	80	33	42	50	40	M12x1	**118**
	SK 40	20	80	33	42	52	42	M16x1	**120**
	SK 40	25	100	44	53	58	48	M16x1	**125**
medium length	SK 40	3	120	10	20	12	12		**203**
	SK 40	4	120	15	22	16	16		**204**
	SK 40	5	120	15	22	20	20		**205**
	SK 40	6	120	21	27	36	26	M5	**206**
	SK 40	8	120	21	27	36	26	M6	**208**
	SK 40	10	120	24	32	41	31	M8x1	**210**
	SK 40	12	120	24	32	47	37	M10x1	**212**
	SK 40	14	120	27	34	47	37	M10x1	**214**
	SK 40	16	120	27	34	50	40	M12x1	**216**
	SK 40	18	120	33	42	50	40	M12x1	**218**
	SK 40	20	120	33	42	52	42	M16x1	**220**
	SK 40	25	120	44	53	58	48	M16x1	**225**
extra-long	SK 40	3	160	10	20	12	12		**303**
	SK 40	4	160	15	22	16	16		**304**
	SK 40	5	160	15	22	20	20		**305**
	SK 40	6	160	21	27	36	26	M5	**306**
	SK 40	8	160	21	27	36	26	M6	**308**
	SK 40	10	160	24	32	41	31	M8x1	**310**
	SK 40	12	160	24	32	47	37	M10x1	**312**
	SK 40	14	160	27	34	47	37	M10x1	**314**
	SK 40	16	160	27	34	50	40	M12x1	**316**
	SK 40	18	160	33	42	50	40	M12x1	**318**
	SK 40	20	160	33	42	52	42	M16x1	**320**
	SK 40	25	160	44	53	58	48	M16x1	**325**

→ Min. clamping depth, Page 312

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

TG



AD/B – 2KMB
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	84 317 ...
short	SK 40	3	80	10	17	28	12	M6	**103**
	SK 40	4	80	15	22	28	16	M6	**104**
	SK 40	5	80	15	22	30	20	M6	**105**
	SK 40	6	80	21	27	36	26	M5	**106**
	SK 40	8	80	21	27	36	26	M6	**108**
	SK 40	10	80	24	32	41	31	M8x1	**110**
	SK 40	12	80	24	32	47	37	M10x1	**112**
	SK 40	14	80	27	34	47	37	M10x1	**114**
	SK 40	16	80	27	34	50	40	M12x1	**116**
	SK 40	18	80	33	42	50	40	M12x1	**118**
	SK 40	20	80	33	42	52	42	M16x1	**120**
	SK 40	25	100	44	53	58	48	M16x1	**125**
	SK 40	32	100	44	53	62	52	M16x1	**132**

→ Min. clamping depth, Page 312

Stop screw IK

Stop screw IK

Sealing screw

Spare parts DCONWS		83 950 ...		83 950 ...		83 950 ...
3 - 5	M6x14 - SW2	**417**			M2x6	**512**
6			M5x12,5 - SW2,5	**418**	M2x6	**512**
8			M6x12,5 - SW3	**419**	M2x6	**512**
10			M8x1x13,5 - SW3	**420**	M2x6	**512**
12 - 14			M10x1x13,5 - SW5	**421**	M2x6	**512**
16 - 18			M12x1x13,5 - SW5	**422**	M2x6	**512**
20 - 25			M16x1x13,5 - SW8	**424**	M2x6	**512**
32	M16x1 - SW5	**511**			M2x6	**512**

Accessories

Shrink fit extension
→ 247

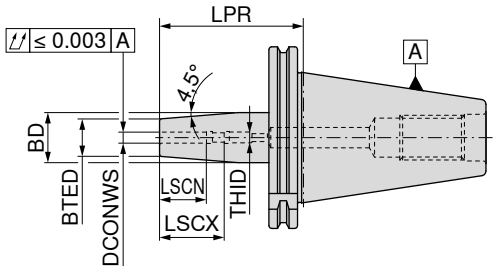
Pull studs
→ 58, 60

Others
→ 284

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

TG



AD/B
G 2,5 n_{max} 25000

84 301 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	
short	SK 50	6	80	21	27	36	26	M5	**106**
	SK 50	8	80	21	27	36	26	M6	**108**
	SK 50	10	80	24	32	41	31	M8x1	**110**
	SK 50	12	80	24	32	47	37	M10x1	**112**
	SK 50	14	80	27	34	47	37	M10x1	**114**
	SK 50	16	80	27	34	50	40	M12x1	**116**
	SK 50	18	80	33	42	50	40	M12x1	**118**
	SK 50	20	80	33	42	52	42	M16x1	**120**
	SK 50	25	100	44	53	58	48	M16x1	**125**
	SK 50	32	100	44	53	62	52	M16x1	**132**
medium length	SK 50	6	120	21	27	36	26	M5	**206**
	SK 50	8	120	21	27	36	26	M6	**208**
	SK 50	10	120	24	32	41	31	M8x1	**210**
	SK 50	12	120	24	32	47	37	M10x1	**212**
	SK 50	14	120	27	34	47	37	M10x1	**214**
	SK 50	16	120	27	34	50	40	M12x1	**216**
	SK 50	18	120	33	42	50	40	M12x1	**218**
	SK 50	20	120	33	42	52	42	M16x1	**220**
	SK 50	25	120	44	53	58	48	M16x1	**225**
	SK 50	32	120	44	53	62	52	M16x1	**232**
extra-long	SK 50	6	160	21	27	36	26	M5	**306**
	SK 50	8	160	21	27	36	26	M6	**308**
	SK 50	10	160	24	32	41	31	M8x1	**310**
	SK 50	12	160	24	32	47	37	M10x1	**312**
	SK 50	14	160	27	34	47	37	M10x1	**314**
	SK 50	16	160	27	34	50	40	M12x1	**316**
	SK 50	18	160	33	42	50	40	M12x1	**318**
	SK 50	20	160	33	42	52	42	M16x1	**320**
	SK 50	25	160	44	53	58	48	M16x1	**325**
	SK 50	32	160	44	53	62	52	M16x1	**332**

→ Min. clamping depth, Page 312

Stop screw IK

83 950 ...

Spare parts

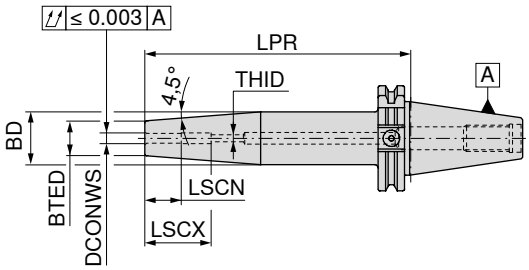
DCONWS		
6	M5x12,5 - SW2,5	**418**
8	M6x12,5 - SW3	**419**
10	M8x1x13,5 - SW3	**420**
12 - 14	M10x1x13,5 - SW5	**421**
16 - 18	M12x1x13,5 - SW5	**422**
20 - 32	M16x1x13,5 - SW8	**424**

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Holder **without** backstop screw

TG



AD/B
G 2,5 n_{max} 25000

82 310 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	
short	SK 40	3	70	12	17,0				**10379**
	SK 40	4	70	12	17,0				**10479**
	SK 40	5	70	12	17,0				**10579**
	SK 40	6	80	21	30,5	36	26	M5	**10679**
	SK 40	8	80	21	30,5	36	26	M6	**10879**
	SK 40	10	80	24	33,5	41	31	M8x1	**11079**
	SK 40	12	80	24	33,5	47	37	M10x1	**11279**
	SK 40	14	80	27	36,5	47	37	M10x1	**11479**
	SK 40	16	80	27	36,5	50	40	M12x1	**11679**
	SK 40	18	80	33	42,5	50	40	M12x1	**11879**
	SK 40	20	80	33	42,5	52	42	M16x1	**12079**
	SK 40	25	100	44	50,0	58	48	M16x1	**12579**
	SK 50	6	80	21	27,0	36	26	M5	**10678**
	SK 50	8	80	21	27,0	36	26	M6	**10878**
	SK 50	10	80	24	32,0	41	31	M8x1	**11078**
	SK 50	12	80	24	32,0	47	37	M10x1	**11278**
	SK 50	14	80	27	34,0	47	37	M10x1	**11478**
	SK 50	16	80	27	34,0	50	40	M12x1	**11678**
	SK 50	18	80	33	42,0	50	40	M12x1	**11878**
	SK 50	20	80	33	42,0	52	42	M12x1	**12078**
	SK 50	25	100	44	53,0	58	48	M16x1	**12578**
	SK 50	32	100	44	53,0	62	52	M16x1	**13278**
medium length	SK 40	3	120	12	17,0				**20379**
	SK 40	4	120	12	17,0				**20479**
	SK 40	5	120	12	17,0				**20579**
	SK 40	6	120	21	31,0	36	26	M5	**20679**
	SK 40	8	120	21	32,0	36	26	M6	**20879**
	SK 40	10	120	24	34,0	41	31	M8x1	**21079**
	SK 40	12	120	24	34,0	47	37	M10x1	**21279**
	SK 40	16	120	27	36,0	50	40	M12x1	**21679**
	SK 40	20	120	33	44,0	52	42	M16x1	**22079**
	SK 50	6	120	21	27,0	36	26	M5	**20678**
	SK 50	8	120	21	27,0	36	26	M6	**20878**
	SK 50	10	120	24	32,0	41	31	M8x1	**21078**
	SK 50	12	120	24	32,0	47	37	M10x1	**21278**
	SK 50	14	120	27	34,0	47	37	M10x1	**21478**
	SK 50	16	120	27	34,0	50	40	M12x1	**21678**
	SK 50	18	120	33	42,0	50	40	M12x1	**21878**
	SK 50	20	120	33	42,0	52	42	M16x1	**22078**
	SK 50	25	120	44	53,0	58	48	M16x1	**22578**
	SK 50	32	120	44	53,0	62	52	M16x1	**23278**

→ Min. clamping depth, Page 312

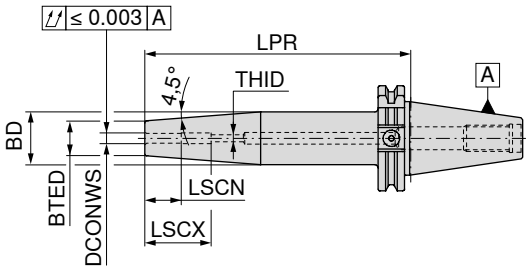
Continued on next page

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Holder **without** backstop screw

TG



AD/B
G 2,5 n_{max} 25000

82 310 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	
extra-long	SK 40	6	160	21	31,0	36	26	M5	**30679**
	SK 40	8	160	21	32,0	36	26	M6	**30879**
	SK 40	10	160	24	34,0	41	31	M8x1	**31079**
	SK 40	12	160	24	34,0	47	37	M10x1	**31279**
	SK 40	14	160	27	36,0	47	37	M10x1	**31479**
	SK 40	16	160	27	36,0	50	40	M12x1	**31679**
	SK 40	18	160	33	44,0	50	40	M12x1	**31879**
	SK 40	20	160	33	44,0	52	42	M16x1	**32079**
	SK 40	25	160	44	50,0	58	48	M16x1	**32579**
	SK 50	6	160	21	27,0	36	26	M5	**30678**
	SK 50	8	160	21	27,0	36	26	M6	**30878**
	SK 50	10	160	24	32,0	41	31	M8x1	**31078**
	SK 50	12	160	24	32,0	47	37	M10x1	**31278**
	SK 50	14	160	27	34,0	47	37	M10x1	**31478**
	SK 50	16	160	27	34,0	50	40	M12x1	**31678**
	SK 50	18	160	33	42,0	50	40	M12x1	**31878**
	SK 50	20	160	33	42,0	52	42	M16x1	**32078**
	SK 50	25	160	44	53,0	58	48	M16x1	**32578**
	SK 50	32	160	44	53,0	62	52	M16x1	**33278**

→ Min. clamping depth, Page 312

Stop screw IK

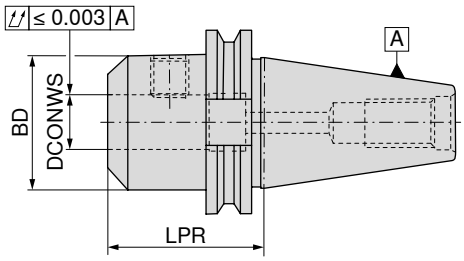
82 950 ...

Spare parts DCONWS		
6	M5x16 - SW2,5	**30000**
8	M6x16 - SW3	**30100**
10	M8x1x16 - SW4	**30200**
12	M10x1x14 - SW5	**30300**
14	M10x1x14 - SW5	**30300**
16	M12x1x16 - SW6	**30400**
18	M12x1x16 - SW6	**30400**
20	M16x1x16 - SW8	**30500**
25	M16x1x16 - SW8	**30500**
32	M16x1x16 - SW8	**30500**

16

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**



NEW

AD
G 2,5 n_{max} 25000

82 741 ...

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	
short	SK 30	6	50	25	**10680**
	SK 30	8	50	28	**10880**
	SK 30	10	50	35	**11080**
	SK 30	12	50	42	**11280**
	SK 30	14	63	44	**11480**
	SK 30	16	63	48	**11680**
	SK 30	18	63	50	**11880**
	SK 30	20	70	52	**12080**
extra short	SK 40	16	35	48	**01679**
	SK 40	20	35	50	**02079**
	SK 40	25	40	50	**02579**
	SK 40	32	75	72	**03279**[1)]

1) Version with two grubscrews

SK 50 adapters and other lengths can be found on the next 2 pages

Grubscrew

62 950 ...

Spare parts DCONWS		
6	M6x10	**006**
8	M8x10	**008**
10	M10x12	**010**
12	M12x16	**012**
14	M12x16	**012**
16	M14x16	**016**
18	M14x16	**016**
20	M16x16	**020**
25	M18x2x20	**025**
32	M20x2x20	**032**

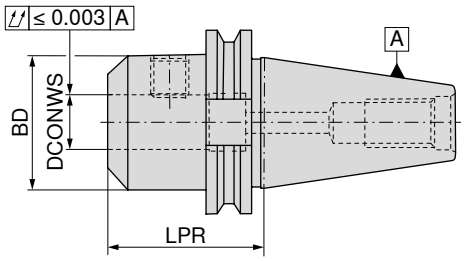
Accessories

Coolant transfer pipe
→ 156

Others
→ 284

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**



NEW

AD/B
G 2,5 n_{max} 25000

82 740 ...

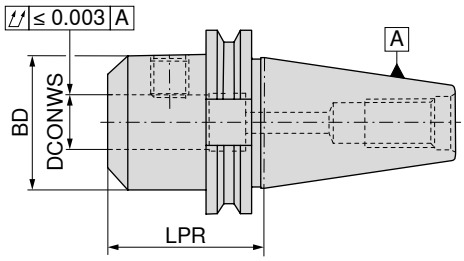
	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	
short	SK 40	6	50	25	**10679**
	SK 40	8	50	28	**10879**
	SK 40	10	50	35	**11079**
	SK 40	12	50	42	**11279**
	SK 40	14	50	44	**11479**
	SK 40	16	63	48	**11679**
	SK 40	18	63	50	**11879**
	SK 40	20	63	52	**12079**
	SK 40	25	100	65	**12579**[1)]
	SK 40	32	100	72	**13279**[1)]
	SK 40	40	120	80	**14079**[1)]
	SK 50	6	63	25	**10678**
	SK 50	8	63	28	**10878**
	SK 50	10	63	35	**11078**
	SK 50	12	63	42	**11278**
	SK 50	14	63	44	**11478**
	SK 50	16	63	48	**11678**
	SK 50	18	63	50	**11878**
	SK 50	20	63	52	**12078**
	SK 50	25	80	65	**12578**[1)]
	SK 50	32	100	72	**13278**[1)]
	SK 50	40	100	80	**14078**[1)]
medium length	SK 40	6	100	25	**20679**
	SK 40	8	100	28	**20879**
	SK 40	10	100	35	**21079**
	SK 40	12	100	42	**21279**
	SK 40	14	100	44	**21479**
	SK 40	16	100	48	**21679**
	SK 40	18	100	50	**21879**
	SK 40	20	100	52	**22079**
	SK 50	6	100	25	**20678**
	SK 50	8	100	28	**20878**
	SK 50	10	100	35	**21078**
	SK 50	12	100	42	**21278**
	SK 50	14	100	44	**21478**
	SK 50	16	100	48	**21678**
	SK 50	18	100	50	**21878**
	SK 50	20	100	52	**22078**
	SK 50	25	100	65	**22578**[1)]

1) Version with two grubscrews

Continued on next page

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**



NEW

AD/B
G 2,5 n_{max} 25000

82 740 ...

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	
long	SK 40	6	130	25	**30679**
	SK 40	8	130	28	**30879**
	SK 40	10	130	35	**31079**
	SK 40	12	130	42	**31279**
	SK 40	14	130	44	**31479**
	SK 40	16	130	48	**31679**
	SK 40	18	130	50	**31879**
	SK 40	20	130	52	**32079**
	SK 50	6	130	25	**30678**
	SK 50	8	130	28	**30878**
	SK 50	10	130	35	**31078**
	SK 50	12	130	42	**31278**
	SK 50	14	130	44	**31478**
	SK 50	16	130	48	**31678**
	SK 50	18	130	50	**31878**
	SK 50	20	130	52	**32078**
	SK 50	25	130	65	**32578**[1)]
extra-long	SK 40	6	160	25	**40679**
	SK 40	8	160	28	**40879**
	SK 40	10	160	35	**41079**
	SK 40	12	160	42	**41279**
	SK 40	14	160	44	**41479**
	SK 40	16	160	48	**41679**
	SK 40	18	160	50	**41879**
	SK 40	20	160	52	**42079**
	SK 40	25	160	65	**42579**[1)]
	SK 50	6	160	25	**40678**
	SK 50	8	160	28	**40878**
	SK 50	10	160	35	**41078**
	SK 50	12	160	42	**41278**
	SK 50	14	160	44	**41478**
	SK 50	16	160	48	**41678**
	SK 50	18	160	50	**41878**
	SK 50	20	160	52	**42078**
	SK 50	25	160	65	**42578**[1)]
	SK 50	32	160	72	**43278**[1)]

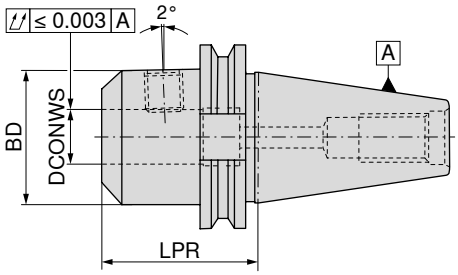
1) Version with two grubscrews

The M3 screws with WAF 1.5 mm supplied can be used to seal the two additional coolant holes.

Spare parts and accessories on → **Page 34**.

Cylindrical Shank Adapter (Whistle Notch)

- ▲ For shanks according to DIN 6535 HE / 1835 E with angled clamping flat
- ▲ The groove in the flat face is a characteristic feature of the Whistle Notch version
- ▲ also available with Balluff chip **on request**



NEW

AD/B
G 2,5 n_{max} 25000

82 742 ...

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	
short	SK 40	6	50	25	**10679**
	SK 40	8	50	28	**10879**
	SK 40	10	50	35	**11079**
	SK 40	12	50	42	**11279**
	SK 40	14	50	44	**11479**
	SK 40	16	63	48	**11679**
	SK 40	18	63	50	**11879**
	SK 40	20	63	52	**12079**
	SK 40	25	100	65	**12579**[1)]
	SK 40	32	100	72	**13279**[1)]
	SK 50	6	63	25	**10678**
	SK 50	8	63	28	**10878**
	SK 50	10	63	35	**11078**
	SK 50	12	63	42	**11278**
	SK 50	14	63	44	**11478**
	SK 50	16	63	48	**11678**
	SK 50	18	63	50	**11878**
	SK 50	20	63	52	**12078**
	SK 50	25	80	65	**12578**[1)]
	SK 50	32	100	72	**13278**[1)]
long	SK 40	6	130	25	**30679**
	SK 40	8	130	28	**30879**
	SK 40	10	130	35	**31079**
	SK 40	12	130	42	**31279**
	SK 40	16	130	48	**31679**
	SK 40	20	130	52	**32079**
	SK 40	25	130	65	**32579**[1)]
	SK 50	6	130	25	**30678**
	SK 50	8	130	28	**30878**
	SK 50	10	130	35	**31078**
	SK 50	12	130	42	**31278**
	SK 50	16	130	48	**31678**
	SK 50	20	130	52	**32078**
	SK 50	25	130	65	**32578**[1)]
	SK 50	32	130	72	**33278**[1)]

1) Version with two grubscrews

16

Spare parts
cylindrical shank adapters (Weldon and Whistle Notch)

		Adjustment screw			Clamping screw			Grubscrew			Backstop screw	
		10 950 ...			**62 950 ...**			**62 950 ...**			**84 950 ...**	
Spare parts DCONWS H4												
6							M6x10	**006**	M5x20	**44100**
8							M8x10	**008**	M6x20	**21500**
10							M10x12	**010**	M8x16	**44200**
12 - 14	M10X20 DIN 913	**17500**					M12x16	**012**		
16 - 18							M14x16	**016**	M12x20	**44300**
20			M16x20 - SW8	**51200**			M16x16	**020**		
25							M18x2x20	**025**	M20x24	**44000**
32							M20x2x20	**032**	M20x24	**44000**

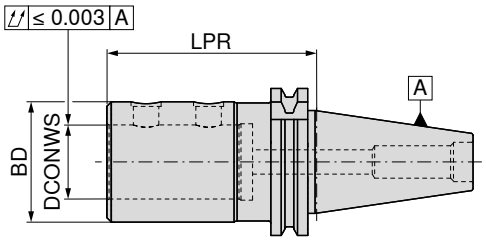
Accessories

Pull studs
→ 58, 60

Others
→ 284

Indexable insert drill adapter ISO 7388-1 SK

▲ also available with Balluff chip **on request**



NEW

AD/B
G 6,3 n_{max} 15000

82 748 ...

Adapter	DCONWS mm	LPR mm	BD mm	
SK 40	20	80	40	**12079**
SK 40	25	85	45	**12579**
SK 40	32	90	52	**13279**
SK 50	20	80	40	**12078**
SK 50	25	85	45	**12578**
SK 50	32	90	52	**13278**
SK 50	40	90	65	**14078**
SK 50	50	100	75	**15078**

Suitable eccentric sleeves can be found in → **Chapter 3, Indexable insert drilling.**

Grubscrew

10 950 ...

Spare parts DCONWS		
20	M10x1x10	**001**
25 - 32	M12x1x10	**002**
40 - 50	M16x1x12	**003**

Accessories

Pull studs	Others
→ 58, 60	→ 284

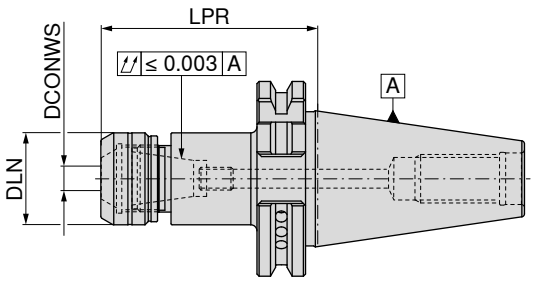
16

ER Precision Collet chuck – PCC

- ▲ For standard or sealing disc lock nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 100 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Base body with lock nut and backstop screw



AD/B
G 2,5 n_{max} 25000

82 700 ...

Adapter	DCONWS mm	LPR mm	DLN mm	for collet	
SK 40	1 - 10	70	30	426E (ER16)	**11079**
SK 40	1 - 10	100	30	426E (ER16)	**21079**
SK 40	2 - 16	70	40	430E (ER25)	**11679**
SK 40	2 - 16	100	40	430E (ER25)	**21679**
SK 40	2 - 20	70	50	470E (ER32)	**12079**
SK 40	2 - 20	100	50	470E (ER32)	**22079**
SK 50	2 - 16	70	40	430E (ER25)	**11678**
SK 50	2 - 16	100	40	430E (ER25)	**21678**
SK 50	2 - 20	70	50	470E (ER32)	**12078**
SK 50	2 - 20	100	50	470E (ER32)	**22078**

Dimension LPR is 4.5 mm longer for ER16 and ER32 and 5.0 mm longer for ER25 when using thro' coolant lock nut

Lock nut IK

82 950 ...

Lock nut

82 950 ...

Backstop screw PCC 2

82 950 ...

Backstop screw PCC 1

82 950 ...

Spare parts for collet				
426E (ER16)	**11000**	**01000**		**00100**
430E (ER25)	**11600**	**01600**	**00200**	**00300**
470E (ER32)	**12000**	**02000**	**00200**	**00300**

Accessories

ER collet
→ 268–276, 278–279

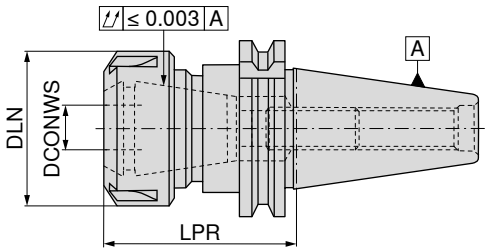
Sealing ring
→ 281

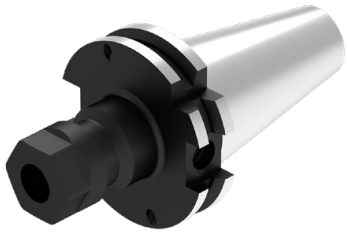
Roll key
→ 286

ER Collet chuck

▲ also available with Balluff chip **on request**

Scope of supply:
Holder with lock nut and adjustable back stop





NEW

AD
G 2,5 n_{max} 25000

NEW

AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	DLN mm	TQX Nm	for collet	82 743 ...	82 743 ...
short	SK 30	1 - 10	70	28	8 - 56	426E (ER16)	11080[1)]	
	SK 30	1 - 16	70	42	24 - 104	430E (ER25)	11680	
	SK 30	2 - 20	70	50	24 - 136	470E (ER32)	12080	
	SK 40	1 - 10	60	22	8 - 56	426E (ER16 mini)		11179
	SK 40	1 - 10	60	28	8 - 56	426E (ER16)		11079[1)]
	SK 40	1 - 16	70	42	24 - 104	430E (ER25)		11679
	SK 40	2 - 20	70	50	24 - 136	470E (ER32)		12079
	SK 40	3 - 26	70	63	176	472E (ER40)		12679
	SK 50	1 - 10	60	28	8 - 56	426E (ER16)		11078[1)]
	SK 50	1 - 16	70	42	24 - 104	430E (ER25)		11678
	SK 50	2 - 20	70	50	24 - 136	470E (ER32)		12078
	SK 50	3 - 26	70	63	176	472E (ER40)		12678
medium length	SK 30	1 - 10	100	28	8 - 56	426E (ER16)	21080[1)]	
	SK 30	1 - 16	100	42	24 - 104	430E (ER25)	21680	
	SK 30	2 - 20	100	50	24 - 136	470E (ER32)	22080	
	SK 40	1 - 10	120	28	8 - 56	426E (ER16)		21079[1)]
	SK 40	1 - 10	120	22	8 - 56	426E (ER16 mini)		21179
	SK 40	1 - 16	120	42	24 - 104	430E (ER25)		21679
	SK 40	2 - 20	120	50	24 - 136	470E (ER32)		22079
	SK 40	3 - 26	100	63	176	472E (ER40)		22679
	SK 50	1 - 10	100	28	8 - 56	426E (ER16)		21078[1)]
	SK 50	1 - 16	100	42	24 - 104	430E (ER25)		21678
	SK 50	2 - 20	100	50	24 - 136	470E (ER32)		22078
	SK 50	3 - 26	100	63	176	472E (ER40)		22678
extra-long	SK 40	1 - 10	160	28	8 - 56	426E (ER16)		41079[1)]
	SK 40	2 - 16	160	42	24 - 104	430E (ER25)		41679
	SK 40	2 - 20	160	50	24 - 136	470E (ER32)		42079
	SK 40	3 - 26	160	63	176	472E (ER40)		42679
	SK 50	1 - 16	160	42	24 - 104	430E (ER25)		41678
	SK 50	2 - 20	160	50	24 - 136	470E (ER32)		42078

1) with 6 position lock nut

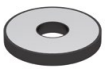
Spare parts ER collet chucks

	Lock nut	Lock nut IK	Lock nut	Y clamping key	ER Mini clamping key	Mini lock nut	Mini IK	Stop screw IK
	62 950 ...	**83 950 ...**	**62 950 ...**	**83 357 ...**	**83 950 ...**	**62 950 ...**	**83 950 ...**	**84 950 ...**
Spare parts for collet								
426E (ER16 mini)					**101**	**066**	**058**	**44600**
426E (ER16)	**044**							**44600**
430E (ER25)		**055**	**055**	**125**				**44400**
470E (ER32)		**056**	**65600**	**132**				**44400**
472E (ER40)		**057**	**65700**	**140**				**44500**

Dimension LPR is 5.0 mm longer for ER16, ER25 and ER32, and 5.5 mm for ER40 when using thro' coolant lock nuts

Accessories

ER collet
→ 271–276, 279


Sealing ring
→ 280

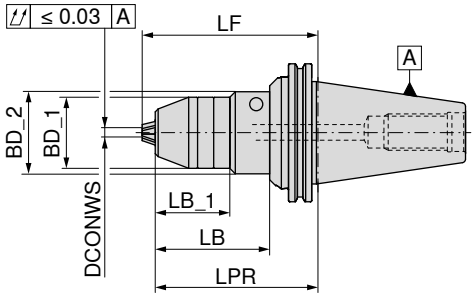
Pull studs
→ 58, 60

Others
→ 284

Short drill chuck – NC 2010

▲ Independent of direction of rotation
▲ Torque Moment = 12 Nm
▲ also available with Balluff chip **on request**

Scope of supply:
Toolholder including clamping key SW4



A
G 6,3 n_{max} 10000
84 418 ...

AD
G 6,3 n_{max} 10000
84 419 ...

Adapter	DCONWS mm	LPR mm	BD_1 mm	BD_2 mm	LB_1 mm	LB mm	LF mm		
SK 30	0,5 - 10	80	43,0			59,9	89,0	**313**	
SK 40	0,5 - 13	80	48,5			60,8	89,0	**413**	**413**
SK 40	2,5 - 16	80	51,0			60,0	90,5		**416**
SK 40	2,5 - 16	80	51,0			60,8	90,5	**416**	
SK 50	0,5 - 13	110	48,5	56	50,9	78,0	119,0		**513**
SK 50	0,5 - 13	110	48,5	56	50,9	78,1	119,0	**513**	
SK 50	2,5 - 16	110	51,0	56	50,9	78,0	120,5		**516**
SK 50	2,5 - 16	110	56,0		50,9	78,0	120,5	**516**	

Can be used at G 2.5 to 30,000 1/min after additional balancing !

Accessories

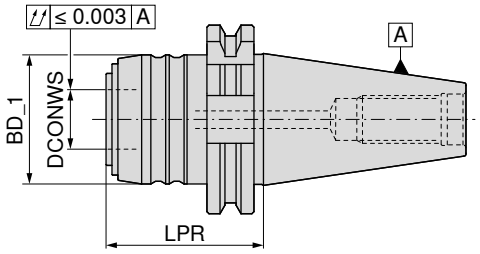
Others

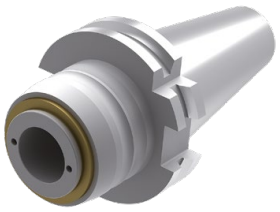
→ 284

Synchro tapping chuck with minimum length compensation

- For collet
- With length compensation under tension and compression (LZD)
- for synchro use
- $p_{max.}$ = 50 bar
- also available with Balluff chip **on request**

Scope of supply:
Without insert





AD

83 416 ...

Adapter	cutting range	SZID	LPR mm	BD_1 mm	DCONWS mm	LZD± mm	
SK 40	M3 - M12	1	53	43	20	1,0 / 0,2	**012**
SK 40	M6 - M20	2	90	60	32	1,0 / 0,2	**020**
SK 50	M3 - M12	1	53	43	20	1,0 / 0,2	**112**
SK 50	M6 - M20	2	74	60	32	1,0 / 0,2	**120**

Accessories

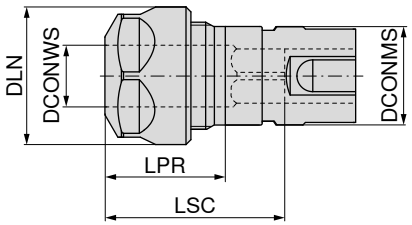
Pull studs
→ 58, 60

Others
→ 284

Insert for synchro quick change tapping chuck with minimum length compensation

▲ SZID = for insert size

Scope of supply:
Includes lock nut



SZID	DCONWS mm	cutting range	LPR mm	DLN mm	LSC mm	for collet	DCONMS mm	83 608 ...
1	2 - 10	M3 - M12	24	28	42	426E (ER16)	20	012 [1]
2	2 - 16	M6 - M20	28	42	59	430E (ER25)	32	020

1) with 6 position lock nut

Lock nut

Lock nut IK

Lock nut

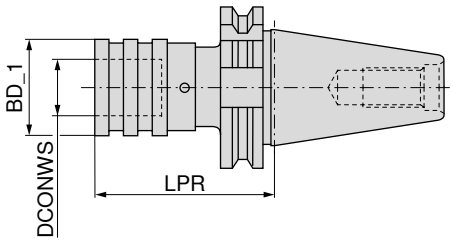
Y clamping key

Spare parts for Article no.		62 950 ...		83 950 ...		62 950 ...		83 357 ...
83 608 012	M22x1,5 - SW25	044	M22x1,5	054	M22x1,5	054		116
83 608 020			M32x1,5	055	M32x1,5	055		125

16

Quick change tap chuck with length compensation

▲ With length compensation under tension and compression (LZD)
▲ also available with Balluff chip **on request**



83 428 ...

Adapter	cutting range	SZID	LPR mm	BD_1 mm	DCONWS mm	LZD± mm	
SK 30	M3 - M12	01	60	38	19	9	**312**
SK 30	M6 - M20	02	101	55	31	15	**320**
SK 40	M3 - M12	01	60	38	19	9	**412**
SK 40	M6 - M20	02	100	55	31	15	**420**
SK 50	M3 - M12	01	62	38	19	9	**512**
SK 50	M6 - M20	02	83	55	31	15	**520**

Accessories

Collet
→ 288, 290–292

Pull studs
→ 58, 60

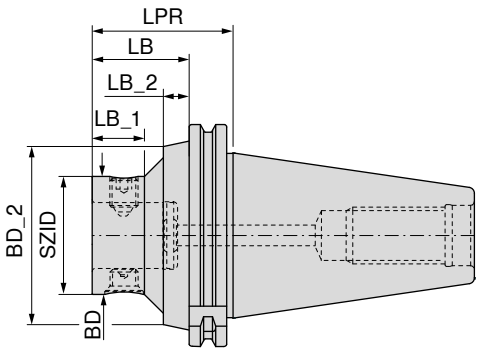
Others
→ 284

Adapter with ABS Connection

▲ also available with Balluff chip **on request**

Scope of supply:

Steep taper adapter (Form B) with conversion kit (Form AD) and sealing disc



AD/B

G 6,3 n_{max} 8000

Adapter	KOMET no.	SZID	BD	LPR	LB	LB_1	LB_2	BD_2	84 201 ...
			mm	mm	mm	mm	mm	mm	
SK 40	A50 55120	ABS 25	25	50	30,9	20,0	7,9	50	**04090**
SK 40	A50 55130	ABS 32	32	50	30,9	20,0	7,9	50	**04089**
SK 40	A50 55140	ABS 40	40	50	30,9	20,0		50	**04088**
SK 40	A50 55150	ABS 50	50	50	30,9				**04097**
SK 40	A50 55160	ABS 63	63	90	70,9		15,9	50	**04096**
SK 50	A50 55320	ABS 25	25	60	40,9	20,0	12,9	80	**05090**
SK 50	A50 55330	ABS 32	32	60	40,9	20,0	12,9	80	**05089**
SK 50	A50 55340	ABS 40	40	60	40,9	20,0	12,9	80	**05088**
SK 50	A50 55350	ABS 50	50	60	40,9	22,0	10,9	80	**05097**
SK 50	A50 55360	ABS 63	63	60	40,9	30,4	7,3	80	**05096**
SK 50	A50 55370	ABS 80	80	70	50,9				**05092**
SK 50	A50 55380	ABS 100	100	115	95,9		15,9	80	**05091**

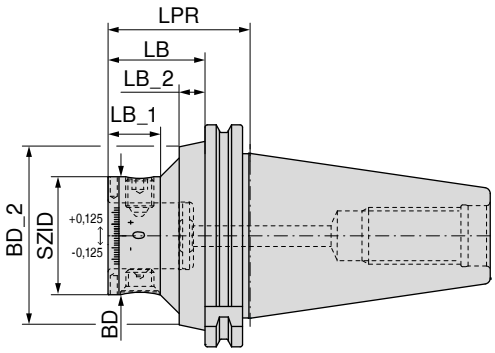
Conversion kit – SK

for	Adapter	84 950 ...
4 mm	SK 40	**23200**
6 mm	SK 50	**23400**

Eccentric adjuster with ABS Connection

▲ Adjustment ± 0.25 mm on diameter
▲ also available with Balluff chip **on request**

Scope of supply:
Steep taper adapter (Form B) with conversion kit (Form AD) and sealing disc



AD/B

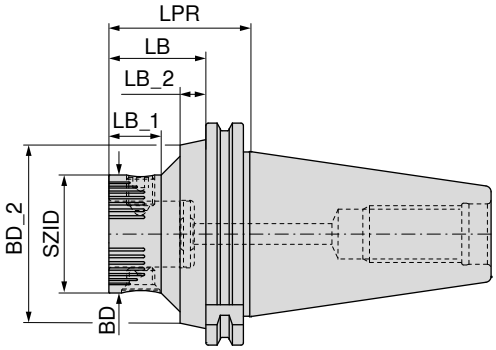
84 204 ...

Adapter	KOMET no.	SZID	BD mm	LPR mm	LB mm	LB_1 mm	LB_2 mm	BD_2 mm	
SK 40	A50 56150	ABS 50	50	50	30,9				**04097**
SK 40	A50 56160	ABS 63	63	90	70,9		15,9	50	**04096**
SK 50	A50 56350	ABS 50	50	60	40,9	22,0	10,9	80	**05097**
SK 50	A50 56360	ABS 63	63	60	40,9	30,4	7,3	80	**05096**

Torsional vibration dampers with ABS Connection

▲ also available with Balluff chip **on request**

Scope of supply:
Steep taper adapter (Form B) with conversion kit (Form AD) and sealing disc



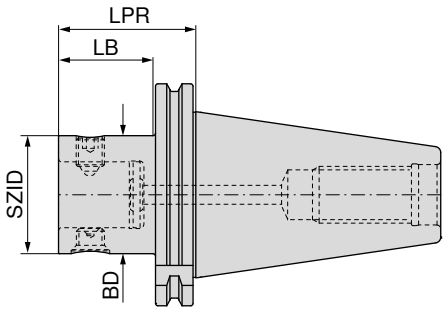
AD/B

84 207 ...

Adapter	KOMET no.	SZID	BD mm	LPR mm	BD_2 mm	LB mm	LB_1 mm	LB_2 mm	
SK 40	A50 01351	ABS 50	50	50		30,9			**04097**
SK 40	A50 01361	ABS 63	63	90	50	70,9		15,9	**04096**
SK 50	A50 01451	ABS 50	50	60	80	40,9	22,0	10,9	**05097**
SK 50	A50 01461	ABS 63	63	60	80	40,9	30,4	7,3	**05096**
SK 50	A50 01470	ABS 80	80	70		50,9			**05092**

Adapter with ABS Connection – SK-FC

▲ with face contact
▲ also available with Balluff chip **on request**



AD
G 6,3 n_{max} 8000

Adapter	SZID	BD mm	LPR mm	LB mm	84 264 ...
SK-FC 50	ABS 50	50	60	40,9	**05073**
SK-FC 50	ABS 63	63	60	40,9	**06373**
SK-FC 50	ABS 80	80	70	50,9	**08073**
SK-FC 50	ABS 100	100	115	95,9	**10073**

Clamping screw

Taper screw

Spare parts SZID	84 950 ...	84 950 ...
ABS 50	**20300**	**20400**
ABS 63	**25500**	**27300**
ABS 80	**25600**	**25100**
ABS 100	**25700**	**25200**

Accessories

Pull studs
→ 58, 60

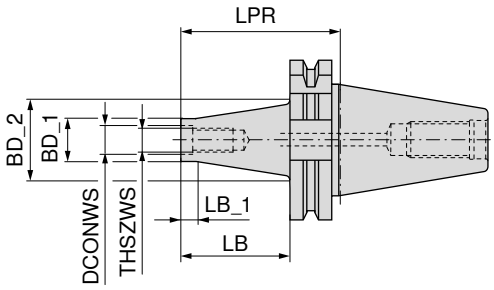
Extension
→ 187

Others
→ 284

16

Adapter for milling cutters with threaded end

▲ also available with Balluff chip **on request**



AD
G 6,3 n_{max} 18000

56 705 ...

AD
G 16 n_{max} 8000

56 707 ...

Adapter	THSZWS	DCONWS	LB	BD_1	BD_2	LB_1	LPR		
		mm	mm	mm	mm	mm	mm		
SK 40	M8	8,5	25	13,8	15	12	44	**081**	
SK 40	M8	8,5	50	13,8	23	12	69	**082**	
SK 40	M8	8,5	75	13,8	25	12	94	**083**	
SK 40	M10	10,5	25	18,0	23	12	44	**101**	
SK 40	M10	10,5	50	18,0	25	12	69	**102**	
SK 40	M10	10,5	75	18,0	30	12	94	**103**	
SK 40	M10	10,5	100	18,0	35	12	119	**104**	
SK 40	M12	12,5	25	21,0	24	12	44	**121**	
SK 40	M12	12,5	50	21,0	30	12	69	**122**	
SK 40	M12	12,5	75	21,0	35	12	94	**123**	
SK 40	M12	12,5	100	21,0	38	12	119	**124**	
SK 40	M16	17,0	25	29,0	29	12	44	**161**	
SK 40	M16	17,0	50	29,0	34	12	69	**162**	
SK 40	M16	17,0	75	29,0	35	12	94	**163**	
SK 40	M16	17,0	100	29,0	40	12	119	**164**	
SK 40	M16	17,0	125	29,0	44	12	144	**165**	
SK 40	M16	17,0	150	29,0	48	12	169	**166**	
SK 40	M16	17,0	200	29,0	50	12	219	**167**	
SK 50	M12	12,5	50	21,0	30	12	69		**122**
SK 50	M12	12,5	100	21,0	38	12	119		**124**
SK 50	M12	12,5	150	21,0	52	12	169		**126**
SK 50	M16	17,0	50	29,0	34	12	69		**162**
SK 50	M16	17,0	100	29,0	40	12	119		**164**
SK 50	M16	17,0	150	29,0	48	12	169		**166**
SK 50	M16	17,0	200	29,0	58	12	219		**167**
SK 50	M16	17,0	250	29,0	62	12	269		**168**

Accessories

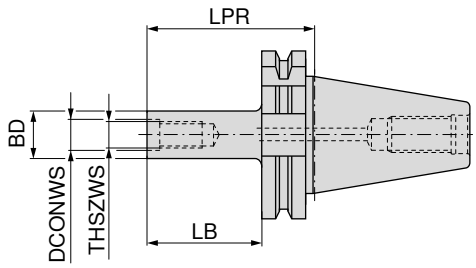
Extension-Reduction set
→ 257

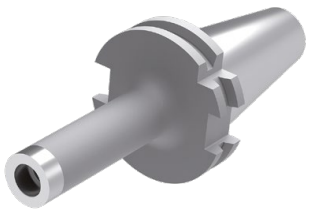
Pull studs
→ 58, 60

Others
→ 284

Adapter for milling cutters with threaded end

▲ also available with Balluff chip **on request**





AD
G 6,3 n_{max} 18000

56 709 ...

Adapter	THSZWS	DCONWS mm	LB mm	BD mm	LPR mm	
SK 40	M8	8,5	50	13,8	69	**082**
SK 40	M10	10,5	50	18,0	69	**102**
SK 40	M10	10,5	75	18,0	94	**103**
SK 40	M10	10,5	100	18,0	119	**104**
SK 40	M12	12,5	50	21,0	69	**122**
SK 40	M12	12,5	75	21,0	94	**123**
SK 40	M12	12,5	100	21,0	119	**124**
SK 40	M16	17,0	50	29,0	69	**162**
SK 40	M16	17,0	75	29,0	94	**163**
SK 40	M16	17,0	100	29,0	119	**164**

Accessories

Extension-Reduction set
→ 257

Pull studs
→ 58, 60

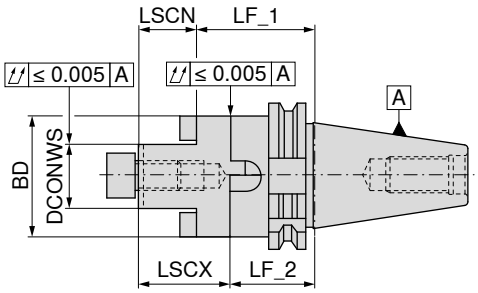
Others
→ 284

16

Combination shell mill adapter

▲ For milling cutters with transverse or longitudinal groove according to DIN 6358
▲ also available with Balluff chip **on request**

Scope of supply:
Toolholder with clamping screw, driving ring and dowel spring



NEW

A
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LF_1 mm	BD mm	LSCX mm	LSCN mm	LF_2 mm	82 744 ...
short	SK 30	16	50	32	27	17	40	11680
	SK 30	22	50	40	31	19	38	12280
	SK 30	27	55	48	33	21	43	12780
	SK 30	32	60	58	38	24	46	13280
	SK 40	16	55	32	27	17	45	11679
	SK 40	22	55	40	31	19	43	12279
	SK 40	27	55	48	33	21	43	12779
	SK 40	32	60	58	38	24	46	13279
	SK 40	40	60	70	41	27	46	14079[1]
	SK 50	16	55	32	27	17	45	11678
	SK 50	22	55	40	31	19	43	12278
	SK 50	27	55	48	33	21	43	12778
	SK 50	32	55	58	38	24	41	13278
	SK 50	40	55	70	41	27	41	14078[1]
	SK 50	50	70	90	46	30	54	15078[1]
medium length	SK 40	16	100	32	27	17	90	21679
	SK 40	22	100	40	31	19	88	22279
	SK 40	27	100	48	33	21	88	22779
	SK 40	32	100	58	38	24	86	23279
	SK 40	40	100	70	41	27	86	24079

1) With cross screw

Parallel key

Drive ring

Cross nut key

Cross screw

clamping screw

Spare parts DCONWS		83 950 ...	83 370 ...	83 368 ...		83 367 ...		83 950 ...
16	4 x 4 x 20	284	116	116	M8	016	M8x25	113
22	6 x 6 x 25	285	122	122	M10	022	M10x25	124
27	7 x 7 x 25	286	127	127	M12	027	M12x30	125
32	8 x 7 x 28	287	132	132	M16	032	M16x35	126
40	10 x 8 x 32	288	140	140	M20	040	M20x40 - SW17	112
50	12 x 8 x 36	289	150	150	M24	050		

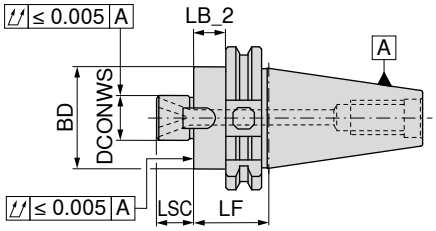
Accessories

Pull studs	Milling Adapter Rings	Others
58, 60	263	284

Shell mill adapter with reduced flange diameter

▲ Screwed drive dogs
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with retaining screw and drive dog



NEW

AD
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm	82 315 ...
short	SK 40	22	41	60	38	19	**12279**
	SK 40	27	25	44	48	21	**12779**
	SK 50	22	41	60	38	19	**12278**
	SK 50	27	25	44	48	21	**12778**

These shell mill adapters have been specially developed for MaxiMill 211-KN porcupine cutters.
Now they can be clamped perfectly, thanks to the adapted flange diameters.

Screw for drivers

Driver

clamping screw

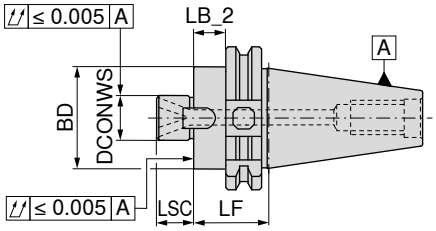
Spare parts DCONWS		83 950 ...		83 950 ...		83 950 ...
22	M4x8	**51700**	10x7x20,5	**51500**	M10x25	**124**
27	M5x8	**51800**	12x9x24,3	**51600**	M12x30	**125**

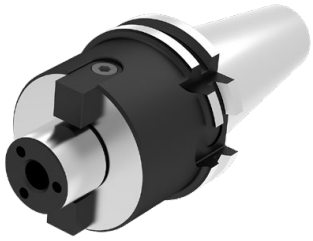
16

Shell mill adapter

▲ Screwed drive dogs
▲ also available with Balluff chip **on request**

Scope of supply:
Toolholder with clamping screw





AD
G 2,5 n_{max} 25000

AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm	82 745 ...	82 745 ...
short	SK 30	16	20,9	40	38	17	**11680**	
	SK 30	22	30,9	50	48	19	**12280**	
	SK 30	27	35,9	55	58	21	**12780**	
	SK 30	32	30,9	50	78	24	**13280**	
	SK 40	16	25,0	44	38	17		**11679**
	SK 40	22	25,0	44	48	19		**12279**
	SK 40	27	36,0	55	58	21		**12779**
	SK 40	32	31,0	50	78	24		**13279**
	SK 40	40	31,0	50	88	27		**14079**[1)]
	SK 50	16	25,0	44	38	17		**11678**
	SK 50	22	25,0	44	48	19		**12278**
	SK 50	27	25,0	44	58	21		**12778**
	SK 50	32	21,0	40	78	24		**13278**
	SK 50	40	31,0	50	88	27		**14078**[1)]
medium length	SK 40	16	81,0	100	38	17		**21679**
	SK 40	22	81,0	100	48	19		**22279**
	SK 40	27	81,0	100	58	21		**22779**
	SK 40	32	81,0	100	78	24		**23279**
	SK 40	40	81,0	100	88	27		**24079**[1)]
	SK 50	16	81,0	100	38	17		**21678**
	SK 50	22	81,0	100	48	19		**22278**
	SK 50	27	81,0	100	58	21		**22778**
	SK 50	32	81,0	100	78	24		**23278**
	SK 50	40	81,0	100	88	27		**24078**[1)]
long	SK 40	16	111,0	130	38	17		**31679**
	SK 40	22	111,0	130	48	19		**32279**
	SK 40	27	111,0	130	58	21		**32779**
	SK 40	32	111,0	130	78	24		**33279**
	SK 40	40	111,0	130	88	27		**34079**[1)]
	SK 50	16	111,0	130	38	17		**31678**
	SK 50	22	111,0	130	48	19		**32278**
	SK 50	27	111,0	130	58	21		**32778**
	SK 50	32	111,0	130	78	24		**33278**
	SK 50	40	111,0	130	88	27		**34078**[1)]
extra-long	SK 40	16	141,0	160	38	17		**41679**
	SK 40	22	141,0	160	48	19		**42279**
	SK 40	27	141,0	160	58	21		**42779**
	SK 40	32	141,0	160	78	24		**43279**
	SK 40	40	141,0	160	88	27		**44079**[1)]
	SK 50	16	141,0	160	38	17		**41678**
	SK 50	22	141,0	160	48	19		**42278**
	SK 50	27	141,0	160	58	21		**42778**
	SK 50	32	141,0	160	78	24		**43278**
	SK 50	40	141,0	160	88	27		**44078**[1)]

1) with cross screw and 4 holes M12, Pitch Circle diameter = 66.7 mm, coolant outlet on the outer diameter of the spigot (DCONWS)!

Spare parts facemill adapters

Cross nut key

83 368 ...

Cross screw

83 367 ...

clamping screw

83 950 ...

Spare parts DCONWS					
16	**116**	M8	**016**	M8x25	**113**
22	**122**	M10	**022**	M10x25	**124**
27	**127**	M12	**027**	M12x30	**125**
32	**132**	M16	**032**	M16x35	**126**
40	**140**	M20	**040**	M20x40 - SW17	**112**

Screw for drivers

84 950 ...

Driver

84 950 ...

Spare parts DCONWS					
16		M3x12	**162**	8x9,8x10	**43400**
22		M4x10	**163**	10x11,2x12	**43200**
27		M4x16	**164**	12x12,6x14	**43300**
32		M5x16	**166**	14x14x22,5	**160**
40		M5x16	**166**	16x16x23	**161**

Accessories

Pull studs
→ 58, 60

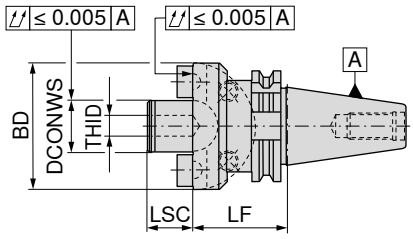
Extensions
→ 262

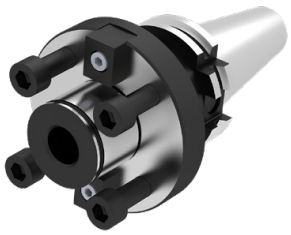
Others
→ 284

Large diameter facemill adapter

▲ For milling cutters with keyway or drive slot DIN 6357
▲ also available with Balluff chip **on request**

Scope of supply:
Holder with integrated drive dogs according to DIN 2079 and 4 fixation screws





NEW

A
G 6,3 n_{max} 8000

Adapter	DCONWS mm	LF mm	BD mm	LSC mm	THID	82 432 ...
SK 40	40	60	89	30	M20	**14079**
SK 50	40	70	89	30	M20	**14078**
SK 50	60	70	129	40	M30	**16078**

Screw for drivers

Driver

clamping screw

Spare parts DCONWS		84 950 ...		84 950 ...		83 950 ...
40	M5x16	**166**	16x16x23	**161**	M12x50	**140**
60	M12x25	**43500**	25,4x25x26,5	**43100**	M16x45	**160**

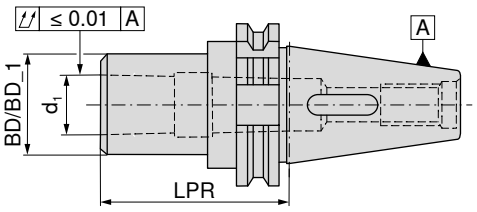
Accessories

Pull studs
→ 58, 60

Others
→ 284

Taper sleeve DIN6383 for DIN 228-2D Morse taper shanks

▲ also available with Balluff chip **on request**



NEW

AD

G 6,3 n_{max} 15000

82 746 ...

	Adapter	d_1	LPR mm	BD mm	
short	SK 30	MK1	50	25	**11080**
	SK 30	MK2	63	32	**12080**
	SK 30	MK3	80	40	**13080**
	SK 40	MK2	50	32	**12079**
	SK 40	MK1	50	25	**11079**
	SK 40	MK3	70	40	**13079**
	SK 40	MK4	95	48	**14079**
	SK 50	MK1	50	25	**11078**
	SK 50	MK2	60	32	**12078**
	SK 50	MK3	65	40	**13078**
	SK 50	MK4	95	48	**14078**
	SK 50	MK5	105	63	**15078**
medium length	SK 40	MK2	117	32	**22079**
	SK 40	MK3	133	40	**23079**
	SK 40	MK4	156	48	**24079**

Accessories

Morse taper adapter sleeve
→ 242

Pull studs
→ 58, 60

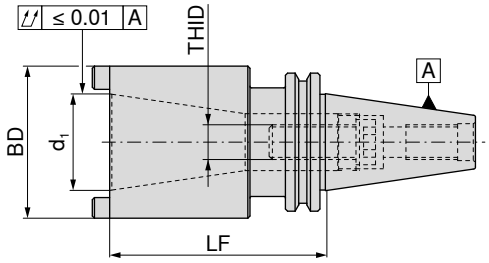
Others
→ 284

16

Milling adapter sleeve

▲ For mounting steep taper adapters according to DIN 2080
▲ With an extended retaining screw, adapters compliant with ISO 7388-1 – SK, ISO 7388-2 – MAS-BT and ANSI-CAT can also be clamped
▲ also available with Balluff chip **on request**

Scope of supply:
Holder with clamping screw for DIN 2080 adapters



NEW

A
G 6,3 n_{max} 8000

Adapter	d_1	LF mm	BD mm	THID	84 040 ...
SK 40	SK 30	50	50	M12	**13079**
SK 40	SK 40	100	70	M16	**14079**
SK 50	SK 40	80	70	M16	**14078**
SK 50	SK 50	120	100	M24	**15078**

Spare parts for Article no.	Clamping screw SK 83 950 ...	Clamping Screw 84 950 ...	Counterscrew 83 950 ...	Hollow key with nose 83 359 ...	Threaded ring 84 950 ...	clamping screw 83 950 ...
84 040 13079			**030**	**017**	**127**	**125**
84 040 14079	**264**	**43700**	**030**	**023**	**43800**	
84 040 14078	**009**	**43600**				
84 040 15078	**256**		**030**	**133**	**43900**	

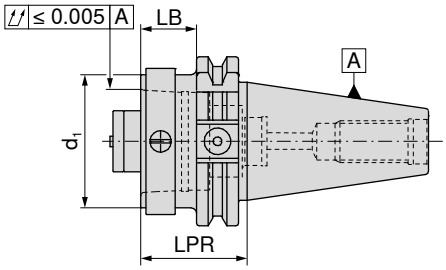
Auxiliary table for finding the required spare parts and accessories for intermediate sleeves for SK-adapters

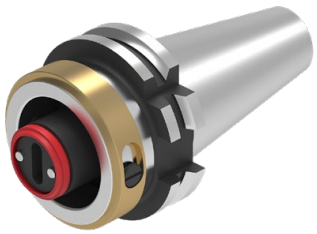
ISO 7388-1 Suitable for article no.	Norm of the SK-shank Ø d_1 ISO 7388-1	Ø d_1 DIN 2080	Clamping screw length THID	Clamping screw SK Article no.	Threaded ring Article no.	lock screw Article no.	hollow key Article no.
84 040 13079		SK 30	M12 x 30	**83 950 125**	**84 950 127**	**83 950 030**	**83 359 017**
84 040 14079	SK40		M16 x 70	**83 950 264**	**84 950 43800**	**83 950 030**	**83 359 023**
84 040 14079		SK40	M16 x 45	**84 950 43700**	**84 950 43800**	**83 950 030**	**83 359 023**
84 040 14078	SK40		M16 x 65	**84 950 43600**			
84 040 14078		SK40	M16 x 40	**83 950 009**			
84 040 15078	SK50		M24 x 80	**83 950 256**	**84 950 43900**	**83 950 030**	**83 359 133**
84 040 15078		SK50	M24 x 50	**83 950 263**	**84 950 43900**	**83 950 030**	**83 359 133**

SK/HSK-A adapter

▲ for mounting HSK-A adapters according to ISO 12164
▲ also available with Balluff chip **on request**

Scope of supply:
with clamping cartridge and cover ring





AD

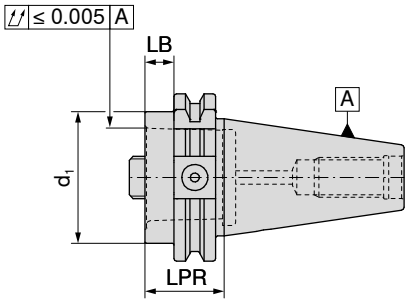
84 014 ...

Adapter	d_1	LB mm	LPR mm	
SK 40	HSK-A 32	20,9	40	**04060**
SK 40	HSK-A 40	20,9	40	**04059**
SK 40	HSK-A 50	20,9	40	**04058**
SK 40	HSK-A 63	60,9	80	**04057**
SK 50	HSK-A 32	20,9	40	**05060**
SK 50	HSK-A 40	20,9	40	**05059**
SK 50	HSK-A 50	20,9	40	**05058**
SK 50	HSK-A 63	20,9	40	**05057**
SK 50	HSK-A 100	80,9	100	**05055**

SK/PSC adapter

▲ for mounting PSC adapters according to ISO 26623-1
▲ also available with Balluff chip **on request**

Scope of supply:
with tightening screw



AD

Adapter	d_1	LB mm	LPR mm	84 015 ...
SK 40	PSC 32	10,9	30	**04087**
SK 40	PSC 40	10,9	30	**04095**
SK 40	PSC 50	10,9	30	**04094**
SK 40	PSC 63	65,9	85	**04093**
SK 50	PSC 32	10,9	30	**05087**
SK 50	PSC 40	10,9	30	**05095**
SK 50	PSC 50	10,9	30	**05094**
SK 50	PSC 63	10,9	30	**05093**
SK 50	PSC 80	50,9	70	**05086**

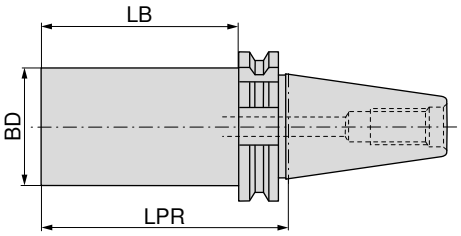
Threaded ring

tightening screw

Spare parts d_1	84 950 ...		84 950 ...
PSC 32	**127**	SW8	**122**
PSC 40	**128**	SW8	**123**
PSC 50	**129**	SW10	**124**
PSC 63	**130**	SW14	**126**
PSC 80	**130**	SW14	**126**

Blank

- ▲ Material: Steel 16MnCr5
- ▲ for production of special tools
- ▲ Diameter BD turned with 0.5 mm oversize
- ▲ Taper hardened and ground
- ▲ Special tool area in soft state
- ▲ also available with Balluff chip **on request**



NEW

AD/B

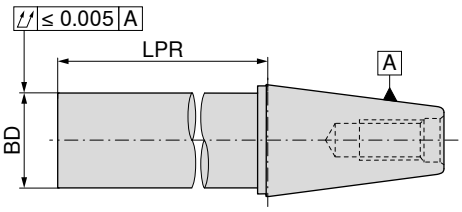
82 747 ...

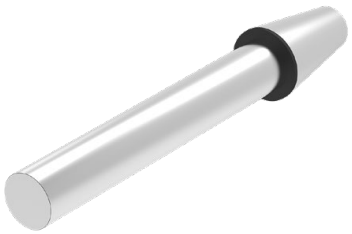
Adapter	BD mm	LPR mm	LB mm	
SK 40	63,0	250	231	**16379**
SK 50	63,5	300	281	**16378**

Test bar

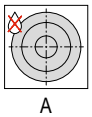
- ▲ Without tool change groove
- ▲ Use for MAS BT 40 special pull studs with 3 mm shorter LF dimension, as standard

Scope of supply:
in wooden box





NEW



A

81 746 ...

Adapter	BD mm	LPR mm	
SK / BT 40	40	320	**14079**
SK / BT 50	50	320	**15078**

Accessories

Pull studs
→ 58, 60

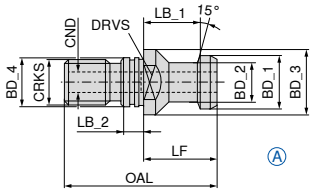
Others
→ 284

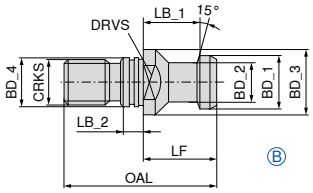
16

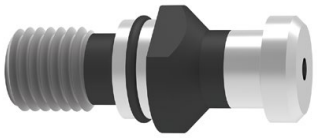
Pull studs for tool holders according to ISO 7388-1

▲ ISO 7388-3 AD
▲ For tools with or without axial coolant supply

Scope of supply:
including O-Ring





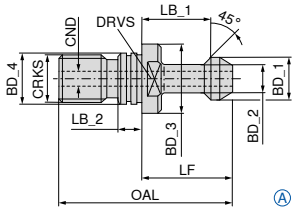


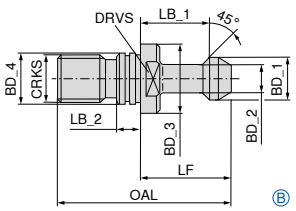
Adapter	BD_1 mm	BD_2 mm	BD_3 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	LB_2 mm	CND mm	DRVS mm	TQX Nm	form	82 475 ...	82 468 ...
SK 30	13	9	17	13	M12	44	24	19	5	3,5	14	20	A		**030**
SK 40	19	14	23	17	M16	54	26	20	7	7,0	19	50	A		**040**
SK 50	28	21	36	25	M24	74	34	25	10	11,5	30	150	A		**050**
SK 30	13	9	17	13	M12	44	24	19	5		14	20	B	**030**	
SK 40	19	14	23	17	M16	54	26	20	7		19	50	B	**040**	
SK 50	28	21	36	25	M24	74	34	25	10		30	150	B	**050**	

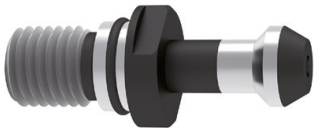
Pull studs for tool holders according to ISO 7388-1

▲ Similar to BT 45°, but 3 mm shorter
▲ for Haas, Micron and Hurco machines

Scope of supply:
including O-Ring





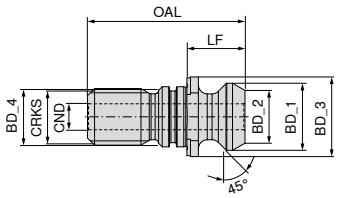


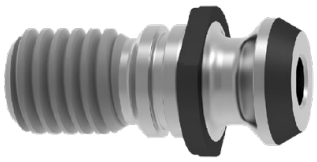
Adapter	BD_1 mm	BD_2 mm	BD_3 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	LB_2 mm	CND mm	DRVS mm	TQX Nm	form	83 538 ...	83 535 ...
SK 40	15	10	23	17	M16	57	32	25	5	4	19	50	A		**040**
SK 40	15	10	23	17	M16	57	32	25	5		19	50	B	**040**	

Spare parts BD_4		83 476 ...
17	BT / SK 40	**040**
25	BT / SK 50	**050**

Pull studs for tool holders according to ISO 7388-1

▲ ISO 7388-3 Form UD
▲ For tools with axial coolant supply





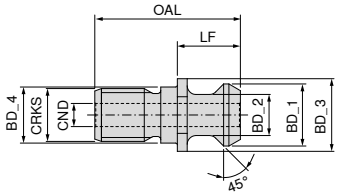
NEW

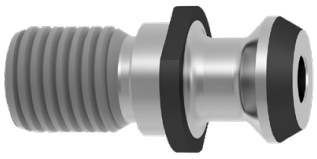
82 469 ...

Adapter	BD_1 mm	BD_2 mm	BD_3 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	CND mm	DRVS mm	TQX Nm	
SK 40	18,95	12,95	22,5	17	M16	44,5	16,4	11,15	7,35	19	50	**04000**

Pull studs for adapters according to ANSI-CAT (MAZAK)

▲ ANSI – CAT 40
▲ Similar to BT 45°, but 3 mm shorter
▲ For Mazak machines





NEW

82 469 ...

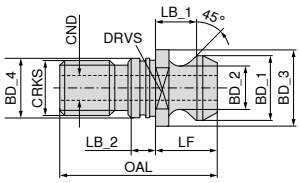
Adapter	BD_1 mm	BD_2 mm	BD_3 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	CND mm	DRVS mm	TQX Nm	
SK 40	18,796	12,449	22	17	M16	44,106	19,106	14,026	7	19	50	**14000**

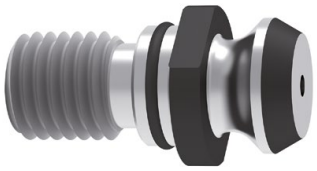
16

Pull studs for tool holders according to ISO 7388-1

▲ CAT Mazak
▲ Face ground flat

Scope of supply:
SK 50 including O-ring
SK 40 without O-ring groove

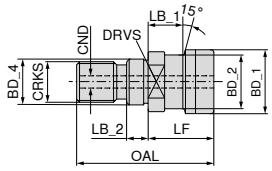


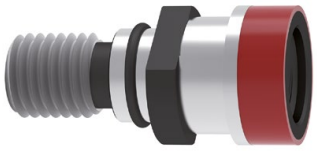


Adapter	BD_1 mm	BD_2 mm	BD_3 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	LB_2 mm	CND mm	DRVS mm	TQX Nm	82 487 ...
SK 40	18,79	12,44	21,8	17	M16	41,26	16,25	11,17	4,0	7,0	19	50	**040**
SK 50	29,10	19,60	37,0	25	M24	65,50	25,55	17,95	5,5	11,5	30	150	**050**

Pull studs for tool holders according to ISO 7388-1

▲ SK 40 with circlip groove and edge protection, with and without internal thread
▲ SK 50 with circlip groove, with and without internal thread
▲ For tools according to ISO 7388-1 for conversion to DIN 2080



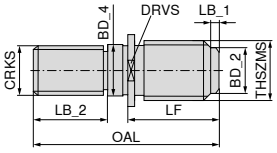


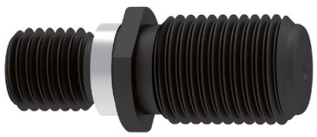
Adapter	BD_1 mm	BD_2 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	LB_2 mm	CND mm	DRVS mm	TQX Nm	without internal thread 82 493 ...	with internal thread 82 494 ...
SK 40	25,0	21,1	17	M16	53	25	13,6	8	7	19	50	**040**	**040**
SK 50	39,3	32,0	25	M24	65	25	13,3	10		30	150	**050** 1)	**050**

1) with O ring

Pull studs for tool holders according to ISO 7388-1

▲ DECKEL thread S 20 x 2





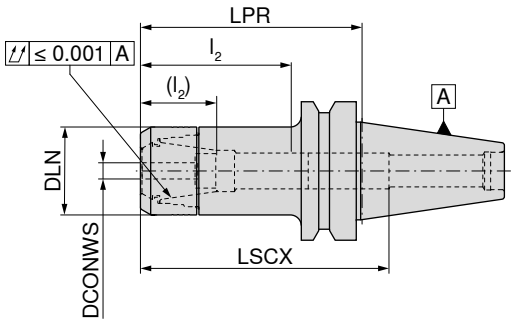
Adapter	THSZMS	CRKS	OAL mm	LF mm	LB_1 mm	LB_2 mm	BD_2 mm	BD_4 mm	DRVS mm	83 471 ...
SK 40	S 20 x 2	M16	55	33	4	17	16,7	17	22	**040**

ER Precision Collet chuck – Centro-P

- ▲ for standard or sealed nuts
- ▲ maximum size collet to ISO tolerance field H10
- ▲ for clamping a roll key is required
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Holder **without** nut, **without** backstop



AD

G 2,5 n_{max} 25000

84 524 ...

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	
BT 30	1 - 10	50	30	73	28 - 44 (16 - 31)	426E (ER16)	**001**
BT 30	1 - 10	75	30	97	28 - 45 (14 - 31)	426E (ER16)	**002**
BT 30	1 - 10	100	30	123	28 - 44 (16 - 31)	426E (ER16)	**003**
BT 30	1 - 10	120	30	112	28 - 45 (14 - 31)	426E (ER16)	**004**
BT 30	2 - 16	60	40	77	35 - 59 (30 - 42)	430E (ER25)	**160**
BT 30	2 - 16	75	40	72	38 - 56 (23 - 39)	430E (ER25)	**161**
BT 30	2 - 16	90	40	87	38 - 56 (23 - 39)	430E (ER25)	**162**
BT 30	2 - 16	120	40	115	38 - 56 (23 - 39)	430E (ER25)	**164**
BT 30	2 - 20	60	50	69	42 - 52	470E (ER32)	**207**
BT 30	2 - 20	75	50	84	42 - 62 (24 - 45)	470E (ER32)	**208**
BT 30	2 - 20	90	50	94	42 - 62 (24 - 45)	470E (ER32)	**209**
BT 40	1 - 10	75	30	90	38 - 53 (29 - 39)	426E (ER16)	**210**
BT 40	1 - 10	90	30	120	30 - 50 (29 - 36)	426E (ER16)	**310**
BT 40	1 - 10	120	30	140	29 - 45 (29 - 35)	426E (ER16)	**410**
BT 40	1 - 10	150	30	180	29 - 45 (29 - 32)	426E (ER16)	**510**
BT 40	1 - 10	200	30	220	29 - 50 (29 - 36)	426E (ER16)	**610**
BT 40	2 - 16	60	40	92	44 - 64 (36 - 46)	430E (ER25)	**116**
BT 40	2 - 16	75	40	100	42 - 59 (36 - 41)	430E (ER25)	**216**
BT 40	2 - 16	90	40	91	42 - 59 (36 - 41)	430E (ER25)	**316**
BT 40	2 - 16	105	40	100	35 - 60 (20 - 42)	430E (ER25)	**168**
BT 40	2 - 16	120	40	91	40 - 65 (36 - 47)	430E (ER25)	**416**
BT 40	2 - 16	150	40	100	40 - 64 (36 - 45)	430E (ER25)	**516**
BT 40	2 - 16	200	40	150	40 - 64 (36 - 45)	430E (ER25)	**616**
BT 40	2 - 20	60	50	55	45 - 64 (42 - 46)	470E (ER32)	**120**
BT 40	2 - 20	75	50	100	42 - 76 (42 - 52)	470E (ER32)	**220**
BT 40	2 - 20	90	50	100	42 - 76 (42 - 52)	470E (ER32)	**320**
BT 40	2 - 20	120	50	110	42 - 71 (42 - 53)	470E (ER32)	**420**
BT 40	2 - 20	150	50	110	42 - 71 (42 - 53)	470E (ER32)	**520**
BT 40	3 - 26	75	63	78	54 - 59	472E (ER40)	**226**
BT 40	3 - 26	105	63	93	55 - 71 (48 - 53)	472E (ER40)	**326**
BT 50	2 - 20	75	50	110	45 - 70 (42 - 53)	470E (ER32)	**720**
BT 50	2 - 20	105	50	140	45 - 63 (42 - 45)	470E (ER32)	**820**
BT 50	2 - 20	165	50	200	45 - 74 (42 - 56)	470E (ER32)	**920**
BT 50	3 - 26	75	63	100	48 - 58	472E (ER40)	**726**
BT 50	3 - 26	105	63	100	48 - 58	472E (ER40)	**826**

→ Transmittable torque moments, Page 313

LSCX = clamping depth without back stop screw for shanks
l_2 = with back stop screw 1, dimension in brackets (l_2) = with back stop screw 2
dimension LPR when using tightening nuts with seals 3 mm longer

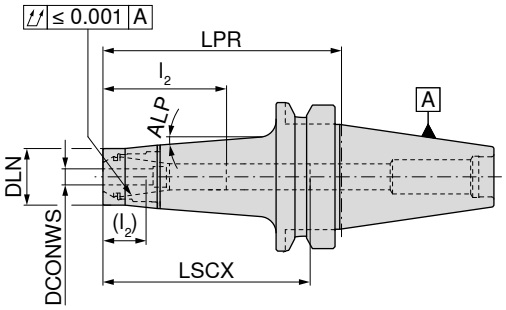
Spare parts, ER precision collet chuck – Centro-P

	Lock nut IK	Lock nut		Stop screw 2		Stop screw 1
	84 950 ...	84 950 ...		83 950 ...		83 950 ...
Spare parts for collet						
426E (ER16)	**011**	**001**	M11x1 - SW6	**341**	M11x1 - SW6	**337**
430E (ER25)	**013**	**003**	M18x1,5 - SW6	**432**	M18x1,5 - SW6	**431**
470E (ER32)	**015**	**005**	M22x1,5 - SW6	**402**	M22x1,5 - SW6	**401**
472E (ER40)	**017**	**007**			M28x1,5 - SW6	**400**

ER Precision tapered collet chuck – Centro-P

- ▲ for special tapered nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:
Holder **without** nut, **without** backstop



AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	ALP	84 517 ...
BT 40	1 - 10	100	24	72	28 - 48 (20 - 35)	426E (ER16)	4,5°	**410**
BT 40	1 - 10	135	24	165	28 - 48 (20 - 35)	426E (ER16)	4,5°	**31000**
BT 40	1 - 10	160	24	180	28 - 48 (20 - 35)	426E (ER16)	4,5°	**510**

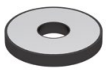
→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

	Tapered lock nut IK	Tapered lock nut		Stop screw 2		Stop screw 1
	84 950 ...	84 950 ...		83 950 ...		83 950 ...
Spare parts for collet						
426E (ER16)	**033**	**031**	M11x1 - SW6	**341**	M11x1 - SW6	**337**

Accessories

ER collet
→ 268–276, 279


Sealing ring
→ 280

Roll key
→ 286

Roll key device
→ 286

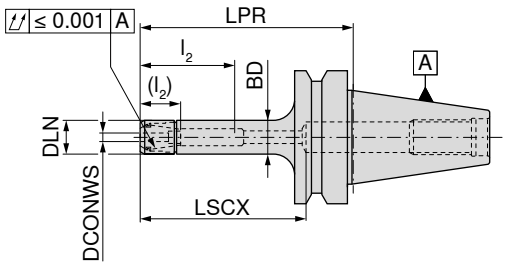
Pull studs
→ 110–111

Others
→ 284

ER Precision collet chuck, slim version – Centro-P

- ▲ for Mini Clamping Nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:
Holder **without** nut, **without** backstop



AD
G 2,5 n_{max} 25000

AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	BD mm	LSCX mm	l_2 (l_2) mm	for collet	84 507 ...	84 508 ...
BT 30	1 - 7	50	16	16	68	18 - 32 (12 - 22)	4008E (ER11)	**007**	
BT 30	1 - 7	100	16	16	68	18 - 36 (12 - 26)	4008E (ER11)	**008**	
BT 40	1 - 7	75	16	16	100	15 - 30 (8 - 21)	4008E (ER11)		**307**
BT 40	1 - 7	90	16	16	68	18 - 36 (12 - 26)	4008E (ER11)		**40600**
BT 40	1 - 7	120	16	16	140	15 - 30 (8 - 21)	4008E (ER11)		**507**
BT 40	1 - 7	150	16	16	68	18 - 36 (12 - 26)	4008E (ER11)		**90600**
BT 40	1 - 10	75	22	22	100	27 - 49 (16 - 32)	426E (ER16)		**216**
BT 40	1 - 10	90	22	22	115	27 - 49 (16 - 32)	426E (ER16)		**316**
BT 40	1 - 10	120	22	22	145	27 - 49 (16 - 32)	426E (ER16)		**416**
BT 40	1 - 10	150	22	22	175	27 - 49 (16 - 32)	426E (ER16)		**516**

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

Mini lock nut IK
84 950 ...

Mini lock nut
84 950 ...

Stop screw 2
83 950 ...

Stop screw 1
83 950 ...

Spare parts for collet							
4008E (ER11)		**041**	M8x1 - SW4	**340**	M8x1 - SW4	**336**
426E (ER16)	**035**	**034**	M11x1 - SW6	**341**	M11x1 - SW6	**337**

Accessories

ER collet
→ 268–276, 279

Sealing ring
→ 280

Device
→ 285

Roll key
→ 286

Roll key device
→ 286

Pull studs
→ 110–111

Others
→ 284

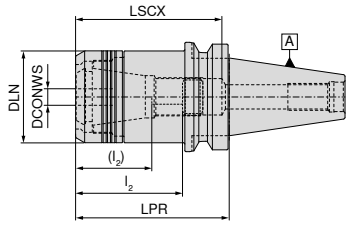
16

ER precision collet chuck – HDC

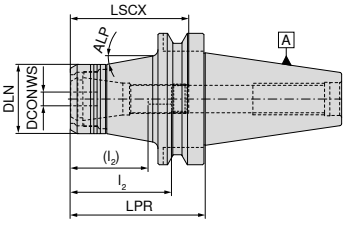
- ▲ HDC = Heavy Duty Chuck, an adapter specially designed for rough machining
- ▲ For heavy duty lock nut
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Base body **including** lock nut, **without** backstop screw



cylindrical



Conical

AD
G 6,3 n_{max} 18000

AD
G 6,3 n_{max} 18000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	ALP °	for collet	cylindrical 84 400 ...	conical 84 400 ...
BT 40	2 - 20	60	53	80	41 - 63 (27 - 45)		470E (ER32)	**12069**	
BT 40	2 - 20	90	53	85	41 - 63 (27 - 45)		470E (ER32)	**22069**	
BT 50	2 - 20	75	53	114	41 - 80 (27 - 62)	10	470E (ER32)		**12068**
BT 50	2 - 20	105	53	140	41 - 80 (27 - 62)	10	470E (ER32)		**22068**

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without backstop screw
l_2 = Clamping depth backstop screw 1, dimension in brackets (l_2) = Clamping depth backstop screw 2

Spare parts DCONWS	Lock nut 84 950 ...		Stop screw 2 83 950 ...		Stop screw 1 83 950 ...	
2 - 20	**30100**	M22x1,5 - SW6	**402**	M22x1,5 - SW6	**401**	

Accessories

ER collet
→ 268–276, 278–279

Roll key
→ 286

Roll key device
→ 286

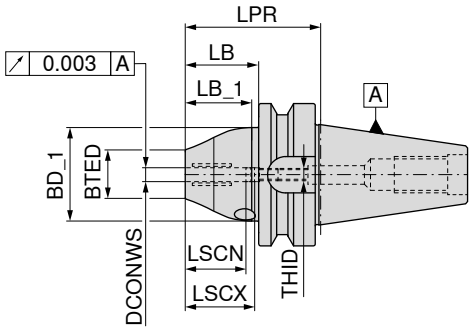
Pull studs
→ 110–111

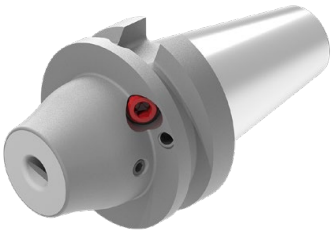
Others
→ 284

HyPower – Rough

- ▲ High pressure chuck – especially for milling
- ▲ Ideal for HSC and HPC applications
- ▲ High temperature resistance
- ▲ **Also available** with Balluff chip on request

Scope of supply:
Base body with backstop screw and pressure screw





NEW

AD/B
G 2,5 n_{max} 25000

84 254 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
BT 40	6	58,0	26	42	27,2	31,0	37	27	M5	**10669**
BT 40	8	58,0	28	42	27,2	31,0	37	27	M6	**10869**
BT 40	10	58,0	30	42	27,2	31,0	41	31	M8x1	**11069**
BT 40	12	58,0	32	49	27,2	31,0	46	36	M10x1	**11269**
BT 40	16	72,5	38	49	41,7	45,5	49	38	M12x1	**11669**
BT 40	20	72,5	38	49	41,7	45,5	51	41	M16x1	**12069**

→ Min. clamping depth, Page 312

Clamping key – T

80 397 ...

Pressure screw

83 950 ...

Stop screw IK

83 950 ...

Spare parts DCONWS							
6	SW5	**050**	M10x12	**55000**	M5x12,5 - SW2,5	**418**
8	SW5	**050**	M10x12	**55000**	M6x12,5 - SW3	**419**
10	SW5	**050**	M10x12	**55000**	M8x1x13,5 - SW3	**420**
12	SW5	**050**	M10x12	**55000**	M10x1x13,5 - SW5	**421**
16	SW5	**050**	M10x12	**55000**	M12x1x13,5 - SW5	**422**
20	SW5	**050**	M10x12	**55000**	M16x1x13,5 - SW8	**424**

Accessories

Reduction sleeve
→ 282

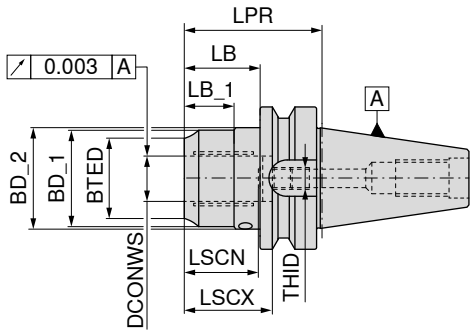
Pull studs
→ 110–111

Others
→ 284

HyPower – Complus

▲ High pressure chuck, short and stable version
▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw



NEW

AD/B
G 2,5 n_{max} 25000

83 513 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LB mm	LB_1 mm	LSCX mm	LSCN mm	THID	
BT 40	20	72,5	38					51	40	M16x1x13,5	**120**
BT 40	32	90,0	54	63		63,0		61	51	M16x1x13,5	**13269**
BT 50	20	83,5	38	49		45,5		51	41	M16x1x13,5	**12068**
BT 50	32	90,0	57	68	72	52,0	35	61	51	M16x1x13,5	**13268**

→ Min. clamping depth, Page 312

Cylindrical screw

Clamping key – T

Pressure screw

Stop screw IK

	83 950 ...		**80 397 ...**		**83 950 ...**		**83 950 ...**	
Spare parts for Article no.								
83 513 13269	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x14	**429**	M16x1x13,5 - SW8	**424**
83 513 12068	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x14	**429**	M16x1x13,5 - SW8	**424**
83 513 13268	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x14	**429**	M16x1x13,5 - SW8	**424**

Accessories

Reduction sleeve
→ 282

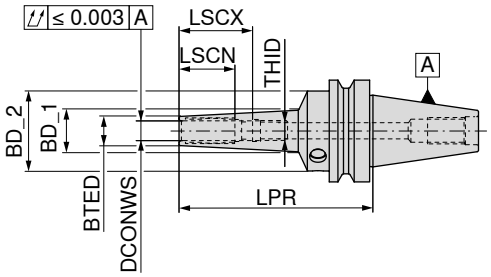
Pull studs
→ 110–111

Others
→ 284

HyPower – Access 3°

▲ High pressure chuck, slim 3°
▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw, pressure screw and screw plug



AD/B
G 2,5 n_{max} 25000

83 522 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LSCX mm	LSCN mm	THID	
medium length	BT40	3	120	9	16,55	49,5	28	12	M3	**103**
	BT40	4	120	10	17,55	49,5	28	16	M3	**104**
	BT40	5	120	11	18,55	49,5	28	20	M3	**105**
	BT40	6	120	12	19,55	49,5	37	27	M5	**106**
	BT40	8	120	14	21,55	49,5	37	27	M6	**108**
	BT40	10	120	16	23,65	49,5	41	31	M8x1	**110**
	BT40	12	120	18	25,76	49,5	46	36	M10x1	**112**
	BT40	16	120	24	31,45	49,5	49	39	M12x1	**116**
	BT40	20	120	28	35,55	49,5	51	41	M16x1	**120**
	BT40	6	160	16	33,53	49,5	37	27	M5	**206**
	BT40	8	160	18	34,60	49,5	37	27	M6	**208**
	BT40	10	160	20	36,27	49,5	41	31	M8x1	**210**
	BT40	12	160	22	37,88	49,5	46	36	M10x1	**212**
	BT40	6	200	16	37,88	49,5	37	27	M5	**306**
	BT40	8	200	18	38,90	49,5	37	27	M6	**308**
	BT40	10	200	20	40,57	49,5	41	31	M8x1	**310**
	BT40	12	200	22	42,18	49,5	46	36	M10x1	**312**

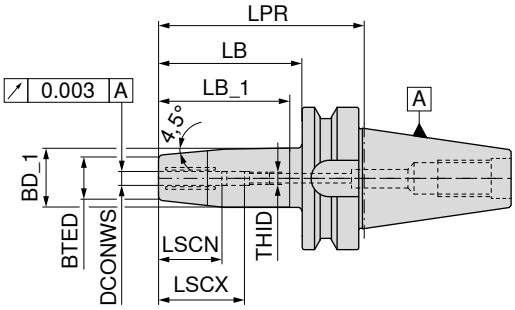
→ Min. clamping depth, Page 312

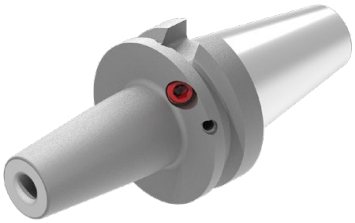
		Cylindrical screw		Clamping key – T		Pressure screw		Stop screw IK	
		83 950 ...		**80 397 ...**		**83 950 ...**		**83 950 ...**	
Spare parts for Article no.									
83 522 103	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x10	**158**	M3x20 - SW1,5	**172**
83 522 104	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x10	**158**	M3x20 - SW1,5	**172**
83 522 105	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x10	**158**	M3x20 - SW1,5	**172**
83 522 106	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x10	**158**	M5x12,5 - SW2,5	**418**
83 522 108	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x10	**158**	M6x12,5 - SW3	**419**
83 522 110	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x12	**159**	M8x1x13,5 - SW3	**420**
83 522 112	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x12	**159**	M10x1x13,5 - SW5	**421**
83 522 116	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x12	**159**	M12x1x13,5 - SW5	**422**
83 522 120	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x12	**159**	M16x1x13,5 - SW8	**424**
83 522 206	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x10	**158**	M5x12,5 - SW2,5	**418**
83 522 208	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x10	**158**	M6x12,5 - SW3	**419**
83 522 210	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x12	**159**	M8x1x13,5 - SW3	**420**
83 522 212	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x12	**159**	M10x1x13,5 - SW5	**421**
83 522 306	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x10	**158**	M5x12,5 - SW2,5	**418**
83 522 308	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x10	**158**	M6x12,5 - SW3	**419**
83 522 310	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x12	**159**	M8x1x13,5 - SW3	**420**
83 522 312	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x12	**159**	M10x1x13,5 - SW5	**421**

HyPower – Access 4.5°

- ▲ High pressure chuck with slim contour, original dimensions of a 4.5° shrink contour
- ▲ Especially for reaming and drilling applications
- ▲ Ideal for tool and die production
- ▲ **Also available** with Balluff chip on request

Scope of supply:
Base body with backstop screw and pressure screw





NEW

AD/B
G 2,5 n_{max} 25000

84 255 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
BT 40	6	90	21	27	57,7	63	37	27	M5	**10669**
BT 40	8	90	21	27	57,7	63	37	27	M6	**10869**
BT 40	10	90	24	32	57,7	63	41	31	M8x1	**11069**
BT 40	12	90	24	32	57,7	63	46	36	M10x1	**11269**
BT 40	16	90	27	34	57,2	63	49	39	M12x1	**11669**
BT 40	20	90	33	42	57,5	63	51	41	M16x1	**12069**

→ Min. clamping depth, Page 312

Clamping key – T

80 397 ...

Pressure screw

83 950 ...

Stop screw IK

83 950 ...

Spare parts DCONWS							
6	SW5	**050**	M10x12	**55000**	M5x12,5 - SW2,5	**418**
8	SW5	**050**	M10x12	**55000**	M6x12,5 - SW3	**419**
10	SW5	**050**	M10x12	**55000**	M8x1x13,5 - SW3	**420**
12	SW5	**050**	M10x12	**55000**	M10x1x13,5 - SW5	**421**
16	SW5	**050**	M10x12	**55000**	M12x1x13,5 - SW5	**422**
20	SW5	**050**	M10x12	**55000**	M16x1x13,5 - SW8	**424**

Reduction sleeve
→ 282

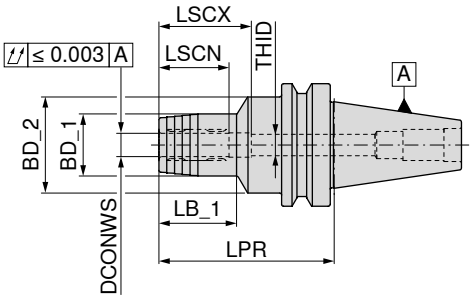
Pull studs
→ 110–111

Others
→ 284

HyTens – Fit

▲ Hydraulic chuck, short and slim version
▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw



AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	BD_1 mm	BD_2 mm	LSCX mm	LSCN mm	LB_1 mm	THID	83 521 ...
BT 40	6	90	26	49,5	37	27	29	M5	**106**
BT 40	8	90	28	49,5	37	27	30	M6	**108**
BT 40	10	90	30	49,5	41	31	35	M8x1	**110**
BT 40	12	90	32	49,5	46	36	40	M10x1	**112**
BT 40	16	90	38	49,5	49	39	45	M12x1	**116**
BT 40	20	90	42	49,5	51	41	47	M16x1	**120**
BT 40	25	90	55	52,0	57	47	50	M16x1	**125**
BT 40	32	90	63	62,0	61	51	48	M16x1	**132**
BT 50	6	90	26	49,5	37	27	29	M5	**306**
BT 50	8	90	28	49,5	37	27	30	M6	**308**
BT 50	10	90	30	49,5	41	31	34	M8x1	**310**
BT 50	12	90	32	49,5	46	36	34	M10x1	**312**
BT 50	16	90	38	49,5	49	39	35	M12x1	**316**
BT 50	20	90	42	49,5	51	41	35	M16x1	**320**
BT 50	25	110	55	63,0	57	47	48	M16x1	**325**
BT 50	32	110	63	70,0	61	51	50	M16x1	**332**

→ Min. clamping depth, Page 312

Pressure screw

Stop screw IK

Stop screw IK

Spare parts DCONWS		83 950 ...		83 950 ...		83 950 ...
6	M8x1x10	**439**			M5x12,5 - SW2,5	**418**
8	M8x1x10	**439**	M6x14 - SW2	**417**	M6x12,5 - SW3	**419**
10	M10x1x12	**440**			M8x1x13,5 - SW3	**420**
12	M10x1x12	**440**			M10x1x13,5 - SW5	**421**
16	M10x1x12	**440**			M12x1x13,5 - SW5	**422**
20 - 32	M10x1x12	**440**			M16x1x13,5 - SW8	**424**

Accessories

Reduction sleeve
→ 282

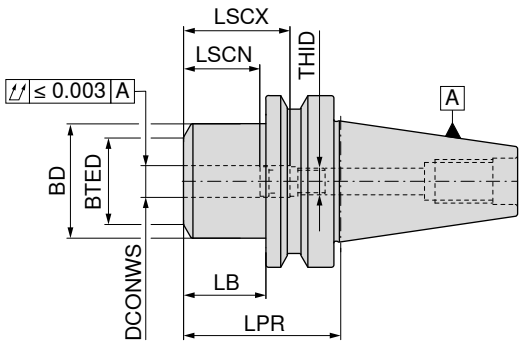
Pull studs
→ 110–111

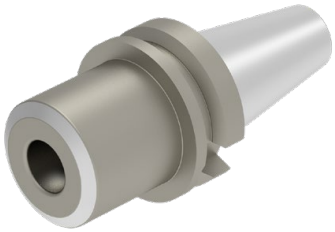
Others
→ 284

HyTens – Compact

▲ Hydraulic chuck, short and stable version
▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw





AD
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	BD mm	BTED mm	LB mm	LSCN mm	LSCX mm	THID	**83 430 ...**
BT 40	12	58,0	42	32	31,0	36	46	M8x1	**01269**
BT 40	20	72,5	49	38	45,5	41	51	M16x1	**02069**
BT 50	20	83,5	49	38	45,5	41	51	M16x1	**02068**

→ Min. clamping depth, Page 312

Clamping key – T
80 397 ...

Pressure screw
83 950 ...

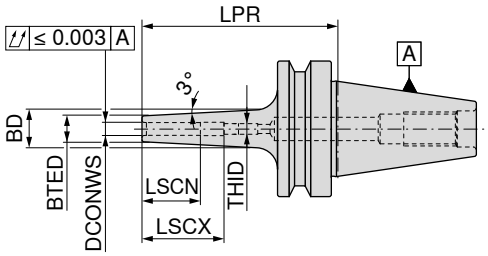
Stop screw IK
83 950 ...

Spare parts for Article no.			
83 430 01269	**050**	**440**	**420**
83 430 02069	**050**	**440**	**424**
83 430 02068	**050**	**440**	**424**

Shrink adapter, Slim 3°

▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

TG



AD/B
G 2,5 n_{max} 25000

84 323 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	
short	BT 40	3	90	9	15	28	12	M6	**103**
	BT 40	4	90	10	16	28	16	M6	**104**
	BT 40	5	90	11	17	30	20	M6	**105**
	BT 40	6	90	12	18	36	26	M5	**106**
	BT 40	8	90	14	20	36	26	M6	**108**
	BT 40	10	90	16	22	41	31	M8x1	**110**
	BT 40	12	90	18	24	47	37	M10x1	**112**
	BT 40	14	90	20	26	47	37	M10x1	**114**
	BT 40	16	90	22	28	50	40	M12x1	**116**
	BT 40	18	90	24	30	50	40	M12x1	**118**
	BT 40	20	90	26	32	52	42	M16x1	**120**
medium length	BT 40	3	120	9	16	12	12		**203**
	BT 40	4	120	10	17	16	16		**204**
	BT 40	5	120	11	18	20	20		**205**
	BT 40	6	120	12	21	36	26	M5	**206**
	BT 40	8	120	14	23	36	26	M6	**208**
	BT 40	10	120	16	25	41	31	M8x1	**210**
	BT 40	12	120	18	27	47	37	M10x1	**212**
	BT 40	14	120	20	29	47	37	M10x1	**214**
	BT 40	16	120	22	31	50	40	M12x1	**216**
	BT 40	18	120	24	33	50	40	M12x1	**218**
	BT 40	20	120	26	35	52	42	M16x1	**220**
extra-long	BT 40	3	160	9	19	12	12		**303**
	BT 40	4	160	10	20	16	16		**304**
	BT 40	5	160	11	21	20	20		**305**
	BT 40	6	160	12	24	36	26	M5	**306**
	BT 40	8	160	14	26	36	26	M6	**308**
	BT 40	10	160	16	28	41	31	M8x1	**310**
	BT 40	12	160	18	30	47	37	M10x1	**312**
	BT 40	14	160	20	32	47	37	M10x1	**314**
	BT 40	16	160	22	34	50	40	M12x1	**316**
	BT 40	18	160	24	36	50	40	M12x1	**318**
	BT 40	20	160	26	38	52	42	M16x1	**320**

→ Min. clamping depth, Page 312

Stop screw IK

Stop screw IK

83 950 ...

83 950 ...

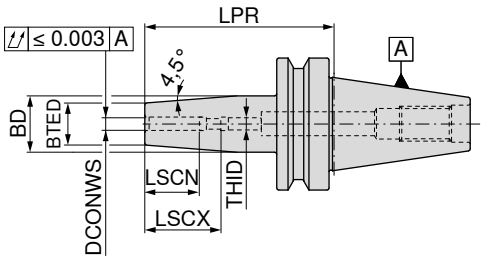
Spare parts

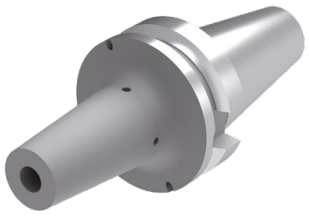
DCONWS				
3 - 5	M6x14 - SW2	**417**		
6			M5x12,5 - SW2,5	**418**
8			M6x12,5 - SW3	**419**
10			M8x1x13,5 - SW3	**420**
12 - 14			M10x1x13,5 - SW5	**421**
16 - 18			M12x1x13,5 - SW5	**422**
20			M16x1x13,5 - SW8	**424**

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

TG





AD
G 2,5 n_{max} 25000

AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	84 303 ...	84 303 ...
short	BT 30	3	85	10	17	28	12	M6	003	
	BT 30	4	85	15	22	28	16	M6	004	
	BT 30	5	85	15	22	30	20	M6	005	
	BT 30	6	85	21	27	36	26	M5	006	
	BT 30	8	85	21	27	36	26	M6	008	
	BT 30	10	85	24	32	41	31	M8x1	010	
	BT 30	12	85	24	32	47	37	M10x1	012	
	BT 30	14	85	27	34	47	37	M10x1	014	
	BT 30	16	85	27	34	50	40	M12x1	016	
	BT 30	18	85	33	42	50	40	M12x1	018	
	BT 30	20	85	33	42	52	42	M16x1	020	
	BT 40	3	90	10	17	28	12	M6		103
	BT 40	4	90	15	22	28	16	M6		104
	BT 40	5	90	15	22	30	20	M6		105
	BT 40	6	90	21	27	36	26	M5		106
	BT 40	8	90	21	27	36	26	M6		108
	BT 40	10	90	24	32	41	31	M8x1		110
	BT 40	12	90	24	32	47	37	M10x1		112
	BT 40	14	90	27	34	47	37	M10x1		114
	BT 40	16	90	27	34	50	40	M12x1		116
	BT 40	18	90	33	42	50	40	M12x1		118
	BT 40	20	90	33	42	52	42	M16x1		120
	BT 40	25	100	44	53	58	48	M16x1		125
medium length	BT 40	3	120	10	20	12	12			203
	BT 40	4	120	15	22	16	16			204
	BT 40	5	120	15	22	20	20			205
	BT 40	6	120	21	27	36	26	M5		206
	BT 40	8	120	21	27	36	26	M6		208
	BT 40	10	120	24	32	41	31	M8x1		210
	BT 40	12	120	24	32	47	37	M10x1		212
	BT 40	14	120	27	34	47	37	M10x1		214
	BT 40	16	120	27	34	50	40	M12x1		216
	BT 40	18	120	33	42	50	40	M12x1		218
	BT 40	20	120	33	42	52	42	M16x1		220
	BT 40	25	120	44	53	58	48	M16x1		225
extra-long	BT 40	3	160	10	20	12	12			303
	BT 40	4	160	15	22	16	16			304
	BT 40	5	160	15	22	20	20			305
	BT 40	6	160	21	27	36	26	M5		306
	BT 40	8	160	21	27	36	26	M6		308
	BT 40	10	160	24	32	41	31	M8x1		310
	BT 40	12	160	24	32	47	37	M10x1		312
	BT 40	14	160	27	34	47	37	M10x1		314
	BT 40	16	160	27	34	50	40	M12x1		316
	BT 40	18	160	33	42	50	40	M12x1		318
	BT 40	20	160	33	42	52	42	M16x1		320
	BT 40	25	160	44	53	58	48	M16x1		325

→ Min. clamping depth, Page 312

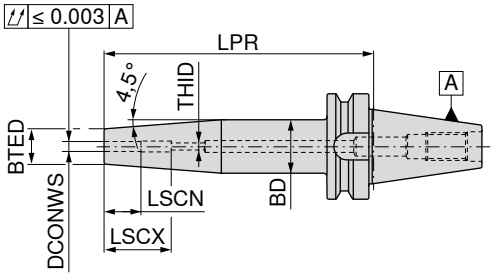
Spare parts heat shrink adapter 4.5°

		Stop screw IK		Stop screw IK	
		83 950 ...		**83 950 ...**	
Spare parts DCONWS					
3 - 5	M6x14 - SW2		**417**		
6				M5x12,5 - SW2,5	**418**
8				M6x12,5 - SW3	**419**
10				M8x1x13,5 - SW3	**420**
12 - 14				M10x1x13,5 - SW5	**421**
16 - 18				M12x1x13,5 - SW5	**422**
20 - 25				M16x1x13,5 - SW8	**424**

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

TG



AD/B
G 2,5 n_{max} 25000

82 310 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	
short	BT 40	3	90	11	15				**10369**
	BT 40	4	90	11	15				**10469**
	BT 40	5	90	11	15				**10569**
	BT 40	6	90	21	27	36	26	M5	**10669**
	BT 40	8	90	21	27	36	26	M6	**10869**
	BT 40	10	90	24	34	41	31	M8x1	**11069**
	BT 40	12	90	24	34	46	36	M10x1	**11269**
	BT 40	14	90	27	34	46	36	M10x1	**11469**
	BT 40	16	90	27	34	49	39	M12x1	**11669**
	BT 40	18	90	33	42	49	39	M12x1	**11869**
	BT 40	20	90	33	42	51	41	M16x1	**12069**
	BT 40	25	100	44	53	57	47	M16x1	**12569**
	BT 50	6	100	21	27	36	26	M5	**10668**
	BT 50	8	100	21	27	36	26	M6	**10868**
	BT 50	10	100	24	32	41	31	M8x1	**11068**
	BT 50	12	100	24	32	47	37	M10x1	**11268**
	BT 50	14	100	27	34	47	37	M10x1	**11468**
	BT 50	16	100	27	34	50	40	M12x1	**11668**
	BT 50	18	100	33	42	50	40	M12x1	**11868**
	BT 50	20	100	33	42	52	42	M16x1	**12068**
	BT 50	25	100	44	53	58	48	M16x1	**12568**
	BT 50	32	100	44	53	62	52	M16x1	**13268**
medium length	BT 50	6	120	21	27	36	26	M5	**20668**
	BT 50	8	120	21	27	36	26	M6	**20868**
	BT 50	10	120	24	32	41	31	M8x1	**21068**
	BT 50	12	120	24	32	47	37	M10x1	**21268**
	BT 50	14	120	27	34	47	37	M10x1	**21468**
	BT 50	16	120	27	34	50	40	M12x1	**21668**
	BT 50	18	120	33	42	50	40	M12x1	**21868**
	BT 50	20	120	33	42	52	42	M16x1	**22068**
	BT 50	25	120	44	53	58	48	M16x1	**22568**
	BT 50	32	120	44	53	62	52	M16x1	**23268**

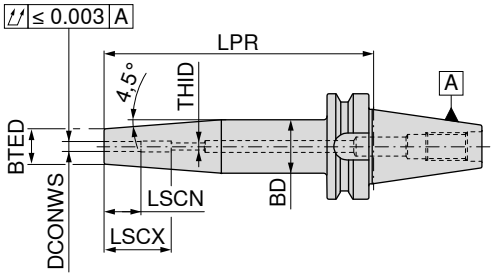
→ Min. clamping depth, Page 312

Continued on next page

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

TG



AD/B
G 2,5 n_{max} 25000

82 310 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	
extra-long	BT 40	6	160	21	27	36	26	M5	**30669**
	BT 40	8	160	21	27	36	26	M6	**30869**
	BT 40	10	160	24	34	41	31	M8x1	**31069**
	BT 40	12	160	24	34	46	36	M10x1	**31269**
	BT 40	14	160	27	34	46	36	M10x1	**31469**
	BT 40	16	160	27	34	49	39	M12x1	**31669**
	BT 40	18	160	33	42	49	39	M12x1	**31869**
	BT 40	20	160	33	42	51	41	M16x1	**32069**
	BT 40	25	160	44	53	57	47	M16x1	**32569**
	BT 50	6	160	21	27	36	26	M5	**30668**
	BT 50	8	160	21	27	36	26	M6	**30868**
	BT 50	10	160	24	32	41	31	M8x1	**31068**
	BT 50	12	160	24	32	47	37	M10x1	**31268**
	BT 50	14	160	27	34	47	37	M10x1	**31468**
	BT 50	16	160	27	34	50	40	M12x1	**31668**
	BT 50	18	160	33	42	50	40	M12x1	**31868**
	BT 50	20	160	33	42	52	42	M16x1	**32068**
	BT 50	25	160	44	53	58	48	M16x1	**32568**
	BT 50	32	160	44	53	62	52	M16x1	**33268**

→ Min. clamping depth, Page 312

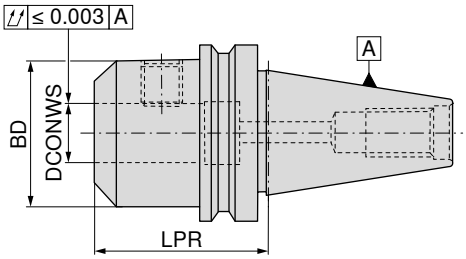
Stop screw IK

82 950 ...

Spare parts DCONWS		
6	M5x16 - SW2,5	**30000**
8	M6x16 - SW3	**30100**
10	M8x1x16 - SW4	**30200**
12 - 14	M10x1x14 - SW5	**30300**
16 - 18	M12x1x16 - SW6	**30400**
20 - 32	M16x1x16 - SW8	**30500**

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**



NEW

AD
G 2,5 n_{max} 25000

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	82 741 ...
short	BT 30	6	50	25	**10670**
	BT 30	8	50	28	**10870**
	BT 30	10	50	35	**11070**
	BT 30	12	55	42	**11270**
	BT 30	14	55	44	**11470**
	BT 30	16	63	48	**11670**
	BT 30	18	63	50	**11870**
	BT 30	20	63	52	**12070**
extra short	BT 40	16	35	48	**01669**
	BT 40	20	35	50	**02069**
	BT 40	25	40	50	**02569**[1)]
	BT 40	32	75	72	**03269**[1)]

1) Version with two grubscrews

Grubscrew

Spare parts DCONWS		62 950 ...
6	M6x10	**006**
8	M8x10	**008**
10	M10x12	**010**
12 - 14	M12x16	**012**
16 - 18	M14x16	**016**
20	M16x16	**020**
25	M18x2x20	**025**
32	M20x2x20	**032**

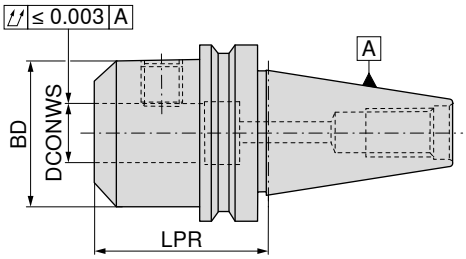
Accessories

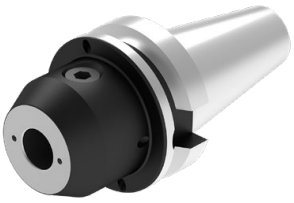
Pull studs
→ 110–111

Others
→ 284

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**





NEW

AD/B
G 2,5 n_{max} 25000

82 740 ...

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	
short	BT 40	6	50	25	**10669**
	BT 40	8	50	28	**10869**
	BT 40	10	63	35	**11069**
	BT 40	12	63	42	**11269**
	BT 40	14	63	44	**11469**
	BT 40	16	63	48	**11669**
	BT 40	18	63	50	**11869**
	BT 40	20	63	52	**12069**
	BT 40	25	100	65	**12569**
	BT 40	32	100	72	**13269**[1)]
	BT 40	40	120	80	**14069**[1)]
	BT 50	6	63	25	**10668**
	BT 50	8	63	28	**10868**
	BT 50	10	80	35	**11068**
	BT 50	12	80	42	**11268**
	BT 50	14	80	44	**11468**
	BT 50	16	80	48	**11668**
	BT 50	18	80	50	**11868**
	BT 50	20	80	52	**12068**
	BT 50	25	100	65	**12568**[1)]
	BT 50	32	105	72	**13268**[1)]
	BT 50	40	120	80	**14068**[1)]
medium length	BT 40	6	100	25	**20669**
	BT 40	8	100	28	**20869**
	BT 40	10	100	35	**21069**
	BT 40	12	100	42	**21269**
	BT 40	14	100	44	**21469**
	BT 40	16	100	48	**21669**
	BT 40	18	100	50	**21869**
	BT 40	20	100	52	**22069**
	BT 50	6	100	25	**20668**
	BT 50	8	100	28	**20868**
	BT 50	10	100	35	**21068**
	BT 50	12	100	42	**21268**
	BT 50	14	100	44	**21468**
	BT 50	16	100	48	**21668**
	BT 50	18	100	50	**21868**
	BT 50	20	100	52	**22068**
	BT 50	25	120	65	**22568**[1)]

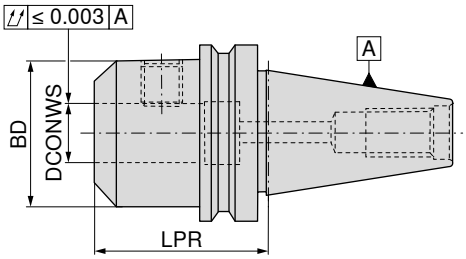
1) Version with two grubscrews

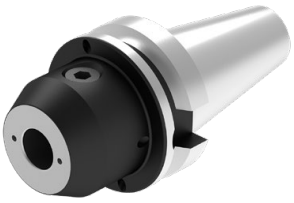
16

Continued on next page

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**





NEW

AD/B
G 2,5 n_{max} 25000

82 740 ...

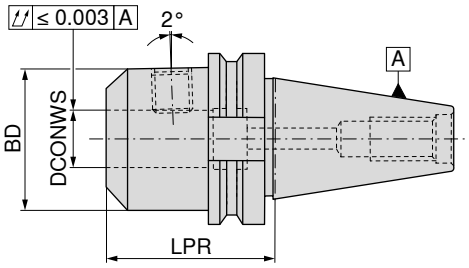
	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	
extra-long	BT 40	6	160	25	**40669**
	BT 40	8	160	28	**40869**
	BT 40	10	160	35	**41069**
	BT 40	12	160	42	**41269**
	BT 40	14	160	44	**41469**
	BT 40	16	160	48	**41669**
	BT 40	18	160	50	**41869**
	BT 40	20	160	52	**42069**
	BT 40	25	160	65	**42569**[1)]
	BT 50	6	160	25	**40668**
	BT 50	8	160	28	**40868**
	BT 50	10	160	35	**41068**
	BT 50	12	160	42	**41268**
	BT 50	14	160	44	**41468**
	BT 50	16	160	48	**41668**
	BT 50	18	160	50	**41868**
	BT 50	20	160	52	**42068**
	BT 50	25	160	65	**42568**[1)]
	BT 50	32	160	72	**43268**[1)]

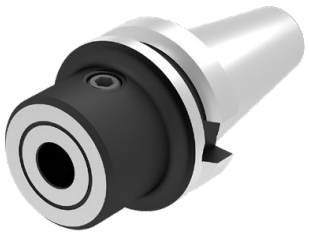
1) Version with two grubscrews

The M3 screws with WAF 1.5 mm supplied can be used to seal the two additional coolant holes.

Cylindrical Shank Adapter (Whistle Notch)

- ▲ For shanks according to DIN 6535 HE / 1835 E with angled clamping flat
- ▲ The groove in the flat face is a characteristic feature of the Whistle Notch version
- ▲ also available with Balluff chip **on request**





NEW

AD/B
G 2,5 n_{max} 25000

82 742 ...

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	
short	BT 40	6	50	25	**10669**
	BT 40	8	50	28	**10869**
	BT 40	10	63	35	**11069**
	BT 40	12	63	42	**11269**
	BT 40	14	63	44	**11469**
	BT 40	16	63	48	**11669**
	BT 40	18	63	50	**11869**
	BT 40	20	63	52	**12069**
	BT 40	25	100	65	**12569**[1)]
	BT 40	32	100	72	**13269**[1)]
	BT 40	40	120	80	**14069**[1)]
	BT 50	6	63	25	**10668**
	BT 50	8	63	28	**10868**
	BT 50	10	80	35	**11068**
	BT 50	12	80	42	**11268**
	BT 50	14	80	44	**11468**
	BT 50	16	80	48	**11668**
	BT 50	18	80	50	**11868**
	BT 50	20	80	52	**12068**
	BT 50	25	100	65	**12568**[1)]
	BT 50	32	105	72	**13268**[1)]
long	BT 40	6	130	25	**30669**
	BT 40	8	130	28	**30869**
	BT 40	10	130	35	**31069**
	BT 40	12	130	42	**31269**
	BT 40	16	130	48	**31669**
	BT 40	20	130	52	**32069**
	BT 40	25	130	65	**32569**[1)]
	BT 50	6	130	25	**30668**
	BT 50	8	130	28	**30868**
	BT 50	10	130	35	**31068**
	BT 50	12	130	42	**31268**
	BT 50	16	130	48	**31668**
	BT 50	20	130	52	**32068**
	BT 50	25	130	65	**32568**[1)]
	BT 50	32	130	72	**33268**[1)]

1) Version with two grubscrews

16

Spare parts
cylindrical shank adapters (Weldon and Whistle Notch)

		Adjustment screw		Clamping screw		Grubscrew		Backstop screw	
		10 950 ...		**62 950 ...**		**62 950 ...**		**84 950 ...**	
Spare parts DCONWS $_{H4}$									
6						M6x10	**006**	M5x20	**44100**
8						M8x10	**008**	M6x20	**21500**
10						M10x12	**010**	M8x16	**44200**
12 - 14	M10X20 DIN 913		**17500**			M12x16	**012**		
16 - 18						M14x16	**016**	M12x20	**44300**
20				M16x20 - SW8	**51200**	M16x16	**020**		
25						M18x2x20	**025**	M20x24	**44000**
32 - 40						M20x2x20	**032**	M20x24	**44000**

Accessories

Pull studs

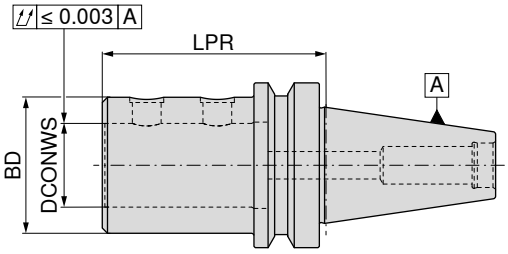
→ 110–111

Others

→ 284

Indexable insert drill adapter ISO 7388- 2 – MAS-BT

▲ also available with Balluff chip **on request**



NEW

AD/B
G 6,3 n_{max} 15000

82 748 ...

Adapter	DCONWS mm	LPR mm	BD mm	
BT 40	20	75	40	**12069**
BT 40	25	80	45	**12569**
BT 40	32	85	52	**13269**
BT 50	20	85	40	**12068**
BT 50	25	90	45	**12568**
BT 50	32	95	52	**13268**
BT 50	40	105	65	**14068**
BT 50	50	113	75	**15068**

Suitable eccentric sleeves can be found in → **Chapter 3, Indexable insert drilling.**

Grubscrew

10 950 ...

Spare parts DCONWS		
20	M10x1x10	**001**
25 - 32	M12x1x10	**002**
40 - 50	M16x1x12	**003**

Accessories

Pull studs
→ 110–111

Others
→ 284

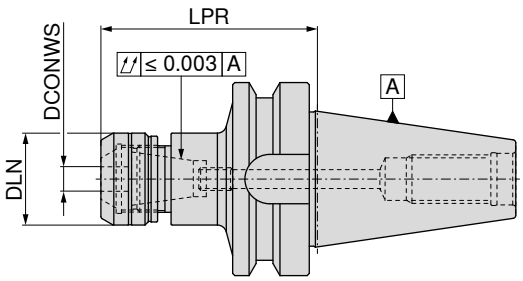
16

ER Precision Collet chuck – PCC

- ▲ For standard or sealing disc lock nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 100 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Base body with lock nut and backstop screw



AD/B
G 2,5 n_{max} 25000

82 700 ...

Adapter	DCONWS mm	LPR mm	DLN mm	for collet	Torque moment / Clamping force Nm	
BT 40	1 - 10	70	30	426E (ER16)	40 / 2-70	**11069**
BT 40	1 - 10	100	30	426E (ER16)	40 / 2-70	**21069**
BT 40	2 - 16	70	40	430E (ER25)	80 / 10-160	**11669**
BT 40	2 - 16	100	40	430E (ER25)	80 / 10-160	**21669**
BT 40	2 - 20	70	50	470E (ER32)	125 / 15-250	**12069**
BT 40	2 - 20	100	50	470E (ER32)	125 / 15-250	**22069**
BT 50	2 - 16	80	40	430E (ER25)	80 / 10-160	**11668**
BT 50	2 - 16	100	40	430E (ER25)	80 / 10-160	**21668**
BT 50	2 - 20	80	50	470E (ER32)	125 / 15-250	**12068**
BT 50	2 - 20	100	50	470E (ER32)	125 / 15-250	**22068**

Dimension LPR is 4.5 mm longer for ER16 and ER32 and 5.0 mm longer for ER25 when using thro' coolant lock nut

Lock nut IK

Lock nut

Backstop screw PCC 2

Backstop screw PCC 1

Spare parts for collet	82 950 ...		82 950 ...		82 950 ...		82 950 ...	
426E (ER16)	**11000**		**01000**				M8X3,0	**00100**
430E (ER25)	**11600**		**01600**	M18x1,5	**00200**		M8x8	**00300**
470E (ER32)	**12000**		**02000**	M18x1,5	**00200**		M8x8	**00300**

Accessories

ER collet
→ 268–276, 278–279

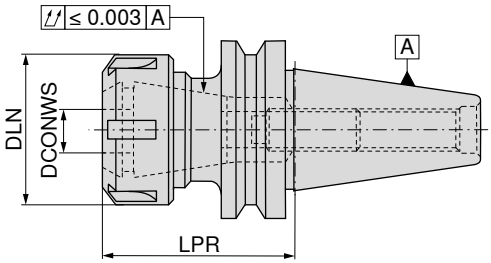
Sealing ring
→ 281

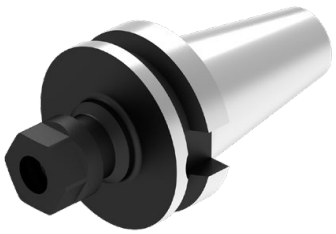
Roll key
→ 286

ER-Collet chuck

▲ also available with Balluff chip **on request**

Scope of supply:
Holder with lock nut and adjustable back stop





NEW
AD
G 2,5 n_{max} 25000
82 743 ...

NEW
AD/B
G 2,5 n_{max} 25000
82 743 ...

	Adapter	DCONWS mm	LPR mm	DLN mm	TQX Nm	for collet		
short	BT 30	1 - 10	70	28	56	426E (ER16)	**11070**[1]	
	BT 30	1 - 16	70	42	104	430E (ER25)	**11670**	
	BT 30	2 - 20	70	50	136	470E (ER32)	**12070**	
	BT 40	1 - 10	60	22	56	426E (ER16 mini)		**11169**
	BT 40	1 - 10	60	28	56	426E (ER16)		**11069**[1]
	BT 40	1 - 16	70	42	104	430E (ER25)		**11669**
	BT 40	2 - 20	70	50	136	470E (ER32)		**12069**
	BT 40	3 - 26	70	63	176	472E (ER40)		**12669**
	BT 50	1 - 10	75	28	56	426E (ER16)	**11068**[1]	
	BT 50	1 - 16	75	42	104	430E (ER25)	**11668**	
	BT 50	2 - 20	75	50	136	470E (ER32)	**12068**	
	BT 50	4 - 26	75	63	176	472E (ER40)	**12668**	
medium length	BT 30	1 - 10	100	28	56	426E (ER16)	**21070**[1]	
	BT 30	1 - 16	100	42	104	430E (ER25)	**21670**	
	BT 40	1 - 10	120	22	56	426E (ER16 mini)		**21169**
	BT 40	1 - 10	120	28	56	426E (ER16)		**21069**[1]
	BT 40	1 - 16	120	42	104	430E (ER25)		**21669**
	BT 40	2 - 20	120	50	136	470E (ER32)		**22069**
	BT 40	3 - 26	100	63	176	472E (ER40)		**22669**
	BT 50	1 - 10	100	28	56	426E (ER16)	**21068**[1]	
	BT 50	1 - 16	100	42	104	430E (ER25)	**21668**	
	BT 50	2 - 20	100	50	136	470E (ER32)	**22068**	
	BT 50	3 - 26	100	63	176	472E (ER40)	**22668**	
extra-long	BT 40	1 - 10	160	28	56	426E (ER16)		**41069**[1]
	BT 40	1 - 16	160	42	104	430E (ER25)		**41669**
	BT 40	2 - 20	160	50	136	470E (ER32)		**42069**
	BT 40	3 - 26	160	63	176	472E (ER40)		**42669**
	BT 50	1 - 16	160	42	104	430E (ER25)	**41668**	
	BT 50	2 - 20	160	50	136	470E (ER32)	**42068**	

1) with 6 position lock nut

	Lock nut	Lock nut IK	Lock nut	Y clamping key	ER Mini clamping key	Mini lock nut	Mini IK	Stop screw IK
	62 950 ...	**83 950 ...**	**62 950 ...**	**83 357 ...**	**83 950 ...**	**62 950 ...**	**83 950 ...**	**84 950 ...**
Spare parts for collet								
426E (ER16 mini)					**101**	**066**	**058**	**44600**
426E (ER16)	**044**							**44600**
430E (ER25)		**055**	**055**	**125**				**44400**
470E (ER32)		**056**	**65600**	**132**				**44400**
472E (ER40)		**057**	**65700**	**140**				**44500**

Dimension LPR is 5.0 mm longer for ER16, ER25 and ER32, and 5.5 mm for ER40 when using thro' coolant lock nuts

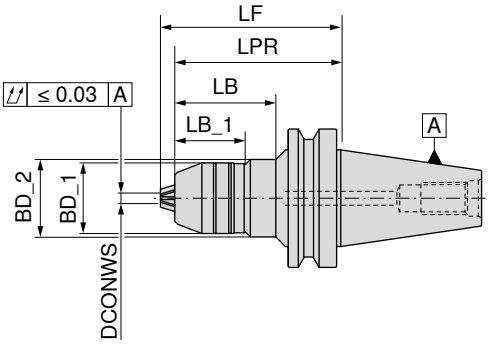
16

Short drill chuck – NC 2010

- ▲ Independent of direction of rotation
- ▲ Torque Moment = 12 Nm
- ▲ also available with Balluff chip **on request**

Scope of supply:

Toolholder including clamping key SW4



A
G 6,3 n_{max} 10000

AD
G 6,3 n_{max} 10000

Adapter	DCONWS mm	BD_1 mm	BD_2 mm	LB_1 mm	LB mm	LPR mm	LF mm	84 509 ...		84 510 ...	
BT 40	0,5 - 13	48,5		50,9		80	89,0	**413**		**413**	
BT 40	2,5 - 16	51,0		50,9		80	90,5	**416**		**416**	
BT 50	2,5 - 16	51,0	56	50,9	73	120	130,5	**516**		**516**	

Accessories

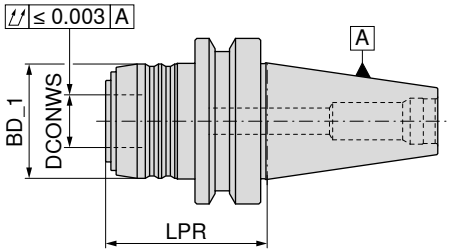
Others

→ 284

Can be used with G 2.5 to 30,000 1/min by subsequent balancing !

Synchro tapping chuck with minimum length compensation

- For collets according to DIN 6499
- With length compensation under tension 1,0 mm and under compression 0,2 mm (LZD)
- p_{max} = 50 bar
- for synchro use
- also available with Balluff chip **on request**



AD

83 515 ...

Adapter	cutting range	SZID	LPR mm	BD_1 mm	DCONWS mm	LZD± mm	
BT 40	M3 - M12	1	61	43	20	1,0 / 0,2	**012**
BT 40	M6 - M20	2	82	60	32	1,0 / 0,2	**020**
BT 50	M3 - M12	1	72	43	20	1,0 / 0,2	**112**
BT 50	M6 - M20	2	93	60	32	1,0 / 0,2	**120**

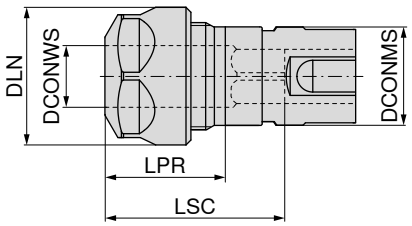
Accessories

Pull studs	Others
110–111	284

Insert for synchro quick change tapping chuck with minimum length compensation

▲ SZID = for insert size

Scope of supply:
Includes lock nut



SZID	DCONWS mm	cutting range	LPR mm	DLN mm	LSC mm	for collet	DCONMS mm	83 608 ...
1	2 - 10	M3 - M12	24	28	42	426E (ER16)	20	012 [1]
2	2 - 16	M6 - M20	28	42	59	430E (ER25)	32	020

1) with 6 position lock nut

Lock nut

Lock nut IK

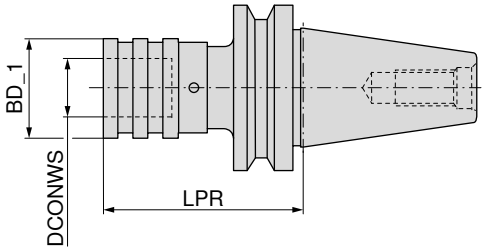
Lock nut

Y clamping key

Spare parts for Article no.		62 950 ...		83 950 ...		62 950 ...		83 357 ...
83 608 012	M22x1,5 - SW25	044	M22x1,5	054	M22x1,5	054		116
83 608 020			M32x1,5	055	M32x1,5	055		125

Quick change tap chuck with length compensation

▲ With length compensation under tension and compression (LZD)
▲ also available with Balluff chip **on request**



A

83 528 ...

Adapter	cutting range	SZID	LPR mm	BD_1 mm	DCONWS mm	LZD± mm	
BT 30	M3 - M12	01	63	38	19	9	**312**
BT 30	M6 - M20	02	96	55	31	15	**320**
BT 40	M3 - M12	01	68	38	19	9	**412**
BT 40	M6 - M20	02	93	55	31	15	**420**
BT 50	M3 - M12	01	80	38	19	9	**512**
BT 50	M6 - M20	02	102	55	31	15	**520**

Accessories

Collet
→ 288, 290–292

Pull studs
→ 110–111

Others
→ 284

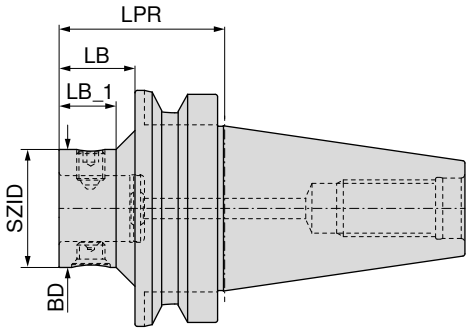
16

Adapter with ABS Connection

▲ also available with Balluff chip **on request**

Scope of supply:

Steep taper adapter (Form B) with conversion kit (Form AD) and sealing disc



AD

AD/B

Adapter	KOMET no.	SZID	BD mm	LPR mm	LB mm	LB_1 mm	84 202 ...	84 212 ...
BT 40	A55 00120	ABS 25	25	60	33	25	**04090**	
BT 40	A55 00130	ABS 32	32	60	33		**04089**	
BT 40	A55 00140	ABS 40	40	60	33		**04088**	
BT 40	A55 55150	ABS 50	50	60	33			**04097**
BT 40	A55 55160	ABS 63	63	70				**04096**
BT 50	A55 00330	ABS 32	32	70	32	24	**05089**	
BT 50	A55 00340	ABS 40	40	70	32	24	**05088**	
BT 50	A55 55350	ABS 50	50	70	32	24		**05097**
BT 50	A55 55360	ABS 63	63	80	42	37		**05096**
BT 50	A55 55370	ABS 80	80	100	62			**05092**
BT 50	A55 55380	ABS 100	100	110				**05091**

Conversion kit – SK

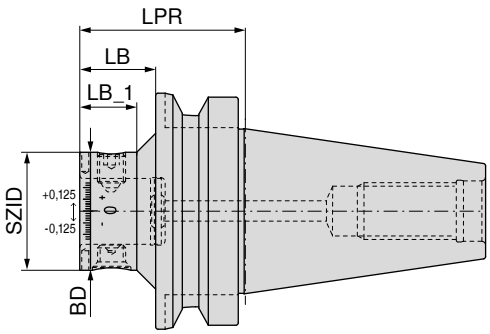
for	Adapter	84 950 ...
4 mm	SK 40	**23200**
6 mm	SK 50	**23400**

Eccentric adjuster with ABS Connection

▲ Adjustment ± 0.25 mm on diameter
▲ also available with Balluff chip **on request**

Scope of supply:

Steep taper adapter (Form B) with conversion kit (Form AD) and sealing disc



AD

AD/B

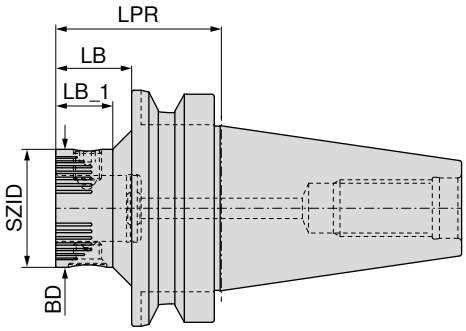
Adapter	KOMET no.	SZID	BD mm	LPR mm	LB mm	LB_1 mm	84 205 ...	84 205 ...
BT 40	A55 56150	ABS 50	50	60	33			**04097**
BT 40	A55 56160	ABS 63	63	70			**04096**	
BT 50	A55 56350	ABS 50	50	70	32	24		**05097**
BT 50	A55 56360	ABS 63	63	80	42	37	**05096**	

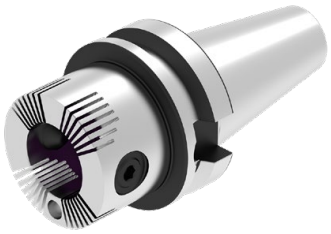
Torsional vibration dampers with ABS Connection

▲ also available with Balluff chip **on request**

Scope of supply:

Steep taper adapter (Form B) with conversion kit (Form AD) and sealing disc





AD/B

Adapter	KOMET no.	SZID	BD mm	LPR mm	LB mm	LB_1 mm	84 208 ...
BT 40	A55 02150	ABS 50	50	60	33		**04097**
BT 40	A55 02160	ABS 63	63	70			**04096**
BT 50	A55 02350	ABS 50	50	70	32	24	**05097**
BT 50	A55 02360	ABS 63	63	80	42	37	**05096**

Clamping screw

Taper screw

Spare parts SZID	84 950 ...	84 950 ...
ABS 50	**20300**	**20400**
ABS 63	**25500**	**27300**

Accessories

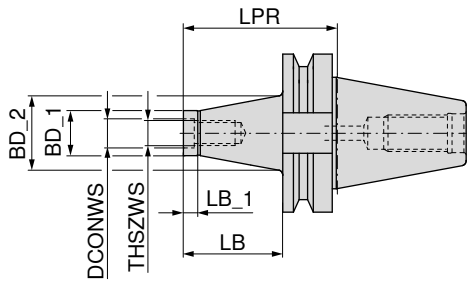
Pull studs → 110–111

Extension → 187

Others → 284

Adapter for milling cutters with threaded end

▲ also available with Balluff chip **on request**



AD
G 6,3 n_{max} 18000

56 711 ...

Adapter	THSZWS	DCONWS	LB	BD_1	BD_2	LB_1	LPR	
		mm	mm	mm	mm	mm	mm	
BT 40	M8	8,5	25	13,8	15	12	52	**081**
BT 40	M8	8,5	50	13,8	23	12	77	**082**
BT 40	M8	8,5	75	13,8	25	12	102	**083**
BT 40	M10	10,5	25	18,0	23	12	52	**101**
BT 40	M10	10,5	50	18,0	25	12	77	**102**
BT 40	M10	10,5	75	18,0	30	12	102	**103**
BT 40	M12	12,5	25	21,0	24	12	52	**121**
BT 40	M12	12,5	50	21,0	30	12	77	**122**
BT 40	M12	12,5	75	21,0	35	12	102	**123**
BT 40	M12	12,5	100	21,0	38	12	127	**124**
BT 40	M16	17,0	25	29,0	29	12	52	**161**
BT 40	M16	17,0	50	29,0	34	12	77	**162**
BT 40	M16	17,0	75	29,0	35	12	102	**163**
BT 40	M16	17,0	100	29,0	40	12	127	**164**

Accessories

Extension-Reduction set
→ 257

Pull studs
→ 110–111

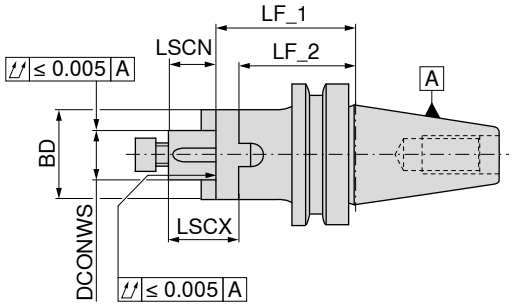
Others
→ 284

16

Combination shell mill adapter

▲ For milling cutters with transverse or longitudinal groove according to DIN 6358
▲ also available with Balluff chip **on request**

Scope of supply:
Toolholder with clamping screw, driving ring and dowel spring



NEW

A
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LF_1 mm	BD mm	LSCX mm	LSCN mm	LF_2 mm	82 744 ...
short	BT 30	16	45	32	27	17	35	11670
	BT 30	22	47	40	31	19	35	12270
	BT 30	27	49	46	33	21	37	12770
	BT 40	16	55	32	27	17	45	11669
	BT 40	22	55	40	31	19	43	12269
	BT 40	27	55	48	33	21	43	12769
	BT 40	32	60	58	38	24	46	13269
	BT 40	40	60	70	41	27	46	14069[1)]
	BT 50	16	70	32	27	17	60	11668
	BT 50	22	70	40	31	19	58	12268
	BT 50	27	70	48	33	21	58	12768
	BT 50	32	70	58	38	24	56	13268
	BT 50	40	70	70	41	27	56	14068[1)]
medium length	BT 30	16	80	32	27	17	70	21670
	BT 30	22	80	40	31	19	68	22270
	BT 30	27	90	48	33	21	78	22770
	BT 40	16	100	32	27	17	90	21669
	BT 40	22	100	40	31	19	88	22269
	BT 40	27	100	48	33	21	88	22769
	BT 40	32	100	58	38	24	86	23269
	BT 40	40	100	70	41	27	86	24069[1)]

1) With cross screw

Parallel key

Drive ring

Cross nut key

Cross screw

clamping screw

Spare parts DCONWS		83 950 ...	83 370 ...	83 368 ...		83 367 ...		83 950 ...
16	4 x 4 x 20	284	116	116	M8	016	M8x25	113
22	6 x 6 x 25	285	122	122	M10	022	M10x25	124
27	7 x 7 x 25	286	127	127	M12	027	M12x30	125
32	8 x 7 x 28	287	132	132	M16	032	M16x35	126
40	10 x 8 x 32	288	140	140	M20	040	M20x40 - SW17	112

Accessories

Pull studs
→ 110–111

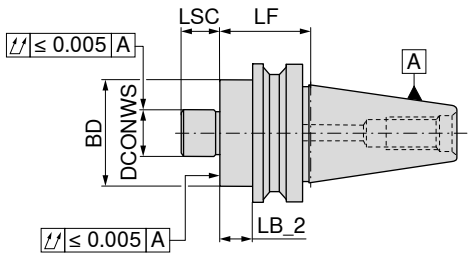
Milling Adapter Rings
→ 263

Others
→ 284

Shell mill adapter with reduced flange diameter

▲ Screwed drive dogs
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with retaining screw and drive dog



NEW

AD
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	BD mm	LB_2 mm	LF mm	LSC mm	82 315 ...
short	BT 40	22	38	33	60	19	**12269**
	BT 40	27	48	25	52	21	**12769**
	BT 50	22	38	22	60	19	**12268**
	BT 50	27	48	25	63	21	**12768**

These shell mill adapters have been specially developed for MaxiMill 211-KN porcupine cutters.
Now they can be clamped perfectly, thanks to the adapted flange diameters.

Screw for drivers

Driver

clamping screw

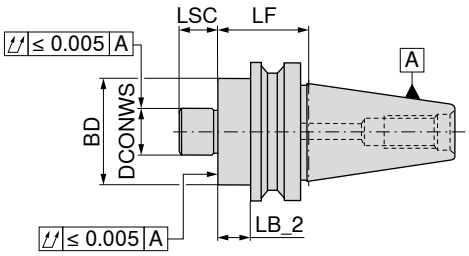
Spare parts DCONWS		83 950 ...		83 950 ...		83 950 ...
22	M4x8	**51700**	10x7x20,5	**51500**	M10x25	**124**
27	M5x8	**51800**	12x9x24,3	**51600**	M12x30	**125**

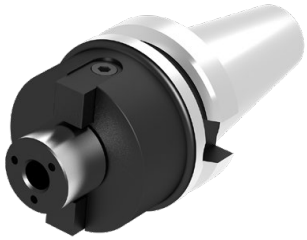
16

Shell mill adapter

▲ With fixed drive dogs and enlarged contact face for milling cutters with transverse groove
▲ also available with Balluff chip **on request**

Scope of supply:
Toolholder with clamping screw





NEW
AD
G 2,5 n_{max} 25000
82 745 ...

NEW
AD/B
G 2,5 n_{max} 25000
82 745 ...

	Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm		
short	BT 30	16	18	40	38	17	**11670**	
	BT 30	22	18	40	48	19	**12270**	
	BT 30	27	18	50	58	21	**12770**	
	BT 30	32	28	50	78	24	**13270**	
	BT 40	16	25	52	38	17		**11669**
	BT 40	22	25	52	48	19		**12269**
	BT 40	27	25	52	58	21		**12769**
	BT 40	32	23	50	78	24		**13269**
	BT 40	40	23	50	88	27		**14069**[1)]
	BT 50	16	25	63	38	17	**11668**	
	BT 50	22	25	63	48	19	**12268**	
	BT 50	27	25	63	58	21	**12768**	
	BT 50	32	22	60	78	24	**13268**	
	BT 50	40	22	60	88	27	**14068**[1)]	
medium length	BT 40	16	73	100	38	17		**21669**
	BT 40	22	73	100	48	19		**22269**
	BT 40	27	73	100	58	21		**22769**
	BT 40	32	73	100	78	24		**23269**
	BT 40	40	73	100	88	27		**24069**[1)]
	BT 50	16	62	100	38	17	**21668**	
	BT 50	22	62	100	48	19	**22268**	
	BT 50	27	62	100	58	21	**22768**	
	BT 50	32	62	100	78	24	**23268**	
	BT 50	40	62	100	88	27	**24068**[1)]	
long	BT 40	16	103	130	38	17		**31669**
	BT 40	22	103	130	48	19		**32269**
	BT 40	27	103	130	58	21		**32769**
	BT 40	32	103	130	78	24		**33269**
	BT 40	40	103	130	88	27		**34069**[1)]
	BT 50	16	92	130	38	17	**31668**	
	BT 50	22	92	130	48	19	**32268**	
	BT 50	27	92	130	58	21	**32768**	
	BT 50	32	92	130	78	24	**33268**	
	BT 50	40	92	130	88	27	**34068**[1)]	
extra-long	BT 40	16	133	160	38	17		**41669**
	BT 40	22	133	160	48	19		**42269**
	BT 40	27	133	160	58	21		**42769**
	BT 40	32	133	160	78	24		**43269**
	BT 40	40	133	160	88	27		**44069**[1)]
	BT 50	16	122	160	38	17	**41668**	
	BT 50	22	122	160	48	19	**42268**	
	BT 50	27	122	160	58	21	**42768**	
	BT 50	32	122	160	78	24	**43268**	
	BT 50	40	122	160	88	27	**44068**[1)]	

1) with cross screw and 4 holes M12, Pitch Circle diameter = 66.7 mm, coolant outlet on the outer diameter of the spigot (DCONWS)!

Spare parts facemill adapters

Cross nut key

Cross screw

clamping screw

Spare parts DCONWS	83 368 ...		83 367 ...		83 950 ...
16	116	M8	016	M8x25	113
22	122	M10	022	M10x25	124
27	127	M12	027	M12x30	125
32	132	M16	032	M16x35	126
40	140	M20	040	M20x40 - SW17	112

Screw for drivers

Driver

Spare parts DCONWS		84 950 ...		84 950 ...	
16		M3x12	162	8x9,8x10	43400
22		M4x10	163	10x11,2x12	43200
27		M4x16	164	12x12,6x14	43300
32		M5x16	166	14x14x22,5	160
40		M5x16	166	16x16x23	161

Accessories

Pull studs
→ 110–111

Extensions
→ 262

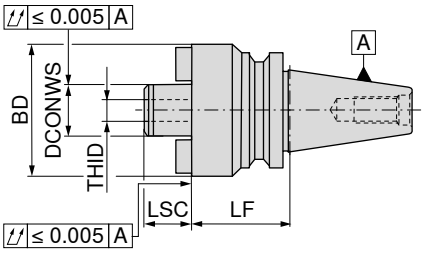
Others
→ 284

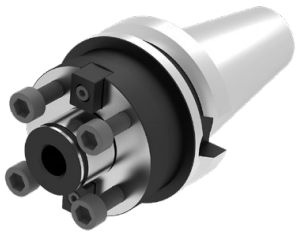
16

Large diameter facemill adapter

▲ For milling cutters with keyway or drive slot DIN 6357
▲ also available with Balluff chip **on request**

Scope of supply:
Holder with integrated drive dogs according to DIN 2079 and 4 fixation screws





NEW

A
G 6,3 n_{max} 8000

82 432 ...

Adapter	DCONWS mm	LF mm	BD mm	LSC mm	THID	
BT 50	40	70	89	30	M20	**14068**
BT 50	60	80	129	40	M30	**16068**

Screw for drivers

84 950 ...

Driver

84 950 ...

clamping screw

83 950 ...

Spare parts DCONWS							
40	M5x16	**166**	16x16x23	**161**	M12x50	**140**
60	M12x25	**43500**	25,4x25x26,5	**43100**	M16x45	**160**

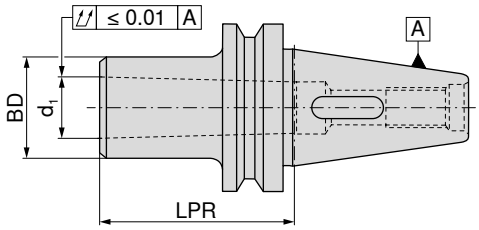
Accessories

Pull studs
→ 110–111

Others
→ 284

Taper sleeve adapter DIN6383 for DIN 228-2D Morse taper shanks

▲ also available with Balluff chip **on request**



NEW

AD

G 6,3 n_{max} 12000

82 746 ...

Adapter	d_1	LPR mm	BD mm	
BT 30	MK1	50	25	**11070**
BT 30	MK2	60	32	**12070**
BT 30	MK3	77	40	**13070**
BT 40	MK1	50	25	**11069**
BT 40	MK2	50	32	**12069**
BT 40	MK3	70	40	**13069**
BT 40	MK4	95	48	**14069**
BT 50	MK1	45	25	**11068**
BT 50	MK2	60	32	**12068**
BT 50	MK3	65	40	**13068**
BT 50	MK4	95	48	**14068**
BT 50	MK5	105	63	**15068**

Accessories

Morse taper adapter sleeve
→ 242

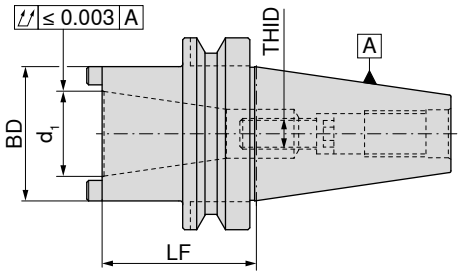
Pull studs
→ 110–111

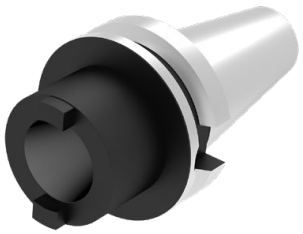
Others
→ 284

Milling adapter sleeve

- ▲ For mounting steep taper adapters according to DIN 2080
- ▲ With an extended retaining screw, adapters compliant with ISO 7388-1 – SK, ISO 7388-2 – MAS-BT and ANSI-CAT can also be clamped
- ▲ also available with Balluff chip **on request**

Scope of supply:
Holder with clamping screw for DIN 2080 adapters





NEW

A
G 6,3 n_{max} 8000
84 040 ...

Adapter	d_1	LF mm	BD mm	THID	
BT 40	SK 30	60	51	M12	**13069**
BT 40	SK 40	100	63	M16	**14069**
BT 50	SK 40	80	70	M16	**14068**

Clamping screw SK
83 950 ...

Clamping Screw
84 950 ...

Counterscrew
83 950 ...

Hollow key with nose
83 359 ...

Threaded ring
84 950 ...

clamping screw
83 950 ...

Spare parts for Article no.											
84 040 13069					**030**		**017**		**127**		**125**
84 040 14069	**264**		**43700**		**030**		**133**		**43800**		
84 040 14068	**009**		**43600**								

Screw length required when pulling in ISO 7388-1 – SK, ISO 7388-2 – MAS BT or DIN 2080 shanks

ISO 7388-2 Suitable for article no.	Taper Shank Ø d_1	Clamping screw length ISO 7388-1, ISO 7388-2 THID	Clamping screw length DIN 2080 THID
84 040 13069	SK 30 – BT 30		M12x30 – **83 950 125**
84 040 14069	SK 40 – BT 40	M16x70 – **83 950 264**	M16x45 – **84 950 43700**
84 040 14068	SK 40 – BT 40	M16x65 – **84 950 43600**	M16x40 – **83 950 009**

Accessories

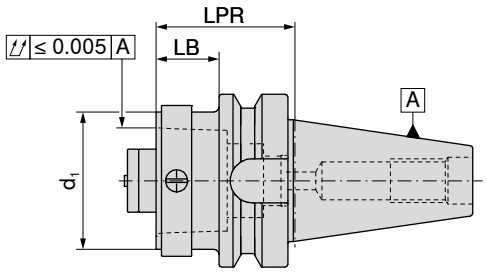
Pull studs
→ 110–111

Others
→ 284

BT/HSK-A adapter

▲ for mounting HSK-A adapters according to ISO 12164
▲ also available with Balluff chip **on request**

Scope of supply:
with clamping cartridge and cover ring



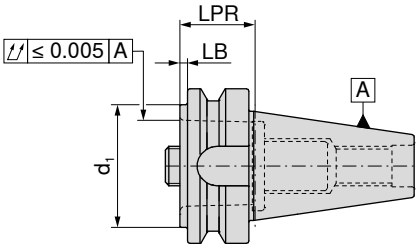
AD

Adapter	d_1	LB mm	LPR mm	84 016 ...
BT 40	HSK-A 32	13	40	**04060**
BT 40	HSK-A 40	13	40	**04059**
BT 40	HSK-A 50	23	50	**04058**
BT 40	HSK-A 63	43	70	**04057**
BT 50	HSK-A 32	12	50	**05060**
BT 50	HSK-A 40	12	50	**05059**
BT 50	HSK-A 50	22	60	**05058**
BT 50	HSK-A 63	22	60	**05057**
BT 50	HSK-A 100	52	90	**05055**

BT/PSC adapter

▲ for mounting PSC adapters according to ISO 26623-1
▲ also available with Balluff chip **on request**

Scope of supply:
with tightening screw



AD

Adapter	d_1	LB mm	LPR mm	84 017 ...
BT 40	PSC 32	3	30	**04087**
BT 40	PSC 40	3	30	**04095**
BT 40	PSC 50	3	30	**04094**
BT 40	PSC 63	58	85	**04093**
BT 50	PSC 32	2	40	**05087**
BT 50	PSC 40	2	40	**05095**
BT 50	PSC 50	2	40	**05094**
BT 50	PSC 63	2	40	**05093**
BT 50	PSC 80	32	70	**05086**

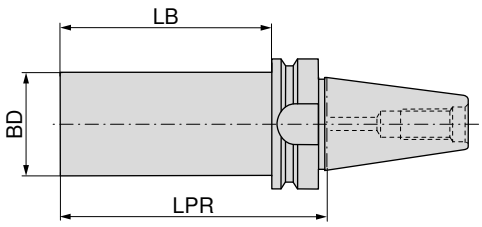
Threaded ring

tightening screw

Spare parts d_1	84 950 ...		84 950 ...
PSC 32	**127**	SW8	**122**
PSC 40	**128**	SW8	**123**
PSC 50	**129**	SW10	**124**
PSC 63	**130**	SW14	**126**
PSC 80	**130**	SW14	**126**

Blank

- ▲ Material: Steel 16MnCr5
- ▲ for production of special tools
- ▲ Diameter BD turned with 0.5 mm oversize
- ▲ Taper hardened and ground
- ▲ Special tool area in soft state
- ▲ also available with Balluff chip **on request**



NEW

AD/B

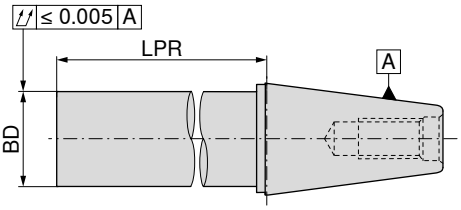
82 747 ...

Adapter	BD mm	LPR mm	LB mm	
BT 40	63,0	250	223	**16369**
BT 50	63,5	300	262	**16368**

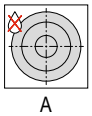
Test bar

- ▲ Without tool change groove
- ▲ Use for MAS BT 40 special pull studs with 3 mm shorter LF dimension, as standard

Scope of supply:
in wooden box



NEW



A

81 746 ...

Adapter	BD mm	LPR mm	
SK / BT 40	40	320	**14079**
SK / BT 50	50	320	**15078**

Accessories

Pull studs
→ 110–111

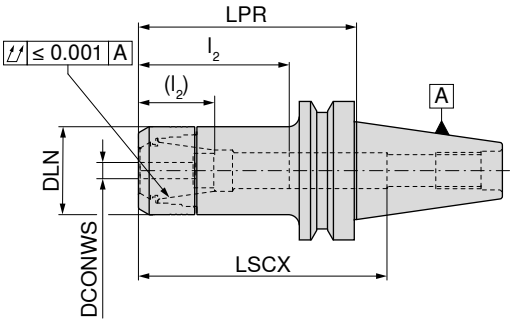
Others
→ 284

ER Precision Collet chuck – Centro-P – BT-FC

- ▲ with face contact
- ▲ for standard or sealed nuts
- ▲ maximum clamping range covered according to ISO tolerance field H10
- ▲ for clamping a roll key is required
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Holder **without** nut, **without** backstop



AD

G 2,5 n_{max} 25000

84 525 ...

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	
BT-FC 30	1 - 10	75	30	97	28 - 45 (14 - 31)	426E (ER16)	**002**
BT-FC 30	1 - 10	90	30	105	29 - 41 (29 - 38)	426E (ER16)	**00400**
BT-FC 30	1 - 10	120	30	130	29 - 45 (29 - 32)	426E (ER16)	**00600**
BT-FC 30	2 - 16	75	40	72	38 - 56 (23 - 39)	430E (ER25)	**012**
BT-FC 30	2 - 20	75	50	84	42 - 62 (24 - 45)	470E (ER32)	**022**
BT-FC 40	1 - 10	75	30	90	38 - 53 (29 - 39)	426E (ER16)	**102**
BT-FC 40	1 - 10	90	30	115	38 - 53 (29 - 38)	426E (ER16)	**10400**
BT-FC 40	1 - 10	120	30	145	38 - 53 (29 - 38)	426E (ER16)	**10600**
BT-FC 40	1 - 16	90	40	84	41 - 64 (36 - 46)	430E (ER25)	**11400**
BT-FC 40	2 - 16	75	40	100	42 - 59 (36 - 41)	430E (ER25)	**112**
BT-FC 40	2 - 16	120	40	113	41 - 64 (36 - 46)	430E (ER25)	**11600**
BT-FC 40	2 - 20	75	50	100	42 - 76 (42 - 52)	470E (ER32)	**122**
BT-FC 40	2 - 20	90	50	95	41 - 72 (41 - 55)	470E (ER32)	**12400**
BT-FC 40	2 - 20	120	50	110	41 - 72 (41 - 55)	470E (ER32)	**12600**

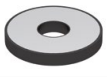
→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

Spare parts for Article no.	Lock nut IK **84 950 ...**		Lock nut **84 950 ...**		Stop screw 2 **83 950 ...**		Stop screw 1 **83 950 ...**	
84 525 002		**011**		**001**	M11x1 - SW6	**341**	M11x1 - SW6	**337**
84 525 012		**013**		**003**	M18x1,5 - SW6	**432**	M18x1,5 - SW6	**431**
84 525 022		**015**		**005**	M22x1,5 - SW6	**402**	M22x1,5 - SW6	**401**
84 525 102		**011**		**001**	M11x1 - SW6	**341**	M11x1 - SW6	**337**
84 525 112		**013**		**003**	M18x1,5 - SW6	**432**	M18x1,5 - SW6	**431**
84 525 122		**015**		**005**	M22x1,5 - SW6	**402**	M22x1,5 - SW6	**401**

Accessories

ER collet
→ 268–276, 278–279


Sealing ring
→ 280

Roll key
→ 286

Roll key device
→ 286

Pull studs
→ 110–111

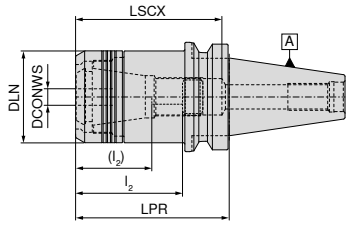
Others
→ 284

ER precision collet chuck – HDC – BT-FC

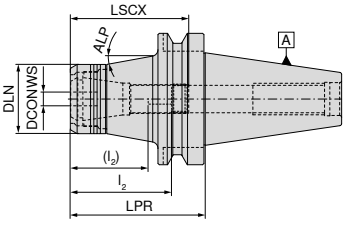
- ▲ HDC = Heavy Duty Chuck, an adapter specially designed for rough machining
- ▲ For heavy duty lock nut
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Base body **including** lock nut, **without** backstop screw



cylindrical



Conical

AD
G 6,3 n_{max} 18000

AD
G 6,3 n_{max} 18000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	ALP °	for collet	cylindrical 84 400 ...	conical 84 400 ...
BT-FC 40	2 - 20	60	53	80	41 - 63 (27 - 45)		470E (ER32)	**12064**	
BT-FC 40	2 - 20	90	53	95	41 - 65 (27 - 47)		470E (ER32)	**22064**	
BT-FC 50	2 - 20	75	53	114	41 - 81 (27 - 63)	10	470E (ER32)		**12063**
BT-FC 50	2 - 20	105	53	144	41 - 81 (27 - 63)	10	470E (ER32)		**22063**

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without backstop screw
l_2 = Clamping depth backstop screw 1, dimension in brackets (l_2) = Clamping depth backstop screw 2

Spare parts DCONWS	Lock nut 84 950 ...	Stop screw 2 83 950 ...	Stop screw 1 83 950 ...
2 - 20	**30100**	**402**	**401**

Accessories

ER collet
→ 268–276, 278–279

Roll key
→ 286

Roll key device
→ 286

Pull studs
→ 110–111

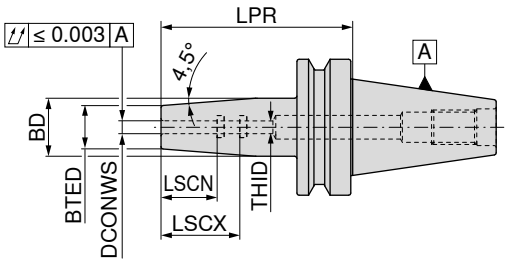
Others
→ 284

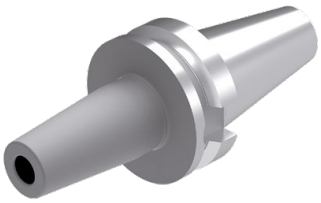
16

Shrink fit adapters 4.5° – BT-FC

- ▲ with face contact
- ▲ for solid carbide and HSS shanks with h6 tolerance or better
- ▲ also available with Balluff chip **on request**

TG





AD
G 2,5 n_{max} 25000

AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	84 325 ...	84 325 ...
short	BT-FC 30	3	85	10	17	28	12	M6	003	
	BT-FC 30	4	85	15	22	28	16	M6	004	
	BT-FC 30	5	85	15	22	30	20	M6	005	
	BT-FC 30	6	85	21	27	36	26	M5	006	
	BT-FC 30	8	85	21	27	36	26	M6	008	
	BT-FC 30	10	85	24	32	41	31	M8x1	010	
	BT-FC 30	12	85	24	32	47	37	M10x1	012	
	BT-FC 30	16	85	27	34	50	40	M12x1	016	
	BT-FC 30	20	85	33	42	52	42	M16x1	020	
	BT-FC 40	3	90	10	17	28	12	M6		103
	BT-FC 40	4	90	15	22	28	16	M6		104
	BT-FC 40	5	90	15	22	30	20	M6		105
	BT-FC 40	6	90	21	27	36	26	M5		106
	BT-FC 40	8	90	21	27	36	26	M6		108
	BT-FC 40	10	90	24	32	41	31	M8x1		110
	BT-FC 40	12	90	24	32	47	37	M10x1		112
	BT-FC 40	16	90	27	34	50	40	M12x1		116
	BT-FC 40	20	90	33	42	52	42	M16x1		120
	BT-FC 40	25	100	44	53	58	48	M16x1		125

→ Min. clamping depth, Page 312

Stop screw IK

Stop screw IK

Spare parts DCONWS		83 950 ...		83 950 ...
3 - 5	M6x14 - SW2	417		
6			M5x12,5 - SW2,5	418
8			M6x12,5 - SW3	419
10			M8x1x13,5 - SW3	420
12			M10x1x13,5 - SW5	421
16			M12x1x13,5 - SW5	422
20 - 25			M16x1x13,5 - SW8	424

Accessories

Shrink fit extension
→ 247

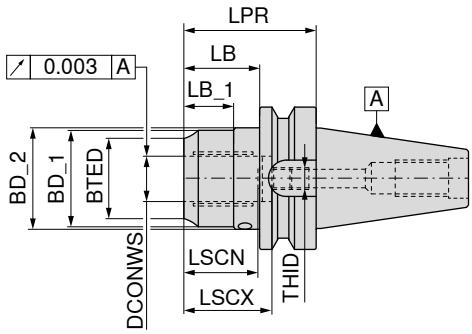
Pull studs
→ 110–111

Others
→ 284

HyPower – Complus

▲ High pressure chuck, short and stable version – BT-FC
▲ with face contact
▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw



NEW

AD
G 2,5 n_{max} 25000

83 527 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LB mm	LB_1 mm	LSCX mm	LSCN mm	THID	
BT-FC 40	20	72,5	38					51	40	M16x1x13,5	**120**
BT-FC 40	32	90,0	54	63	62	64,0	48	61	51	M16x1x13,5	**13274**
BT-FC 50	20	83,5	38	49		47,0		51	41	M16x1x13,5	**12073**
BT-FC 50	32	90,0	57	68	72	53,5	35	61	51	M16x1x13,5	**13273**

→ Min. clamping depth, Page 312

Clamping key – T

80 397 ...

Pressure screw

83 950 ...

Stop screw IK

83 950 ...

Spare parts for Article no.							
83 527 120	SW5	**050**	M10x1x10	**158**	M8x1x13,5 - SW3	**420**
83 527 13274	SW5	**050**	M10x1x14	**429**	M16x1x13,5 - SW8	**424**
83 527 12073	SW5	**050**	M10x1x14	**429**	M16x1x13,5 - SW8	**424**
83 527 13273	SW5	**050**	M10x1x14	**429**	M16x1x13,5 - SW8	**424**

Accessories

Reduction sleeve
→ 282

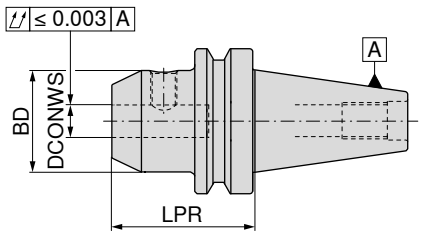
Pull studs
→ 110–111

Others
→ 284

16

Cylindrical shank adapter (Weldon) – BT-FC

▲ with face contact
▲ for shanks according to DIN 6535 / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**



AD
G 2,5 n_{max} 25000

84 552 ...

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	
short	BT-FC 30	6	50	25	**006**
	BT-FC 30	8	50	28	**008**
	BT-FC 30	10	50	35	**010**
	BT-FC 30	12	50	42	**012**
	BT-FC 30	16	63	48	**016**
	BT-FC 30	20	63	52	**020**
	BT-FC 40	6	50	25	**106**
	BT-FC 40	8	50	28	**108**
	BT-FC 40	10	63	35	**110**
	BT-FC 40	12	63	42	**112**
	BT-FC 40	16	63	48	**116**
	BT-FC 40	20	63	52	**120**
	BT-FC 40	25	90	65	**125** 1)
	BT-FC 40	32	100	72	**132** 1)
	BT-FC 50	6	63	25	**306**
	BT-FC 50	8	63	28	**308**
	BT-FC 50	10	63	35	**310**
	BT-FC 50	12	80	42	**312**
	BT-FC 50	16	80	48	**316**
	BT-FC 50	20	80	52	**320**
	BT-FC 50	25	100	65	**325** 1)
	BT-FC 50	32	105	72	**332** 1)

1) Version with two grubscrews

Grubscrew

62 950 ...

Spare parts DCONWS		
6	M6x10	**006**
8	M8x10	**008**
10	M10x12	**010**
12	M12x16	**012**
16	M14x16	**016**
20	M16x16	**020**
25	M18x2x20	**025**
32	M20x2x20	**032**

Accessories

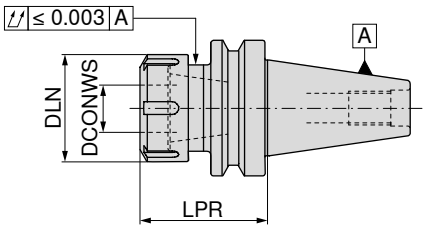
Pull studs
→ 110–111

Others
→ 284

ER Collet chuck – BT-FC

▲ with face contact
▲ also available with Balluff chip **on request**

Scope of supply:
Toolholder including nut



AD
G 2,5 n_{max} 20000

	Adapter	DCONWS mm	LPR mm	DLN mm	TQX Nm	for collet	84 557 ...
short	BT-FC 30	1 - 10	63	28	56	426E (ER16)	010 [1]
	BT-FC 30	1 - 16	60	42	104	430E (ER25)	016
	BT-FC 30	2 - 20	60	50	136	470E (ER32)	020
	BT-FC 40	1 - 10	63	28	56	426E (ER16)	110 [1]
	BT-FC 40	1 - 16	60	42	104	430E (ER25)	116
	BT-FC 40	2 - 20	60	50	136	470E (ER32)	120
	BT-FC 50	1 - 16	70	42	104	430E (ER25)	316
	BT-FC 50	2 - 20	70	50	136	470E (ER32)	320
medium length	BT-FC 50	1 - 10	100	28	56	426E (ER16)	310 [1]

1) with 6 position lock nut

Lock nut

Lock nut IK

Lock nut

Y clamping key

Spare parts for collet		62 950 ...		83 950 ...		62 950 ...		83 357 ...
426E (ER16) / BT30-BT50	M22x1,5 - SW25	044	M22x1,5	054				
430E (ER25) / BT30-BT50			M32x1,5	055	M32x1,5	055		125
470E (ER32) / BT30-BT50			M40x1,5	056	M40x1,5	65600		132

Dimension LPR is 5.0 mm longer for ER16, ER25 and ER32, and 5.5 mm for ER40 when using thro' coolant lock nuts

Accessories

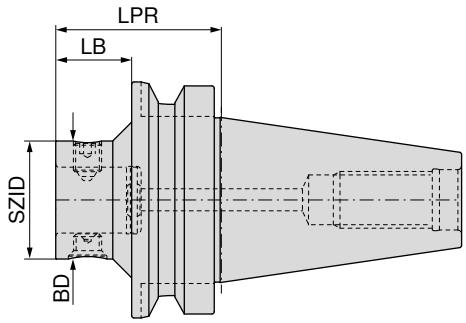
ER collet
→ 268–276, 278–279

Pull studs
→ 110–111

Others
→ 284

Adapter with ABS Connection – BT-FC

▲ with face contact
▲ also available with Balluff chip **on request**



AD

Adapter	SZID	BD mm	LPR mm	LB mm	84 264 ...
BT-FC 40	ABS 50	50	60	33	**05064**
BT-FC 40	ABS 63	63	70		**06364**
BT-FC 50	ABS 50	50	70	32	**05063**
BT-FC 50	ABS 63	63	80	42	**06363**
BT-FC 50	ABS 80	80	100	62	**08063**
BT-FC 50	ABS 100	100	110		**10063**

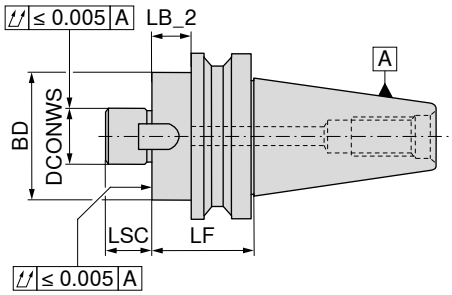
Clamping screw

Taper screw

Spare parts SZID	84 950 ...	84 950 ...
ABS 50	**20300**	**20400**
ABS 63	**25500**	**27300**
ABS 80	**25600**	**25100**
ABS 100	**25700**	**25200**

Shell mill adapter – BT-FC

- ▲ with face contact
- ▲ with fixed drive dogs and enlarged contact face for milling cutters with transverse slot
- ▲ also available with Balluff chip **on request**



AD
G 6,3 n_{max} 15000

	Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm	84 562 ...
short	BT-FC 30	16	18	39,0	40	17	016
	BT-FC 30	22	18	39,0	50	19	022
	BT-FC 30	27	18	39,0	60	21	027
	BT-FC 30	32	28	49,0	80	24	032
	BT-FC 40	16	8	34,0	40	17	116
	BT-FC 40	22	8	34,0	50	19	122
	BT-FC 40	27	8	34,0	60	21	127
	BT-FC 40	32	23	49,0	80	24	132
	BT-FC 40	40	23	49,0	89	27	140
	BT-FC 50	22	12	48,5	50	19	322
	BT-FC 50	27	12	48,5	60	21	327
	BT-FC 50	32	12	48,5	80	24	332
	BT-FC 50	40	17	53,5	89	27	340

Screw for drivers

Driver

clamping screw

Spare parts DCONWS	Screw for drivers	84 950 ...	Driver	84 950 ...	clamping screw	83 950 ...
16	M3x12	162	8x9x11	157	M8x25	113
22	M4x10	163	10x11,2x13	158	M10x25	124
27	M4x16	164	12x12,6x15	159	M12x30	125
32	M5x16	165	14x14x22,5	160	M16x35	126
40	M5x16	166	16x16x23	161	M20x40 - SW17	112

Accessories

Pull studs
→ 110–111

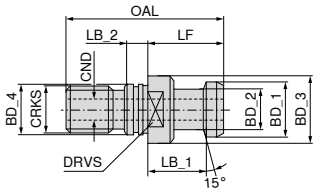
Others
→ 284

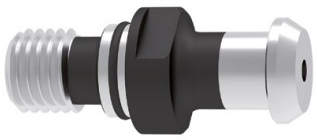
16

Pull stud for tool holders according to ISO 7388-2

▲ MAS-BT 15° Form A

Scope of supply:
including O-Ring



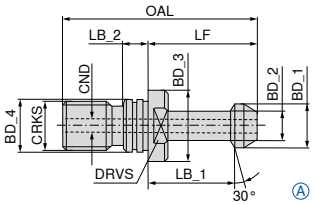


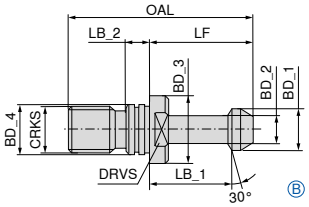
Adapter	BD_1 mm	BD_2 mm	BD_3 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	LB_2 mm	CND mm	DRVS mm	TQX Nm	83 532 ...
BT 40	19	14	23	17	M16	54	29	23	5	5	19	50	**040**

Pull stud for tool holders according to ISO 7388-2

▲ MAS-BT 30° Form A and B

Scope of supply:
including O-Ring





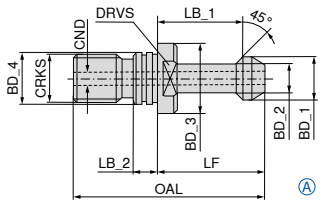
Adapter	BD_1 mm	BD_2 mm	BD_3 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	LB_2 mm	CND mm	DRVS mm	TQX Nm	form	82 533 ...	82 531 ...
BT 30	11	7	16,5	12,5	M12	43	23	18	4,0	2,2	13	20	A		**030**
BT 40	15	10	23,0	17,0	M16	60	35	28	5,5	4,0	19	50	A		**040**
BT 50	23	17	38,0	25,0	M24	85	45	35	8,0	6,0	30	150	A		**050**
BT 30	11	7	16,5	12,5	M12	43	23	18	4,0		13	20	B	**030**	
BT 40	15	10	23,0	17,0	M16	60	35	28	5,5		19	50	B	**040**	
BT 50	23	17	38,0	25,0	M24	85	45	35	8,0		30	150	B	**050**	

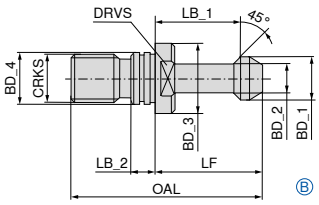
Spare parts BD_4		83 476 ...
17	BT / SK 40	**040**
25	BT / SK 50	**050**

Pull stud for tool holders according to ISO 7388-2

▲ MAS-BT 45° Form A and B

Scope of supply:
including O-Ring



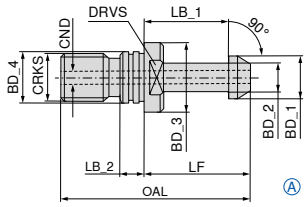


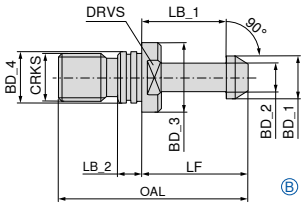
Adapter	BD_1 mm	BD_2 mm	BD_3 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	LB_2 mm	CND mm	DRVS mm	TQX Nm	form	82 530 ...	82 534 ...
BT 30	11	7	16,5	12,5	M12	43	23	18	4,0	2,2	13	20	A		**030**
BT 40	15	10	23,0	17,0	M16	60	35	28	5,5	4,0	19	50	A		**040**
BT 50	23	17	38,0	25,0	M24	85	45	35	8,0	6,0	30	150	A		**050**
BT 30	11	7	16,5	12,5	M12	43	23	18	4,0		13	20	B	**030**	
BT 40	15	10	23,0	17,0	M16	60	35	28	5,5		19	50	B	**040**	
BT 50	23	17	38,0	25,0	M24	85	45	35	8,0		30	150	B	**050**	

Pull stud for tool holders according to ISO 7388-2

▲ MAS-BT 90° Form A and B

Scope of supply:
including O-Ring





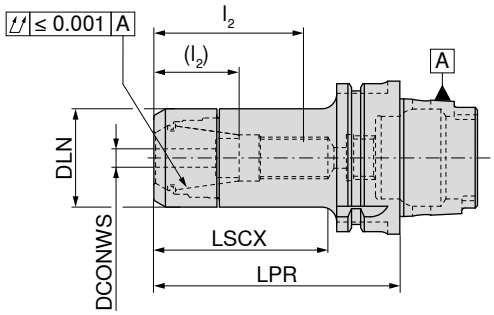
Adapter	BD_1 mm	BD_2 mm	BD_3 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	LB_2 mm	CND mm	DRVS mm	TQX Nm	form	82 536 ...	82 537 ...
BT 40	15	10	23	17	M16	60	35	28	5,5	4	19	50	A		**040**
BT 50	23	17	38	25	M24	85	45	35	8,0	6	30	150	A		**050**
BT 40	15	10	23	17	M16	60	35	28	5,5		19	50	B	**040**	
BT 50	23	17	38	25	M24	85	45	35	8,0		30	150	B	**050**	

ER Precision Collet chuck – Centro-P

- ▲ for standard or sealed nuts
- ▲ maximum size collet to ISO tolerance field H10
- ▲ for clamping a roll key is required
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Holder **without** nut, **without** backstop



G 2,5 n_{max} 25000

84 722 ...

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	
HSK-A 40	1 - 10	60	30	40	32 - 54	426E (ER16)	**401**
HSK-A 40	2 - 16	60	40	40		430E (ER25)	**404** 1)
HSK-A 40	2 - 20	61	50	45		470E (ER32)	**407** 1)
HSK-A 50	2 - 16	70	40	49	34 - 35	430E (ER25)	**505**
HSK-A 50	2 - 16	60	40	37		430E (ER25)	**504** 1)
HSK-A 63	1 - 10	55	30	32		426E (ER16)	**609** 1)
HSK-A 63	1 - 10	100	30	71	28 - 45 (16 - 31)	426E (ER16)	**610**
HSK-A 63	1 - 10	160	30	106	28 - 45 (16 - 31)	426E (ER16)	**611**
HSK-A 63	1 - 10	200	30	136	28 - 45 (16 - 31)	426E (ER16)	**612**
HSK-A 63	1 - 10	130	30	87	26 - 50 (17 - 38)	426E (ER16)	**613**
HSK-A 63	2 - 16	60	40	37		430E (ER25)	**615**
HSK-A 63	2 - 16	100	40	70	35 - 55 (24 - 37)	430E (ER25)	**616**
HSK-A 63	2 - 16	160	40	128	35 - 60 (24 - 42)	430E (ER25)	**617**
HSK-A 63	2 - 16	130	40	89	37 - 60 (12 - 42)	430E (ER25)	**619**
HSK-A 63	2 - 20	70	50	46		470E (ER32)	**620**
HSK-A 63	2 - 20	100	50	71	41 - 57 (26 - 39)	470E (ER32)	**621**
HSK-A 63	2 - 20	160	50	129	52 - 70 (26 - 60)	470E (ER32)	**622**
HSK-A 63	2 - 20	130	50	101	42 - 69 (18 - 41)	470E (ER32)	**625**
HSK-A 63	3 - 26	120	63	91		472E (ER40)	**62700**
HSK-A 63	3 - 26	80	63	56		472E (ER40)	**626** 2)
HSK-A 100	1 - 10	130	30	101	28 - 48 (16 - 35)	426E (ER16)	**11200**
HSK-A 100	1 - 10	100	30	70	28 - 48 (16 - 35)	426E (ER16)	**110**
HSK-A 100	1 - 10	160	30	130	28 - 48 (16 - 35)	426E (ER16)	**111**
HSK-A 100	1 - 16	100	40	98	40 - 60 (22 - 42)	430E (ER25)	**11800**
HSK-A 100	2 - 16	160	40	105	38 - 68 (20 - 50)	430E (ER25)	**117**
HSK-A 100	2 - 16	100	40	71	38 - 56 (20 - 40)	430E (ER25)	**116**
HSK-A 100	2 - 20	160	50	99	42 - 70 (24 - 52)	470E (ER32)	**122**
HSK-A 100	2 - 20	100	50	70	42 - 59 (24 - 40)	470E (ER32)	**121**
HSK-A 100	2 - 20	130	50	97	44 - 69 (41 - 51)	470E (ER32)	**12400**

1) Item cannot be combined with backstop screw

2) Non standard groove before tool change collar not according to DIN, not suitable for automatic tool change

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

Spare parts
ER precision collet chuck – Centro-P

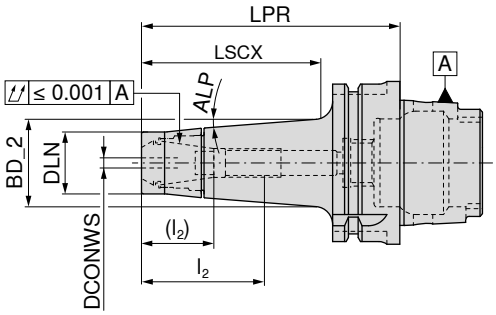
	Lock nut IK	Lock nut		Stop screw 2		Stop screw 1
	84 950 ...	84 950 ...		83 950 ...		83 950 ...
Spare parts for collet						
426E (ER16)	011	001				
426E (ER16)	011	001	M11x1 - SW6	341	M11x1 - SW6	337
430E (ER25)	013	003	M18x1,5 - SW6	432	M18x1,5 - SW6	431
470E (ER32)	015	005	M22x1,5 - SW6	402	M22x1,5 - SW6	401
472E (ER40)	017	007			M28x1,5 - SW6	400

ER Precision tapered collet chuck – Centro-P

- ▲ for special tapered nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Holder **without** nut, **without** backstop



G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	BD_2 mm	LSCX mm	l_2 (l_2) mm	ALP	for collet	84 721 ...
HSK-A 40	1 - 10	100	24	30,8	67	26 - 47 (12 - 32)	2,0°	426E (ER16)	**310**
HSK-A 50	1 - 10	65	24	28,9	44	26 - 32	4,5°	426E (ER16)	**710**
HSK-A 50	1 - 10	100	24	34,4	77	26 - 47 (12 - 32)	4,5°	426E (ER16)	**810**
HSK-A 63	1 - 10	130	24	36,0	77	28 - 48 (20 - 35)	3,5°	426E (ER16)	**61200**
HSK-A 63	1 - 10	100	24	33,8	74	28 - 48 (20 - 35)	4,5°	426E (ER16)	**610**
HSK-A 63	1 - 10	160	24	36,0	106	28 - 48 (20 - 35)	2,5°	426E (ER16)	**611**

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

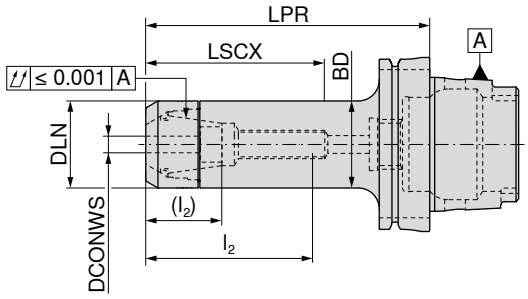
	Tapered lock nut IK	Tapered lock nut	Stop screw 2	Stop screw 1
	84 950 ...	84 950 ...	83 950 ...	83 950 ...
Spare parts for collet				
426E (ER16)	033	031	341	337

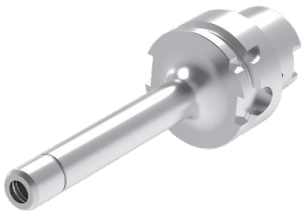
16

ER Precision collet chuck, slim version – Centro-P

- ▲ for Mini Clamping Nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:
Holder **without** nut, **without** backstop





G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	BD mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	**84 719 ...**
HSK-A 50	1 - 7	130	16	16	60	15 - 32 (7 - 22)	4008E (ER11)	**407**
HSK-A 63	1 - 7	70	16	16	48	15 - 32 (7 - 22)	4008E (ER11)	**507**
HSK-A 63	1 - 7	100	16	16	68	18 - 36 (12 - 26)	4008E (ER11)	**607**
HSK-A 63	1 - 7	130	16	16	108	15 - 32 (7 - 22)	4008E (ER11)	**707**
HSK-A 63	1 - 7	160	16	16	68	18 - 36 (12 - 26)	4008E (ER11)	**608**
HSK-A 63	1 - 10	70	22	22	46	27 - 34 (14 - 20)	426E (ER16)	**610**
HSK-A 63	1 - 10	100	22	22	62	27 - 44 (14 - 30)	426E (ER16)	**710**
HSK-A 63	1 - 10	130	22	22	87	27 - 52 (14 - 38)	426E (ER16)	**810**
HSK-A 63	1 - 10	160	22	22	97	27 - 52 (14 - 38)	426E (ER16)	**910**

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

	Mini lock nut IK	Mini lock nut		Stop screw 2		Stop screw 1	
	84 950 ...	**84 950 ...**		**83 950 ...**		**83 950 ...**	
Spare parts for collet							
4008E (ER11)			**041**	M8x1 - SW4	**340**	M8x1 - SW4	**336**
426E (ER16)		**035**	**034**	M11x1 - SW6	**341**	M11x1 - SW6	**337**

Accessories

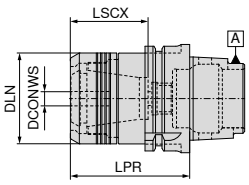
ER collet	Sealing ring	Device	Roll key	Roll key device	Coolant transfer pipe	Others
→ 268–276, 279	→ 280	→ 285	→ 286	→ 286	→ 156	→ 284

ER precision collet chuck – HDC

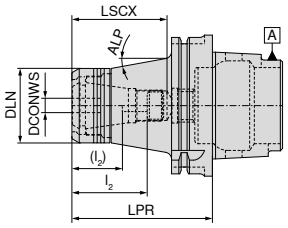
- ▲ HDC = Heavy Duty Chuck, an adapter specially designed for rough machining
- ▲ For heavy duty lock nut
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Base body **including** lock nut, **without** backstop screw



cylindrical



Conical

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	ALP °	for collet	G 6,3 n_{max} 18000 cylindrical 84 400 ...	G 6,3 n_{max} 18000 conical 84 400 ...
HSK-A 63	2 - 20	70	53	45	41 - 57 (27 - 39)		470E (ER32)	**12057**	
HSK-A 63	2 - 20	100	53	72	41 - 57 (27 - 39)		470E (ER32)	**22057**	
HSK-A 100	2 - 20	100	53	68	41 - 54 (27 - 36)	10	470E (ER32)		**22055**

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without backstop screw
l_2 = Clamping depth backstop screw 1, dimension in brackets (l_2) = Clamping depth backstop screw 2

Lock nut

Stop screw 2

Stop screw 1

Spare parts DCONWS	Lock nut 84 950 ...		Stop screw 2 83 950 ...		Stop screw 1 83 950 ...	
2 - 20	**30100**	M22x1,5 - SW6	**402**	M22x1,5 - SW6	**401**	

Accessories

ER collet
→ 268–276, 278–279

Roll key
→ 286

Roll key device
→ 286

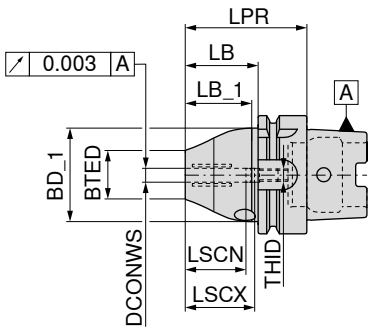
Others
→ 284

16

HyPower – Rough

- ▲ High pressure chuck – especially for milling
- ▲ Ideal for HSC and HPC applications
- ▲ High temperature resistance
- ▲ **Also available** with Balluff chip on request

Scope of supply:
Base body with backstop screw and pressure screw



NEW

AD
G 2,5 n_{max} 25000

84 254 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
HSK-A 63	6	65	26	50,0	35,2	39	37	27	M5	**10657**
HSK-A 63	8	65	28	50,0	35,2	39	37	27	M6	**10857**
HSK-A 63	10	75	30	50,0	45,2	49	41	31	M8x1	**11057**
HSK-A 63	12	75	32	52,5	45,2	49	46	36	M8x1	**11257**
HSK-A 63	16	79	38	52,5	49,2	53	49	39	M8x1	**11657**
HSK-A 63	20	79	38	52,5	49,2	53	51	41	M8x1	**12057**
HSK-A 100	6	73	26	50,0	40,2	44	37	27	M5	**10655**
HSK-A 100	8	73	28	50,0	40,2	44	37	27	M6	**10855**
HSK-A 100	10	83	30	50,0	50,2	54	41	31	M8x1	**11055**
HSK-A 100	12	83	32	52,5	50,2	54	46	36	M8x1	**11255**
HSK-A 100	16	87	38	52,5	54,2	58	49	39	M8x1	**11655**
HSK-A 100	20	87	38	52,5	54,2	58	51	41	M8x1	**12055**

→ Min. clamping depth, Page 312

Clamping key – T

80 397 ...

Pressure screw

83 950 ...

Stop screw IK

83 950 ...

Spare parts DCONWS							
6	SW5	**050**	M10x12	**55000**	M5x12,5 - SW2,5	**418**
8	SW5	**050**	M10x12	**55000**	M6x12,5 - SW3	**419**
10	SW5	**050**	M10x12	**55000**	M8x1x13,5 - SW3	**420**
12	SW5	**050**	M10x12	**55000**	M8x1x13,5 - SW3	**420**
16	SW5	**050**	M10x12	**55000**	M8x1x13,5 - SW3	**420**
20	SW5	**050**	M10x12	**55000**	M8x1x13,5 - SW3	**420**

Accessories

Reduction sleeve
→ 282

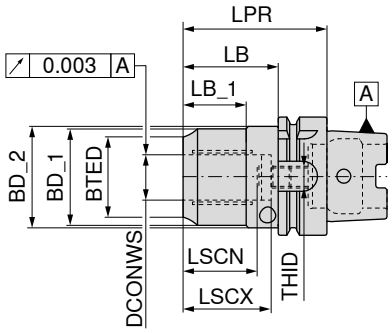
Coolant transfer pipe
→ 156

Others
→ 284

HyPower – Complus

▲ High pressure chuck, short and stable version
▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw



NEW

AD
G 2,5 n_{max} 25000

83 722 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
HSK-A 63	20	80	36	49	52,5	36	54	51	40	M8x1	**120**
HSK-A 63	32	105	54	63	52,5	55	79	61	51	M16x1	**13257**
HSK-A 100	20	85	38	49	52,5	36	56	51	41	M8x1	**12055**
HSK-A 100	32	100	57	68	72,0	42	71	61	51	M8x1	**13255**

→ Min. clamping depth, Page 312

Clamping key – T

80 397 ...

Pressure screw

83 950 ...

Stop screw IK

83 950 ...

Spare parts for Article no.							
83 722 120	SW5	**050**	M10x1x10	**158**	M8x1x13,5 - SW3	**420**
83 722 13257	SW5	**050**	M10x1x10	**158**	M16x1x13,5 - SW8	**424**
83 722 12055	SW5	**050**	M10x1x10	**158**	M8x1x13,5 - SW3	**420**
83 722 13255	SW5	**050**	M10x1x10	**158**	M8x1x13,5 - SW3	**420**

Accessories

Reduction sleeve
→ 282

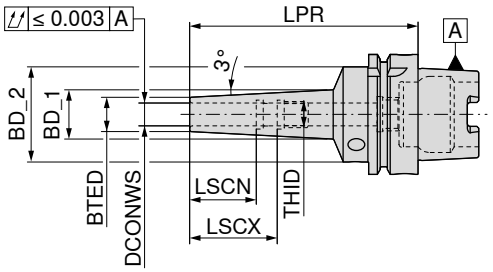
Coolant transfer pipe
→ 156

Others
→ 284

HyPower – Access 3°

▲ High pressure chuck, slim 3°
▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw



G 2,5 n_{max} 25000

83 727 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LSCX mm	LSCN mm	THID	
medium length	HSK-A 63	3	120	9	16,65	50	28	12	M3	**603**
	HSK-A 63	4	120	10	17,65	50	28	16	M3	**604**
	HSK-A 63	5	120	11	18,65	50	28	20	M3	**605**
	HSK-A 63	6	120	12	19,75	50	37	27	M5	**606**
	HSK-A 63	8	120	14	21,75	50	37	27	M6	**608**
	HSK-A 63	10	120	16	23,75	50	41	31	M8x1	**610**
	HSK-A 63	12	120	18	25,86	50	46	36	M10x1	**612**
	HSK-A 63	16	120	24	31,50	50	49	39	M12x1	**616**
	HSK-A 63	20	120	28	35,55	50	51	41	M16x1	**620**
extra-long	HSK-A 63	6	160	16	33,53	50	37	27	M5	**706**
	HSK-A 63	8	160	18	34,55	50	37	27	M6	**708**
	HSK-A 63	10	160	20	36,27	50	41	31	M8x1	**710**
	HSK-A 63	12	160	22	37,78	50	46	36	M10x1	**712**
extra long	HSK-A 63	6	200	16	37,83	50	37	27	M5	**806**
	HSK-A 63	8	200	18	38,85	50	37	27	M6	**808**
	HSK-A 63	10	200	20	40,57	50	41	31	M8x1	**810**
	HSK-A 63	12	200	22	42,07	50	46	36	M10x1	**812**

→ Min. clamping depth, Page 312

Clamping key – T

80 397 ...

Pressure screw

83 950 ...

Stop screw IK

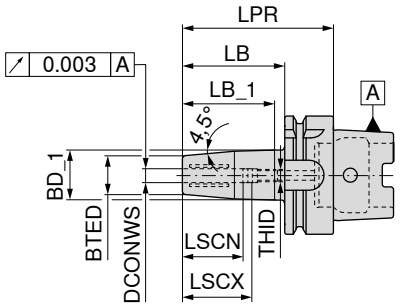
83 950 ...

Spare parts DCONWS							
3	SW5	**050**	M10x1x10	**158**	M3x20 - SW1,5	**172**
4	SW5	**050**	M10x1x10	**158**	M3x20 - SW1,5	**172**
5	SW5	**050**	M10x1x10	**158**	M3x20 - SW1,5	**172**
6	SW5	**050**	M10x1x10	**158**	M5x12,5 - SW2,5	**418**
6	SW5	**050**	M10x1x10	**158**	M6x12,5 - SW3	**419**
8	SW5	**050**	M10x1x10	**158**	M6x12,5 - SW3	**419**
10	SW5	**050**	M10x1x12	**159**	M8x1x13,5 - SW3	**420**
12	SW5	**050**	M10x1x12	**159**	M10x1x13,5 - SW5	**421**
16	SW5	**050**	M10x1x12	**159**	M12x1x13,5 - SW5	**422**
20	SW5	**050**	M10x1x12	**159**	M16x1x13,5 - SW8	**424**

HyPower – Access 4.5°

- ▲ High pressure chuck with slim contour, original dimensions of a 4.5° shrink contour
- ▲ Especially for reaming and drilling applications
- ▲ Ideal for tool and die production
- ▲ **Also available** with Balluff chip on request

Scope of supply:
Base body with backstop screw and pressure screw



NEW

AD
G 2,5 n_{max} 25000

84 255 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
HSK-A 63	6	80	21	27	48,9	54	37	27	M5	**10657**
HSK-A 63	8	80	21	27	48,9	54	37	27	M6	**10857**
HSK-A 63	10	85	24	32	53,7	59	41	31	M8x1	**11057**
HSK-A 63	12	90	24	32	58,6	64	46	36	M10x1	**11257**
HSK-A 63	16	95	27	34	63,1	69	49	39	M12x1	**11657**
HSK-A 63	20	100	33	42	68,9	74	51	41	M16x1	**12057**
HSK-A 100	6	85	21	27	38,7	56	37	27	M5	**10655**
HSK-A 100	8	85	21	27	38,7	56	37	27	M6	**10855**
HSK-A 100	10	90	24	32	53,7	61	41	31	M8x1	**11055**
HSK-A 100	12	95	24	32	58,6	66	46	36	M10x1	**11255**
HSK-A 100	16	100	27	34	63,1	71	49	39	M12x1	**11655**
HSK-A 100	20	105	33	42	68,9	76	51	41	M16x1	**12055**

→ Min. clamping depth, Page 312

Clamping key – T

80 397 ...

Pressure screw

83 950 ...

Stop screw IK

83 950 ...

Spare parts for Article no.						
84 255 10657	SW5	**050**	M10x10	**55100**	M5x12,5 - SW2,5	**418**
84 255 10857	SW5	**050**	M10x10	**55100**	M6x12,5 - SW3	**419**
84 255 11057	SW5	**050**	M10x10	**55100**	M8x1x13,5 - SW3	**420**
84 255 11257	SW5	**050**	M10x10	**55100**	M10x1x13,5 - SW5	**421**
84 255 11657	SW5	**050**	M10x10	**55100**	M12x1x13,5 - SW5	**422**
84 255 12057	SW5	**050**	M10x10	**55100**	M16x1x13,5 - SW5	**423**
84 255 10655	SW5	**050**	M10x10	**55100**	M5x12,5 - SW2,5	**418**
84 255 10855	SW5	**050**	M10x12	**55000**	M6x12,5 - SW3	**419**
84 255 11055	SW5	**050**	M10x12	**55000**	M8x1x13,5 - SW3	**420**
84 255 11255	SW5	**050**	M10x12	**55000**	M10x1x13,5 - SW5	**421**
84 255 11655	SW5	**050**	M10x12	**55000**	M12x1x13,5 - SW5	**422**
84 255 12055	SW5	**050**	M10x12	**55000**	M16x1x13,5 - SW5	**423**

Accessories

Reduction sleeve
→ 282

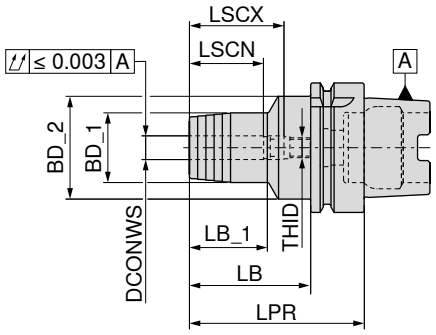
Coolant transfer pipe
→ 156

Others
→ 284

HyTens – Fit

▲ Hydraulic chuck, short and slim version
▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw



NEW

G 2,5 n_{max} 25000

83 726 ...

	Adapter	DCONWS mm	LPR mm	BD_1 mm	BD_2 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
short	HSK-A 63	6	70	26	49,5	24	44	37	27	M5	**606**
	HSK-A 63	8	70	28	49,5	24	44	37	27	M6	**608**
	HSK-A 63	10	80	30	49,5	32	54	41	31	M8x1	**610**
	HSK-A 63	12	85	32	49,5	40	59	46	36	M10x1	**612**
	HSK-A 63	16	90	38	49,5	46	64	49	39	M12x1	**616**
	HSK-A 63	20	90	42	49,5	48	64	51	41	M16x1	**620**
	HSK-A 63	25	120	57	52,0	63	94	57	47	M16x1	**625**
	HSK-A 63	32	125	63	53,0	61	99	61	51	M16x1	**632**
	HSK-A 100	6	75	26	50,0	26	46	37	27	M5	**10655**
	HSK-A 100	8	75	28	50,0	26	46	37	27	M6	**10855**
	HSK-A 100	10	90	30	50,0	42	61	41	31	M8x1	**11055**
	HSK-A 100	12	95	32	50,0	47	66	46	36	M10x1	**11255**
	HSK-A 100	16	100	38	50,0	53	71	49	39	M12x1	**11655**
	HSK-A 100	20	105	42	50,0	59	76	51	41	M16x1	**12055**
	HSK-A 100	25	110	57	63,0	62	81	57	47	M16x1	**12555**
	HSK-A 100	32	110	63	67,0	62	81	61	51	M16x1	**13255**

→ Min. clamping depth, Page 312

Version for MMS hydraulic chuck – 1 and 2-channel

83 432	HSK-63	1-channel
83 432	HSK-100	1-channel

This article can be found in our online shop at cuttingtools.ceratizit.com

83 433	HSK-63	2-channel
83 433	HSK-100	2-channel

This article can be found in our online shop at cuttingtools.ceratizit.com

Spare parts **HyTens** – Fit

		Pressure screw		Stop screw IK	
		83 950 ...		**83 950 ...**	
Spare parts for Article no.					
83 726 606	M10x1x12	**440**	M5x12,5 - SW2,5	**418**
83 726 608	M10x1x12	**440**	M6x12,5 - SW3	**419**
83 726 610	M10x1x12	**440**	M8x1x13,5 - SW3	**420**
83 726 612	M10x1x12	**440**	M10x1x13,5 - SW5	**421**
83 726 616	M10x1x12	**440**	M12x1x13,5 - SW5	**422**
83 726 620	M10x1x12	**440**	M16x1x13,5 - SW5	**423**
83 726 625	M10x1x12	**440**	M16x1x13,5 - SW5	**423**
83 726 632	M10x1x12	**440**	M16x1x13,5 - SW5	**423**
83 726 10655	M10x1x12	**440**	M5x12,5 - SW2,5	**418**
83 726 10855	M10x1x12	**440**	M6x12,5 - SW3	**419**
83 726 11055	M10x1x12	**440**	M8x1x13,5 - SW3	**420**
83 726 11255	M10x1x12	**440**	M10x1x13,5 - SW5	**421**
83 726 11655	M10x1x12	**440**	M12x1x13,5 - SW5	**422**
83 726 12055	M10x1x12	**440**	M16x1x13,5 - SW8	**424**
83 726 12555	M10x1x12	**440**	M16x1x13,5 - SW8	**424**
83 726 13255	M10x1x12	**440**	M16x1x13,5 - SW8	**424**

Accessories

Reduction sleeve
→ 282

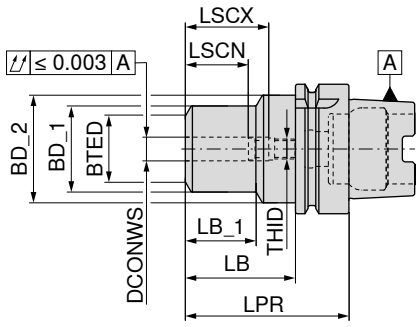
Coolant transfer pipe
→ 156

Others
→ 284

HyTens – Compact

▲ Hydraulic chuck, short and stable version
▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw



G 2,5 n_{max} 25000

83 430 ...

Adapter	DCONWS mm	LPR mm	BD_1 mm	BD_2 mm	BTED mm	LB mm	LB_1 mm	LSCN mm	LSCX mm	THID	
HSK-A 63	12	80	42	52,5	32	54	34	36	46	M8x1	**01257**
HSK-A 63	20	80	49	52,5	38	54	36	41	51	M8x1	**02057**
HSK-A 100	12	85	42	52,5	32	51	34	36	46	M8x1	**01255**
HSK-A 100	20	85	49	52,5	38	51	36	41	51	M8x1	**02055**

→ Min. clamping depth, Page 312

Clamping key – T
80 397 ...

Pressure screw
83 950 ...

Stop screw IK
83 950 ...

Spare parts DCONWS							
12 - 20	SW5	**050**	M10x1x12	**440**	M8x1x13,5 - SW3	**420**

Accessories

Reduction sleeve
→ 282

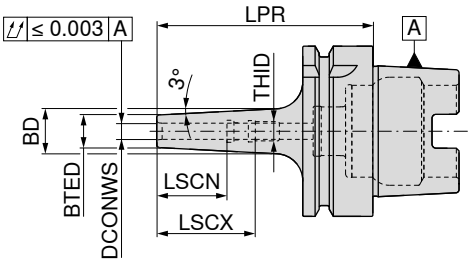
Coolant transfer pipe
→ 156

Others
→ 284

Shrink adapter, slim 3°

▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

TG



G 2,5 n_{max} 25000

84 324 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	
short	HSK-A 63	3	80	9	14	28	12	M6	**103**
	HSK-A 63	4	80	10	15	28	16	M6	**104**
	HSK-A 63	5	80	11	16	30	20	M6	**105**
	HSK-A 63	6	80	12	17	36	26	M5	**106**
	HSK-A 63	8	80	14	19	36	26	M6	**108**
	HSK-A 63	10	85	16	21	41	31	M8x1	**110**
	HSK-A 63	12	90	18	24	47	37	M10x1	**112**
	HSK-A 63	14	90	20	26	47	37	M10x1	**114**
	HSK-A 63	16	95	22	28	50	40	M12x1	**116**
	HSK-A 63	18	95	24	30	50	40	M12x1	**118**
	HSK-A 63	20	100	26	33	52	42	M16x1	**120**
medium length	HSK-A 63	3	120	9	16	12	12		**203**
	HSK-A 63	4	120	10	17	16	16		**204**
	HSK-A 63	5	120	11	18	20	20		**205**
	HSK-A 63	6	120	12	21	36	26	M5	**206**
	HSK-A 63	8	120	14	23	36	26	M6	**208**
	HSK-A 63	10	120	16	25	41	31	M8x1	**210**
	HSK-A 63	12	120	18	27	47	37	M10x1	**212**
	HSK-A 63	14	120	20	29	47	37	M10x1	**214**
	HSK-A 63	16	120	22	31	50	40	M12x1	**216**
	HSK-A 63	18	120	24	33	50	40	M12x1	**218**
	HSK-A 63	20	120	26	35	52	42	M16x1	**220**
extra-long	HSK-A 63	3	160	9	19	12	12		**303**
	HSK-A 63	4	160	10	20	16	16		**304**
	HSK-A 63	5	160	11	21	20	20		**305**
	HSK-A 63	6	160	12	24	36	26	M5	**306**
	HSK-A 63	8	160	14	26	36	26	M6	**308**
	HSK-A 63	10	160	16	28	41	31	M8x1	**310**
	HSK-A 63	12	160	18	30	47	37	M10x1	**312**
	HSK-A 63	14	160	20	32	47	37	M10x1	**314**
	HSK-A 63	16	160	22	34	50	40	M12x1	**316**
	HSK-A 63	18	160	24	36	50	40	M12x1	**318**
	HSK-A 63	20	160	26	38	52	42	M16x1	**320**

→ Min. clamping depth, Page 312

Stop screw IK

83 950 ...

Stop screw IK

83 950 ...

Spare parts

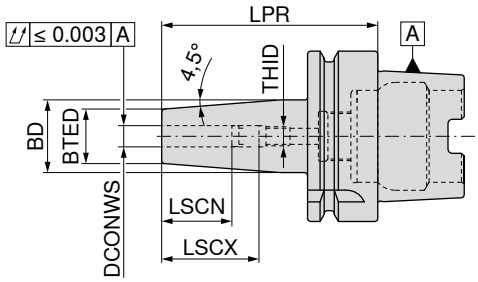
DCONWS				
3 - 5	M6x14 - SW2	**417**		
6			M5x12,5 - SW2,5	**418**
8			M6x12,5 - SW3	**419**
10			M8x1x13,5 - SW3	**420**
12 - 14			M10x1x13,5 - SW5	**421**
16 - 18			M12x1x13,5 - SW5	**422**
20			M16x1x13,5 - SW8	**424**

16

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

TG



G 2,5 n_{max} 25000

84 304 ...

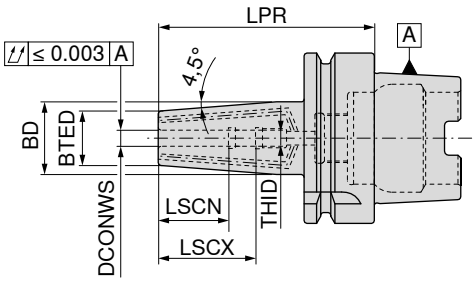
	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	
short	HSK-A 63	3	80	10	15	22	12	M6	**103**
	HSK-A 63	4	80	15	22	26	16	M6	**104**
	HSK-A 63	5	80	15	22	30	20	M6	**105**
	HSK-A 63	6	80	21	27	36	26	M5	**106**
	HSK-A 63	8	80	21	27	36	26	M6	**108**
	HSK-A 63	10	85	24	32	41	31	M8x1	**110**
	HSK-A 63	12	90	24	32	47	37	M10x1	**112**
	HSK-A 63	14	90	27	34	47	37	M10x1	**114**
	HSK-A 63	16	95	27	34	50	40	M12x1	**116**
	HSK-A 63	18	95	33	42	50	40	M12x1	**118**
	HSK-A 63	20	100	33	42	52	42	M16x1	**120**
	HSK-A 63	25	115	44	53	58	48	M16x1	**125**
	HSK-A 63	32	120	44	53	62	52	M16x1	**132**
medium length	HSK-A 63	3	120	10	20	12	12		**203**
	HSK-A 63	4	120	15	22	16	16		**204**
	HSK-A 63	5	120	15	22	20	20		**205**
	HSK-A 63	6	120	21	27	36	26	M5	**206**
	HSK-A 63	8	120	21	27	36	26	M6	**208**
	HSK-A 63	10	120	24	32	41	31	M8x1	**210**
	HSK-A 63	12	120	24	32	47	37	M10x1	**212**
	HSK-A 63	14	120	27	34	47	37	M10x1	**214**
	HSK-A 63	16	120	27	34	50	40	M12x1	**216**
	HSK-A 63	18	120	33	42	50	40	M12x1	**218**
	HSK-A 63	20	120	33	42	52	42	M16x1	**220**
	HSK-A 63	25	120	44	53	58	48	M16x1	**225**
extra-long	HSK-A 63	3	160	10	20	12	12		**303**
	HSK-A 63	4	160	15	22	16	16		**304**
	HSK-A 63	5	160	15	22	20	20		**305**
	HSK-A 63	6	160	21	27	36	26	M5	**306**
	HSK-A 63	8	160	21	27	36	26	M6	**308**
	HSK-A 63	10	160	24	32	41	31	M8x1	**310**
	HSK-A 63	12	160	24	32	47	37	M10x1	**312**
	HSK-A 63	14	160	27	34	47	37	M10x1	**314**
	HSK-A 63	16	160	27	34	50	40	M12x1	**316**
	HSK-A 63	18	160	33	42	50	40	M12x1	**318**
	HSK-A 63	20	160	33	42	52	42	M16x1	**320**
	HSK-A 63	25	160	44	53	62	52	M16x1	**325**
extra long	HSK-A 63	6	200	21	27	36	26	M5	**406**
	HSK-A 63	8	200	21	27	36	26	M6	**408**
	HSK-A 63	10	200	24	32	41	31	M8x1	**410**
	HSK-A 63	12	200	24	32	47	37	M10x1	**412**
	HSK-A 63	14	200	27	34	47	37	M10x1	**414**
	HSK-A 63	16	200	27	34	50	40	M12x1	**416**
	HSK-A 63	18	200	33	42	50	40	M12x1	**418**
	HSK-A 63	20	200	33	42	52	42	M16x1	**420**
	HSK-A 63	25	200	44	53	62	52	M16x1	**425**
	HSK-A 63	32	200	44	53	62	52	M16x1	**432**

→ Min. clamping depth, Page 312

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

TG



G 2,5 n_{max} 25000

84 316 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	
short	HSK-A 63	3	80	10	15	28	12	M6	**103**
	HSK-A 63	4	80	15	22	28	16	M6	**104**
	HSK-A 63	5	80	15	22	30	20	M6	**105**
	HSK-A 63	6	80	21	27	36	26	M5	**106**
	HSK-A 63	8	80	21	27	36	26	M6	**108**
	HSK-A 63	10	85	24	32	41	31	M8x1	**110**
	HSK-A 63	12	90	24	32	47	37	M10x1	**112**
	HSK-A 63	14	90	27	34	47	37	M10x1	**114**
	HSK-A 63	16	95	27	34	50	40	M12x1	**116**
	HSK-A 63	18	95	33	42	50	40	M12x1	**118**
	HSK-A 63	20	100	33	42	52	42	M16x1	**120**
	HSK-A 63	25	115	44	53	58	48	M16x1	**125**
	HSK-A 63	32	120	44	53	62	52	M16x1	**132**

→ Min. clamping depth, Page 312

Stop screw IK

83 950 ...

Stop screw IK

83 950 ...

Sealing screw

83 950 ...

Spare parts DCONWS							
3 - 5	M6x14 - SW2	**417**			M2x6	**512**
6			M5x12,5 - SW2,5	**418**	M2x6	**512**
8			M6x12,5 - SW3	**419**	M2x6	**512**
10			M8x1x13,5 - SW3	**420**	M2x6	**512**
12 - 14			M10x1x13,5 - SW5	**421**	M2x6	**512**
16 - 18	M12x1 - SW5	**510**			M2x6	**512**
20 - 32	M16x1 - SW5	**511**			M2x6	**512**

Accessories

Shrink fit extension
→ 247

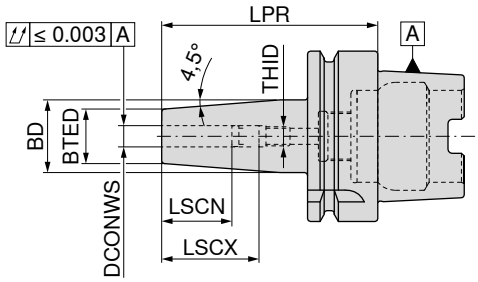
Coolant transfer pipe
→ 156

Others
→ 284

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

TG



G 2,5 n_{max} 25000

84 305 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	
short	HSK-A 100	6	85	21	27	36	26	M5	**106**
	HSK-A 100	8	85	21	27	36	26	M6	**108**
	HSK-A 100	10	90	24	32	41	31	M8x1	**110**
	HSK-A 100	12	95	24	32	47	37	M10x1	**112**
	HSK-A 100	14	95	27	34	47	37	M10x1	**114**
	HSK-A 100	16	100	27	34	50	40	M12x1	**116**
	HSK-A 100	18	100	33	42	50	40	M12x1	**118**
	HSK-A 100	20	105	33	42	52	42	M16x1	**120**
	HSK-A 100	25	115	44	53	58	48	M16x1	**125**
	HSK-A 100	32	120	44	53	62	52	M16x1	**132**
medium length	HSK-A 100	6	120	21	27	36	26	M5	**206**
	HSK-A 100	8	120	21	27	36	26	M6	**208**
	HSK-A 100	10	120	24	32	41	31	M8x1	**210**
	HSK-A 100	12	120	24	32	47	37	M10x1	**212**
	HSK-A 100	14	120	27	34	47	37	M10x1	**214**
	HSK-A 100	16	120	27	34	50	40	M12x1	**216**
	HSK-A 100	18	120	33	42	50	40	M12x1	**218**
	HSK-A 100	20	120	33	42	52	42	M16x1	**220**
	HSK-A 100	25	120	44	53	58	48	M16x1	**225**
extra-long	HSK-A 100	6	160	21	27	36	26	M5	**306**
	HSK-A 100	8	160	21	27	36	26	M6	**308**
	HSK-A 100	10	160	24	32	41	31	M8x1	**310**
	HSK-A 100	12	160	24	32	47	37	M10x1	**312**
	HSK-A 100	14	160	27	34	47	37	M10x1	**314**
	HSK-A 100	16	160	27	34	50	40	M12x1	**316**
	HSK-A 100	18	160	33	42	50	40	M12x1	**318**
	HSK-A 100	20	160	33	42	52	42	M16x1	**320**
	HSK-A 100	25	160	44	53	58	48	M16x1	**325**
	HSK-A 100	32	160	44	53	62	52	M16x1	**332**

→ Min. clamping depth, Page 312

Version for MMS heat shrink adapter 4.5° – 1 and 2-channel

TG

84 318	HSK-63	1-channel
84 318	HSK-100	1-channel

This article can be found in our online shop at cuttingtools.ceratizit.com

TG

84 319	HSK-63	2-channel
84 319	HSK-100	2-channel

This article can be found in our online shop at cuttingtools.ceratizit.com

Spare parts heat shrink adapter 4.5°

Stop screw IK

		83 950 ...
Spare parts DCONWS		
6	M5x12,5 - SW2,5	**418**
8	M6x12,5 - SW3	**419**
10	M8x1x13,5 - SW3	**420**
12 - 14	M10x1x13,5 - SW5	**421**
16 - 18	M12x1x13,5 - SW5	**422**
20 - 32	M16x1x13,5 - SW8	**424**

Accessories

Shrink fit extension
→ 247

Coolant transfer pipe
→ 156

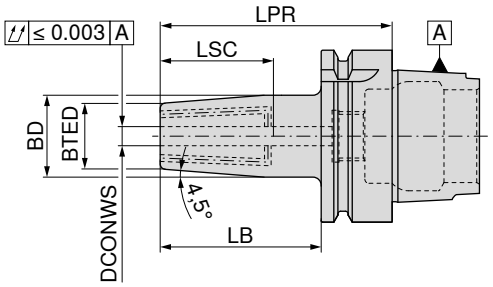
Others
→ 284

Shrink fit adapters 4.5°

▲ Version for high clamping force
▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Holder with adjustable back stop

TG



G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LB mm	LSC mm	84 717 ...
short	HSK-A 63	6	80	21	26	54	36,5	**606**
	HSK-A 63	8	80	21	26	54	36,5	**608**
	HSK-A 63	10	85	24	30	59	41,5	**610**
	HSK-A 63	12	90	24	30	64	46,5	**612**
	HSK-A 63	14	90	27	34	64	46,5	**614**
	HSK-A 63	16	95	27	34	69	49,5	**616**
	HSK-A 63	18	95	33	41	69	49,5	**618**
	HSK-A 63	20	100	33	41	74	51,5	**620**
	HSK-A 63	25	115	44	52	89	57,5	**625**
	HSK-A 63	32	120	44	52	94	61,5	**632**
	HSK-A 100	6	85	21	26	56	36,5	**106**
	HSK-A 100	8	85	21	26	56	36,5	**108**
	HSK-A 100	10	90	24	30	56	41,5	**110**
	HSK-A 100	12	95	24	30	66	46,5	**112**
	HSK-A 100	14	95	27	34	66	46,5	**114**
	HSK-A 100	16	100	27	34	71	49,5	**116**
	HSK-A 100	18	100	33	42	71	49,5	**118**
	HSK-A 100	20	105	33	42	76	51,5	**120**
	HSK-A 100	25	115	44	53	86	57,5	**125**
	HSK-A 100	32	120	44	53	91	61,5	**132**

→ Min. clamping depth, Page 312

Stop screw IK

Sealing screw

Spare parts DCONWS		62 950 ...		62 950 ...
6	M5x0,8x14	**402**	M3x6	**411**
8	M6x1x16	**403**	M3x6	**411**
10	M8x1x20	**404**	M3x6	**411**
12 - 18	M10x1x20	**405**	M3x6	**411**
20 - 32	M12x1x20	**406**	M4x8	**412**

Sealing screw for closing of two additional coolant holes.

Accessories

Shrink fit extension
→ 247

Coolant transfer pipe
→ 156

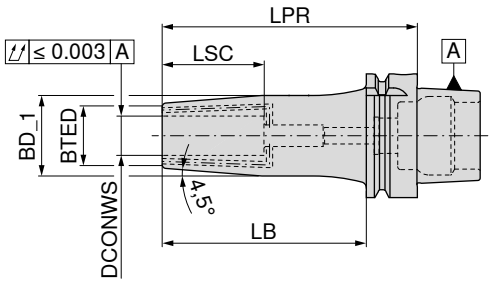
Others
→ 284

Shrink fit adapters 4.5°

▲ Version for high clamping force
▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Holder with adjustable back stop

TG



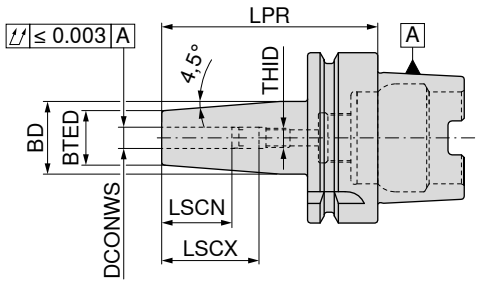
	Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB mm	LSC mm	G 2,5 n_{max} 25000 **84 720 ...**	G 2,5 n_{max} 25000 **84 723 ...**
long	HSK-A 63	6	130	21	27	104	36,5	**606**	
	HSK-A 63	8	130	21	27	104	36,5	**608**	
	HSK-A 63	10	130	24	32	104	41,5	**610**	
	HSK-A 63	12	130	24	32	104	46,5	**612**	
	HSK-A 63	14	130	27	34	104	46,5	**614**	
	HSK-A 63	16	130	27	34	104	49,5	**616**	
	HSK-A 63	18	130	33	41	104	49,5	**618**	
	HSK-A 63	20	130	33	41	104	51,5	**620**	
	HSK-A 100	6	130	21	27	101	36,5	**106**	
	HSK-A 100	8	130	21	27	101	36,5	**108**	
	HSK-A 100	10	130	24	32	101	41,5	**110**	
	HSK-A 100	12	130	24	32	101	46,5	**112**	
	HSK-A 100	14	130	27	34	101	46,5	**114**	
	HSK-A 100	16	130	27	34	101	49,5	**116**	
	HSK-A 100	18	130	33	41	101	49,5	**118**	
	HSK-A 100	20	130	33	41	101	51,5	**120**	
extra-long	HSK-A 63	6	160	21	27	134	36,5		**606**
	HSK-A 63	8	160	21	27	134	36,5		**608**
	HSK-A 63	10	160	24	32	134	41,5		**610**
	HSK-A 63	12	160	24	32	134	46,5		**612**
	HSK-A 63	14	160	27	34	134	46,5		**614**
	HSK-A 63	16	160	27	34	134	49,5		**616**
	HSK-A 63	18	160	33	41	134	49,5		**618**
	HSK-A 63	20	160	33	41	134	51,5		**620**
	HSK-A 63	25	160	44	52	134	57,5		**625**
	HSK-A 100	6	160	21	27	131	36,5		**106**
	HSK-A 100	8	160	21	27	131	36,5		**108**
	HSK-A 100	10	160	24	32	131	41,5		**110**
	HSK-A 100	12	160	24	32	131	46,5		**112**
	HSK-A 100	14	160	27	34	131	46,5		**114**
	HSK-A 100	16	160	27	34	131	49,5		**116**
	HSK-A 100	18	160	33	41	131	49,5		**118**
	HSK-A 100	20	160	33	41	131	51,5		**120**
	HSK-A 100	25	160	44	53	131	57,5		**125**
	HSK-A 100	32	160	44	53	131	61,5		**132**

→ Min. clamping depth, Page 312

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

TG



G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	**82 310 ...**
short	HSK-A 63	3	80	10	15	22	12		**10357**
	HSK-A 63	4	80	15	22	26	16		**10457**
	HSK-A 63	5	80	15	22	30	20		**10557**
	HSK-A 63	6	80	21	27	36	26	M5	**10657**
	HSK-A 63	8	80	21	27	36	26	M6	**10857**
	HSK-A 63	10	85	24	32	41	31	M8x1	**11057**
	HSK-A 63	12	90	24	32	47	37	M10x1	**11257**
	HSK-A 63	14	90	27	34	47	37	M10x1	**11457**
	HSK-A 63	16	95	27	34	50	40	M12x1	**11657**
	HSK-A 63	18	95	33	42	50	40	M12x1	**11857**
	HSK-A 63	20	100	33	42	52	42	M16x1	**12057**
	HSK-A 63	25	115	44	53	58	48	M16x1	**12557**
	HSK-A 63	32	120	44	53	62	52	M16x1	**13257**
medium length	HSK-A 63	3	120	10	20	12	12		**20357**
	HSK-A 63	4	120	15	22	16	16		**20457**
	HSK-A 63	5	120	15	22	20	20		**20557**
	HSK-A 63	6	120	21	27	36	26	M5	**20657**
	HSK-A 63	8	120	21	27	36	26	M6	**20857**
	HSK-A 63	10	120	24	32	41	31	M8x1	**21057**
	HSK-A 63	12	120	24	32	47	37	M10x1	**21257**
	HSK-A 63	14	120	27	34	47	37	M10x1	**21457**
	HSK-A 63	16	120	27	34	50	40	M12x1	**21657**
	HSK-A 63	18	120	33	42	50	40	M12x1	**21857**
	HSK-A 63	20	120	33	42	52	42	M16x1	**22057**
	HSK-A 63	25	120	44	53	58	48	M16x1	**22557**
extra-long	HSK-A 63	3	160	10	20	12	12		**30357**
	HSK-A 63	4	160	15	22	16	16		**30457**
	HSK-A 63	5	160	15	22	20	20		**30557**
	HSK-A 63	6	160	21	27	36	26	M5	**30657**
	HSK-A 63	8	160	21	27	36	26	M6	**30857**
	HSK-A 63	10	160	24	32	41	31	M8x1	**31057**
	HSK-A 63	12	160	24	32	47	37	M10x1	**31257**
	HSK-A 63	14	160	27	34	47	37	M10x1	**31457**
	HSK-A 63	16	160	27	34	50	40	M12x1	**31657**
	HSK-A 63	18	160	33	42	50	40	M12x1	**31857**
	HSK-A 63	20	160	33	42	52	42	M16x1	**32057**
	HSK-A 63	25	160	44	53	62	52	M16x1	**32557**

→ Min. clamping depth, Page 312

Stop screw IK

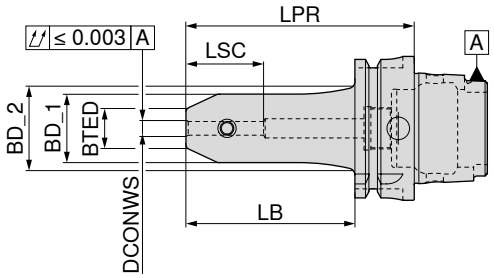
82 950 ...

Spare parts

DCONWS		
3 - 5	M6x16 - SW3	**30100**
6	M5x16 - SW2,5	**30000**
8	M6x16 - SW3	**30100**
10	M8x1x16 - SW4	**30200**
12 - 14	M10x1x14 - SW5	**30300**
16 - 18	M12x1x16 - SW6	**30400**
20 - 32	M16x1x16 - SW8	**30500**

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**



NEW NEW

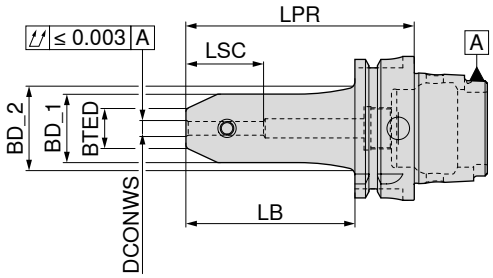
	Adapter	DCONWS $_{H5}$ mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LB mm	LSC mm	G 2,5 n_{max} 25000 **82 740 ...**	G 2,5 n_{max} 25000 **82 741 ...**
short	HSK-A 63	6	65	17	30		39	34	**10657**	**10657**
	HSK-A 63	8	65	20	32		39	34	**10857**	**10857**
	HSK-A 63	10	65	25	35		39	39	**11057**	**11057**
	HSK-A 63	12	80	30	42		54	44	**11257**	**11257**
	HSK-A 63	14	80	32	45		54	44	**11457**	**11457**
	HSK-A 63	16	80	36	48		54	47	**11657**	**11657**
	HSK-A 63	18	80	38	48		54	47	**11857**	**11857**
	HSK-A 63	20	80	40	52		54	49	**12057**	**12057**
	HSK-A 63	25	110	45	63		84	54	**12557**[1)]	**12557**[1)]
	HSK-A 63	32	110	52	72		84	58	**13257**[1)]	**13257**[1)]
	HSK-A 100	6	80	17	30		51	34	**10655**	**10655**
	HSK-A 100	8	80	20	32		51	34	**10855**	**10855**
	HSK-A 100	10	80	25	35		51	39	**11055**	**11055**
	HSK-A 100	12	80	30	42		51	44	**11255**	**11255**
	HSK-A 100	14	80	32	45		51	44	**11455**	**11455**
	HSK-A 100	16	100	36	48		71	47	**11655**	**11655**
	HSK-A 100	18	100	38	48		71	47	**11855**	**11855**
	HSK-A 100	20	100	40	52		71	49	**12055**	**12055**
	HSK-A 100	25	100	45	65		71	54	**12555**[1)]	**12555**[1)]
	HSK-A 100	32	100	52	72		71	58	**13255**[1)]	**13255**[1)]
	HSK-A 100	40	110	60	80		81	68	**14055**[1)]	**14055**[1)]
medium length	HSK-A 63	6	100	17	30	36,2	74	34	**20657**	**20657**
	HSK-A 63	8	100	20	32	38,2	74	34	**20857**	**20857**
	HSK-A 63	10	100	25	35	41,2	74	39	**21057**	**21057**
	HSK-A 63	12	100	30	42		74	44	**21257**	**21257**
	HSK-A 63	14	100	32	45		74	44	**21457**	**21457**
	HSK-A 63	16	100	36	48		74	47	**21657**	**21657**
	HSK-A 63	18	100	38	48		74	47	**21857**	**21857**
	HSK-A 63	20	100	40	52		74	49	**22057**	**22057**
long	HSK-A 63	6	130	17	30	36,2	104	34	**30657**	**30657**
	HSK-A 63	8	130	20	32	38,2	104	34	**30857**	**30857**
	HSK-A 63	10	130	25	35	41,2	104	39	**31057**	**31057**
	HSK-A 63	12	130	30	42	48,2	104	44	**31257**	**31257**
	HSK-A 63	14	130	32	45	50,5	104	44	**31457**	**31457**
	HSK-A 63	16	130	36	48	50,1	104	47	**31657**	**31657**
	HSK-A 63	18	130	38	48	50,1	104	47	**31857**	**31857**
	HSK-A 63	20	130	40	52		104	49	**32057**	**32057**
	HSK-A 63	25	130	45	63		104	54	**32557**[1)]	**32557**[1)]
	HSK-A 63	32	130	52	72		104	58	**33257**[1)]	**33257**[1)]

1) Version with two grubscrews

Continued on next page

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**



NEW NEW

	Adapter	DCONWS $_{H5}$ mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LB mm	LSC mm	G 2,5 n_{max} 25000 **82 740 ...**	G 2,5 n_{max} 25000 **82 741 ...**
extra-long	HSK-A 63	6	160	17	30	36,2	134	34	**40657**	**40657**
	HSK-A 63	8	160	20	32	38,2	134	34	**40857**	**40857**
	HSK-A 63	10	160	25	35	41,2	134	39	**41057**	**41057**
	HSK-A 63	12	160	30	42	48,2	134	44	**41257**	**41257**
	HSK-A 63	14	160	32	45	50,5	134	44	**41457**	**41457**
	HSK-A 63	16	160	36	48	50,1	134	47	**41657**	**41657**
	HSK-A 63	18	160	38	48	50,1	134	47	**41857**	**41857**
	HSK-A 63	20	160	40	52		134	49	**42057**	**42057**
	HSK-A 63	25	160	45	63		134	54	**42557**[1)]	**42557**[1)]
	HSK-A 100	6	160	17	30	38,2	131	34	**40655**	**40655**
	HSK-A 100	8	160	20	32	40,2	131	34	**40855**	**40855**
	HSK-A 100	10	160	25	35	43,2	131	39	**41055**	**41055**
	HSK-A 100	12	160	30	42	50,2	131	44	**41255**	**41255**
	HSK-A 100	14	160	32	45	53,2	131	44	**41455**	**41455**
	HSK-A 100	16	160	36	48	56,2	131	47	**41655**	**41655**
	HSK-A 100	18	160	38	48	56,2	131	47	**41855**	**41855**
	HSK-A 100	20	160	40	52	60,2	131	49	**42055**	**42055**
	HSK-A 100	25	160	45	65	73,2	131	54	**42555**[1)]	**42555**[1)]
	HSK-A 100	32	160	52	72	79,5	134	58	**43255**[1)]	**43255**[1)]

1) Version with two grubscrews

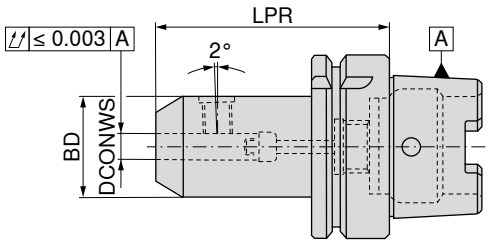
The M3 screws with WAF 1.5 mm supplied can be used to seal the two additional coolant holes.

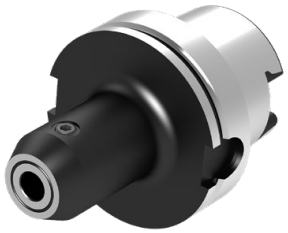
Accessories

Coolant transfer pipe	Others
→ 156	→ 284

Tool holder for tools with angled clamping flat (Whistle Notch)

▲ For shanks according to DIN 6535 HE / 1835 E with angled clamping flat
▲ also available with Balluff chip **on request**





NEW

G 2,5 n_{max} 25000

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	82 742 ...
short	HSK-A 63	6	80	25	10657
	HSK-A 63	8	80	28	10857
	HSK-A 63	10	80	35	11057
	HSK-A 63	12	90	42	11257
	HSK-A 63	14	90	44	11457
	HSK-A 63	16	100	48	11657
	HSK-A 63	18	100	50	11857
	HSK-A 63	20	100	52	12057
	HSK-A 63	25	110	65	12557[1)]
	HSK-A 63	32	110	72	13257[1)]
	HSK-A 100	6	90	25	10655
	HSK-A 100	8	90	28	10855
	HSK-A 100	10	90	35	11055
	HSK-A 100	12	100	42	11255
	HSK-A 100	14	100	44	11455
	HSK-A 100	16	100	48	11655
	HSK-A 100	18	100	50	11855
	HSK-A 100	20	110	52	12055
	HSK-A 100	25	120	65	12555[1)]
	HSK-A 100	32	120	72	13255[1)]
	HSK-A 100	40	120	80	14055[1)]

1) Version with two grubscrews

Grubscrew

Spare parts DCONWS		62 950 ...
6	M6x10	006
8	M8x10	008
10	M10x12	010
12 - 14	M12x16	012
16 - 18	M14x16	016
20	M16x16	020
25	M18x2x20	025
32 - 40	M20x2x20	032

Accessories

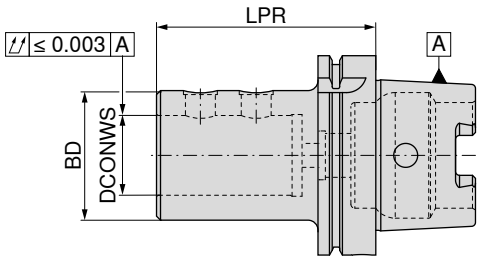
Coolant transfer pipe
→ 156

Others
→ 284

16

Indexable insert drill adapter ISO 12164 HSK Form A

▲ also available with Balluff chip **on request**



G 6,3 n_{max} 15000

10 842 ...

Adapter	DCONWS mm	LPR mm	BD mm	
HSK-A 63	20	80	40	**320**
HSK-A 63	25	90	45	**325**
HSK-A 63	32	90	52	**332**
HSK-A 63	40	110	65	**340**
HSK-A 100	20	90	40	**420**
HSK-A 100	25	100	45	**425**
HSK-A 100	32	100	52	**432**
HSK-A 100	40	110	65	**440**
HSK-A 100	50	120	75	**450**

Suitable eccentric sleeves can be found in → **Chapter 3, Indexable insert drilling.**

Grubscrew

10 950 ...

Spare parts DCONWS		
20	M10x1x10	**001**
25 - 32	M12x1x10	**002**
40 - 50	M16x1x12	**003**

Accessories

Coolant transfer pipe
→ 156

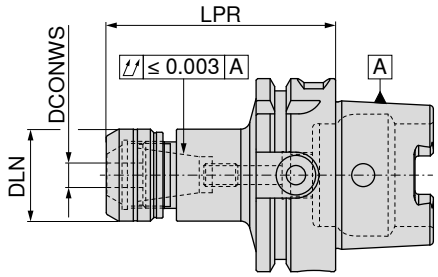
Others
→ 284

ER Precision Collet chuck – PCC

- ▲ For standard or sealing disc lock nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 100 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Base body with lock nut and backstop screw



G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	for collet	Torque moment / Clamping force Nm	82 700 ...
HSK-A 63	1 - 10	75	30	426E (ER16)	40 / 2-70	**11057**
HSK-A 63	1 - 10	100	30	426E (ER16)	40 / 2-70	**21057**
HSK-A 63	2 - 16	75	40	430E (ER25)	80 / 10-160	**11657**
HSK-A 63	2 - 16	100	40	430E (ER25)	80 / 10-160	**21657**
HSK-A 63	2 - 20	75	50	470E (ER32)	125 / 15-250	**12057**
HSK-A 63	2 - 20	100	50	470E (ER32)	125 / 15-250	**22057**
HSK-A 100	2 - 16	100	40	430E (ER25)	80 / 10-160	**21655**
HSK-A 100	2 - 16	160	40	430E (ER25)	80 / 10-160	**41655**
HSK-A 100	2 - 20	100	50	470E (ER32)	125 / 15-250	**22055**
HSK-A 100	2 - 20	160	50	470E (ER32)	125 / 15-250	**42055**

Dimension LPR is 4.5 mm longer for ER16 and ER32 and 5.0 mm longer for ER25 when using thro' coolant lock nut

Spare parts for collet	Lock nut IK	Lock nut		Backstop screw PCC 2		Backstop screw PCC 1
	82 950 ...	82 950 ...		82 950 ...		82 950 ...
426E (ER16)	**11000**	**01000**			M8X3,0	**00100**
430E (ER25)	**11600**	**01600**	M18x1,5	**00200**	M8x8	**00300**
470E (ER32)	**12000**	**02000**	M18x1,5	**00200**	M8x8	**00300**

Accessories

ER collet
→ 268–276, 278–279

Sealing ring
→ 281

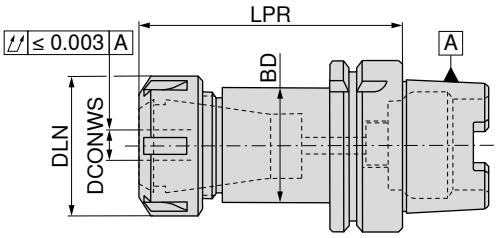
Roll key
→ 286

16

ER Collet chuck

▲ also available with Balluff chip **on request**

Scope of supply:
Toolholder including nut



NEW

G 2,5 n_{max} 25000

82 743 ...

	Adapter	DCONWS mm	LPR mm	DLN mm	TQX Nm	for collet	
medium length	HSK-A 63	1 - 10	100	22	8 - 56	426E (ER16 mini)	**21157**
	HSK-A 63	1 - 10	100	32	8 - 56	426E (ER16)	**21057**
	HSK-A 63	1 - 16	100	42	24 - 104	430E (ER25)	**21657**
	HSK-A 63	2 - 20	100	50	24 - 136	470E (ER32)	**22057**
	HSK-A 63	3 - 26	100	63	176	472E (ER40)	**22657**
long	HSK-A 100	1 - 10	100	32	8 - 56	426E (ER16)	**21055**
	HSK-A 100	1 - 16	100	42	24 - 104	430E (ER25)	**21655**
	HSK-A 100	2 - 20	100	50	24 - 136	470E (ER32)	**22055**
	HSK-A 100	3 - 26	100	63	176	472E (ER40)	**22655**
extra-long	HSK-A 63	1 - 10	160	22	8 - 56	426E (ER16 mini)	**41157**
	HSK-A 63	1 - 10	160	32	8 - 56	426E (ER16)	**41057**
	HSK-A 63	1 - 16	160	42	24 - 104	430E (ER25)	**41657**
	HSK-A 63	2 - 20	160	50	24 - 136	470E (ER32)	**42057**
	HSK-A 63	3 - 26	160	63	176	472E (ER40)	**42657**
	HSK-A 100	1 - 10	160	32	8 - 56	426E (ER16)	**41055**
	HSK-A 100	1 - 16	160	42	24 - 104	430E (ER25)	**41655**
	HSK-A 100	2 - 20	160	50	24 - 136	470E (ER32)	**42055**
	HSK-A 100	3 - 26	160	63	176	472E (ER40)	**42655**
extra long	HSK-A 100	1 - 10	200	32	8 - 56	426E (ER16)	**51055**
	HSK-A 100	1 - 16	200	42	24 - 104	430E (ER25)	**51655**
	HSK-A 100	2 - 20	200	50	24 - 136	470E (ER32)	**52055**
	HSK-A 100	3 - 26	200	63	176	472E (ER40)	**52655**

Dimension LPR is 5.0 mm longer for ER16, ER25 and ER32, and 5.5 mm for ER40 when using thro' coolant lock nuts

Spare parts ER collet chucks

	Lock nut IK	Lock nut	Y clamping key	ER Mini clamping key	Mini lock nut	Mini IK	Stop screw IK
	83 950 ...	**62 950 ...**	**83 357 ...**	**83 950 ...**	**62 950 ...**	**83 950 ...**	**82 950 ...**
Spare parts for collet							
426E (ER16 mini)				**101**	**066**	**058**	**30000**
426E (ER16)	**054**	**054**	**116**				
430E (ER25)	**055**	**055**	**125**				
470E (ER32)	**056**	**65600**	**132**				
472E (ER40)	**057**	**65700**	**140**				

Accessories

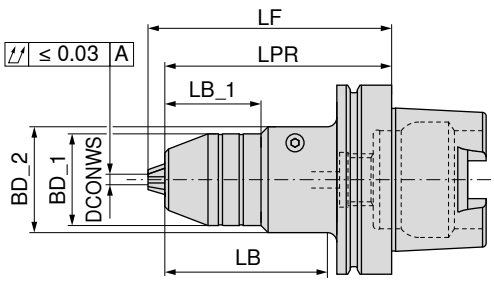
ER collet	Coolant transfer pipe	Others
→ 268–276, 279	→ 156	→ 284

Short drill chuck – NC 2010

- ▲ Independent of direction of rotation
- ▲ Torque Moment = 12 Nm
- ▲ also available with Balluff chip **on request**

Scope of supply:

Toolholder including clamping key SW4



G 6,3 n_{max} 10000

84 716 ...

Adapter	DCONWS mm	BD_1 mm	BD_2 mm	LB_1 mm	LB mm	LPR mm	LF mm	
HSK-A 63	0,5 - 13	48,5	56	50,9		126,0	116,9	**613**
HSK-A 63	2,5 - 16	51,0	56	50,9		127,5	116,9	**616**
HSK-A 100	0,5 - 13	48,5	56	50,9	86	129,0	120,0	**113**
HSK-A 100	2,5 - 16	51,0	56	50,9	86	130,5	120,0	**116**

Can be used with G 2.5 to 30,000 1/min by subsequent balancing !

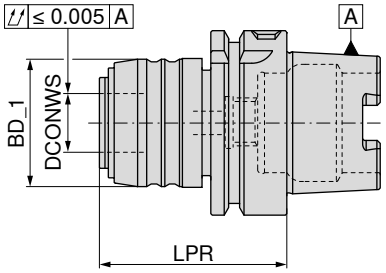
Accessories

Others

→ 284

Synchro tapping chuck with minimum length compensation

- For collets according to DIN 6499
- With length compensation under tension and under compression (LZD)
- $p_{max.}$ = 50 bar
- also available with Balluff chip **on request**



83 724 ...

Adapter	cutting range	SZID	DCONWS mm	LPR mm	BD_1 mm	LZD± mm	
HSK-A 63	M3 - M12	1	20	64	43	1,0 / 0,2	**612**
HSK-A 63	M6 - M20	2	32	97	60	1,0 / 0,2	**620**
HSK-A 100	M3 - M12	1	20	70	43	1,0 / 0,2	**112**
HSK-A 100	M6 - M20	2	32	91	60	1,0 / 0,2	**120**

Accessories

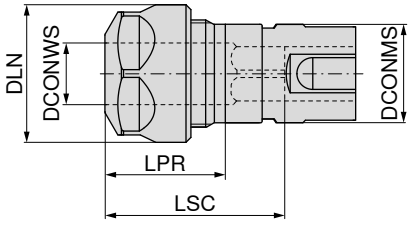
Coolant transfer pipe
→ 156

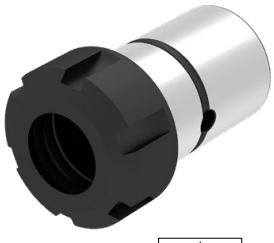
Others
→ 284

Insert for synchro quick change tapping chuck with minimum length compensation

- SZID = for insert size

Scope of supply:
Includes lock nut





83 608 ...

SZID	DCONWS mm	cutting range	LPR mm	DLN mm	LSC mm	for collet	DCONMS mm	
1	2 - 10	M3 - M12	24	28	42	426E (ER16)	20	**012** [1]
2	2 - 16	M6 - M20	28	42	59	430E (ER25)	32	**020**

1) with 6 position lock nut

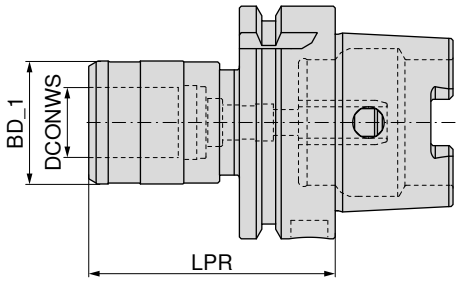
16

Spare parts for synchronous tapping chucks

		Lock nut		Lock nut IK		Lock nut		Y clamping key	
		62 950 ...		**83 950 ...**		**62 950 ...**		**83 357 ...**	
Spare parts for Article no.									
83 608 012	M22x1,5 - SW25	**044**		M22x1,5	**054**	M22x1,5	**054**		**116**
83 608 020				M32x1,5	**055**	M32x1,5	**055**		**125**

Quick change tap chuck with length compensation

▲ With length compensation under tension and compression (LZD)
▲ also available with Balluff chip **on request**



Adapter	SZID	LPR mm	BD_1 mm	DCONWS mm	LZD± mm	**83 712 ...**
HSK-A 63	01	72	41	19	7,5	**612**
HSK-A 63	02	110	60	31	10	**620**
HSK-A 100	01	80	41	19	7,5	**112**
HSK-A 100	02	100	60	31	10	**120**

Accessories

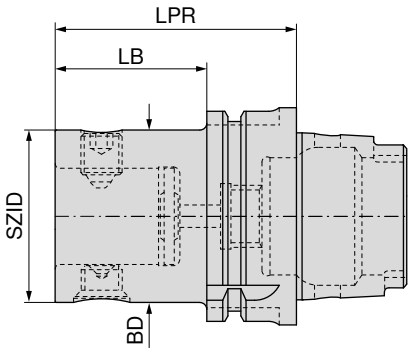
Collet
→ 288, 290–292

Coolant transfer pipe
→ 156

Others
→ 284

Adapter with ABS Connection

▲ also available with Balluff chip **on request**



G 6,3 n_{max} 10000

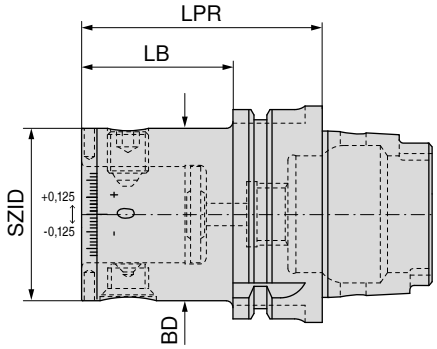
84 200 ...

Adapter	KOMET no.	SZID	BD mm	LPR mm	LB mm	
HSK-A 63	A06 30120	ABS 25	25	50	24	**06390**
HSK-A 63	A06 30130	ABS 32	32	50	24	**06389**
HSK-A 63	A06 30140	ABS 40	40	60	34	**06388**
HSK-A 63	A06 30150	ABS 50	50	70	44	**06397**
HSK-A 63	A06 30160	ABS 63	63	80	54	**06396**
HSK-A 63	A06 30170	ABS 80	80	100	74	**06392**
HSK-A 100	A06 50120	ABS 25	25	60	31	**10090**
HSK-A 100	A06 50130	ABS 32	32	60	31	**10089**
HSK-A 100	A06 50140	ABS 40	40	80	51	**10088**
HSK-A 100	A06 50150	ABS 50	50	80	51	**10097**
HSK-A 100	A06 50160	ABS 63	63	80	51	**10096**
HSK-A 100	A06 50170	ABS 80	80	90	61	**10092**
HSK-A 100	A06 50180	ABS 100	100	100	71	**10091**

Eccentric adjuster with ABS Connection

▲ Adjustment ± 0.25 mm on diameter
▲ also available with Balluff chip **on request**

Scope of supply:
Eccentric adjuster with adjuster key Ø 2.8 mm



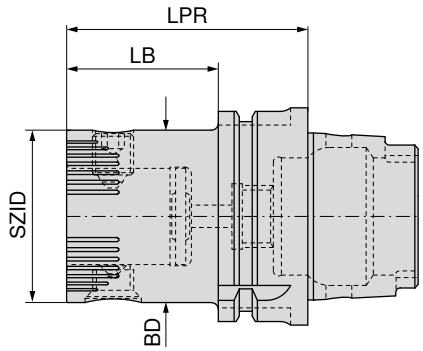
84 203 ...

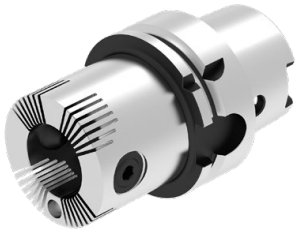
Adapter	KOMET no.	SZID	BD mm	LPR mm	LB mm	
HSK-A 63	A06 36730	ABS 50	50	70,0	39,5	**06397**
HSK-A 100	A06 56730	ABS 50	50	75,5	46,5	**10097**
HSK-A 100	A06 56740	ABS 63	63	80,0	51,0	**10096**

16

Torsional vibration dampers with ABS Connection

▲ also available with Balluff chip **on request**





Adapter	KOMET no.	SZID	BD mm	LPR mm	LB mm	84 206 ...
HSK-A 63	A06 30251	ABS 50	50	70	44	**06397**
HSK-A 63	A06 30261	ABS 63	63	80	54	**06396**
HSK-A 63	A06 30270	ABS 80	80	100	74	**06392**
HSK-A 100	A06 50251	ABS 50	50	80	51	**10097**
HSK-A 100	A06 50261	ABS 63	63	80	51	**10096**
HSK-A 100	A06 50270	ABS 80	80	90	61	**10092**

Clamping screw

Taper screw

Spare parts SZID	84 950 ...	84 950 ...
ABS 50	**20300**	**20400**
ABS 63	**25500**	**27300**
ABS 80	**25600**	**25100**

Accessories

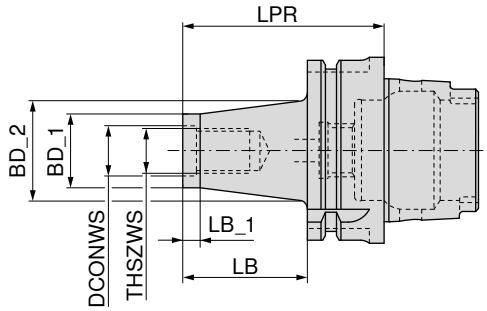
Coolant transfer pipe
→ 156

Extension
→ 187

Others
→ 284

Adapter for milling cutters with threaded end

▲ also available with Balluff chip **on request**



G 2,5 n_{max} 30000

56 714 ...

Adapter	THSZWS	DCONWS mm	LB mm	BD_1 mm	BD_2 mm	LB_1 mm	LPR mm	
HSK-A 63	M8	8,5	25	13,8	15	12	51	**081**
HSK-A 63	M8	8,5	50	13,8	23	12	76	**082**
HSK-A 63	M8	8,5	75	13,8	25	12	101	**083**
HSK-A 63	M8	8,5	100	13,8	30	12	126	**084**
HSK-A 63	M10	10,5	25	18,0	23	12	51	**101**
HSK-A 63	M10	10,5	50	18,0	25	12	76	**102**
HSK-A 63	M10	10,5	75	18,0	30	12	101	**103**
HSK-A 63	M10	10,5	100	18,0	35	12	126	**104**
HSK-A 63	M12	12,5	25	21,0	24	12	51	**121**
HSK-A 63	M12	12,5	50	21,0	30	12	76	**122**
HSK-A 63	M12	12,5	75	21,0	35	12	101	**123**
HSK-A 63	M12	12,5	100	21,0	38	12	126	**124**
HSK-A 63	M12	12,5	125	21,0	43	12	151	**125**
HSK-A 63	M12	12,5	150	21,0	45	12	176	**126**
HSK-A 63	M16	17,0	25	29,0	29	12	51	**161**
HSK-A 63	M16	17,0	50	29,0	34	12	76	**162**
HSK-A 63	M16	17,0	75	29,0	35	12	101	**163**
HSK-A 63	M16	17,0	100	29,0	40	12	126	**164**
HSK-A 63	M16	17,0	125	29,0	44	12	151	**165**
HSK-A 63	M16	17,0	150	29,0	48	12	176	**166**

Accessories

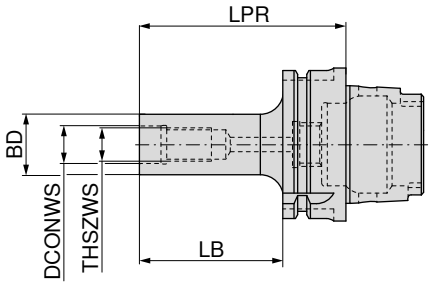
Extension-Reduction set
→ 257

Coolant transfer pipe
→ 156

Others
→ 284

Adapter for milling cutters with threaded end

▲ also available with Balluff chip **on request**



G 2,5 n_{max} 25000

56 719 ...

Adapter	THSZWS	DCONWS mm	BD mm	LB mm	LPR mm	
HSK-A 63	M8	8,5	13,8	50	76	**082**
HSK-A 63	M10	10,5	18,0	50	76	**102**
HSK-A 63	M10	10,5	18,0	100	126	**104**
HSK-A 63	M12	12,5	21,0	50	76	**122**
HSK-A 63	M12	12,5	21,0	100	126	**124**
HSK-A 63	M16	17,0	29,0	50	76	**162**
HSK-A 63	M16	17,0	29,0	100	126	**164**

Accessories

Extension-Reduction set
→ 257

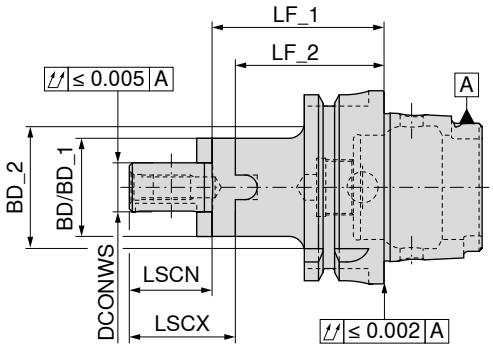
Coolant transfer pipe
→ 156

Others
→ 284

Combination shell mill adapter

▲ For milling cutters with transverse or longitudinal groove according to DIN 6358
▲ also available with Balluff chip **on request**

Scope of supply:
Toolholder with clamping screw, driving ring and dowel spring



NEW

G 2,5 n_{max} 25000

82 744 ...

	Adapter	DCONWS mm	LF_1 mm	LF_2 mm	BD mm	BD_1 mm	BD_2 mm	LSCX mm	LSCN mm	BHTA	
short	HSK-A 63	16	60	50	32			27	17		**11657**
	HSK-A 63	22	60	48	40			31	19		**12257**
	HSK-A 63	27	60	48	48			33	21		**12757**
	HSK-A 63	32	60	46	58			38	24		**13257**
	HSK-A 63	40	70	56	70			41	27		**14057**
	HSK-A 100	16	60	50	32			27	17		**11655**
	HSK-A 100	22	60	48	40			31	19		**12255**
	HSK-A 100	27	60	48	48			33	21		**12755**
	HSK-A 100	32	60	46	58			38	24		**13255**
	HSK-A 100	40	70	56	70			41	27		**14055**
medium length	HSK-A 63	16	100	90	32			27	17		**21657**
	HSK-A 63	22	100	88	40			31	19		**22257**
	HSK-A 63	27	100	88	48			33	21		**22757**
	HSK-A 63	32	100	86	58			38	24		**23257**
	HSK-A 63	40	100	86	70			41	27		**24057**
extra-long	HSK-A 63	16	160	150		32	43,21	27	17	4,5°	**41657**
	HSK-A 63	22	160	148		40	47,25	31	19	3,0°	**42257**
	HSK-A 63	27	160	148	48			33	21		**42757**
	HSK-A 63	32	160	146	58			38	24		**43257**
	HSK-A 63	40	160	146	70			41	27		**44057**

Parallel key

Drive ring

clamping screw

83 950 ... **83 370 ...** **83 950 ...**

Spare parts

DCONWS							
16	4 x 4 x 20	**284**		**116**	M8x25	**113**
22	6 x 6 x 25	**285**		**122**	M10x25	**124**
27	7 x 7 x 25	**286**		**127**	M12x30	**125**
32	8 x 7 x 28	**287**		**132**	M16x35	**126**
40	10 x 8 x 32	**288**		**140**	M20x40 - SW17	**112**

Accessories

Milling Adapter Rings → 263

Coolant transfer pipe → 156

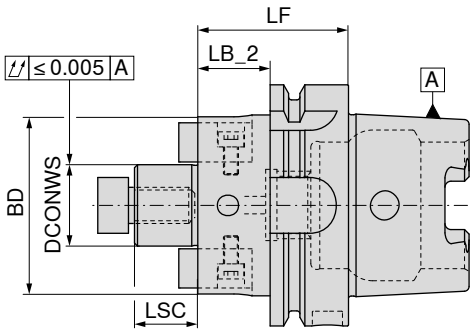
Others → 284

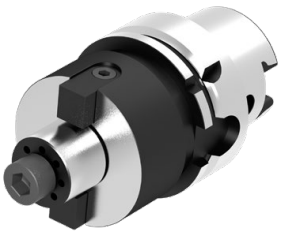
16

Shell mill adapter with reduced flange diameter

▲ Screwed drive dogs
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with retaining screw and drive dog





NEW

G 2,5 n_{max} 25000

82 315 ...

	Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm	
short	HSK-A 63	22	34	60	38	19	**12257**
	HSK-A 63	27	34	60	48	21	**12757**
	HSK-A 100	22	31	60	38	19	**12255**
	HSK-A 100	27	31	60	48	21	**12755**

These shell mill adapters have been specially developed for MaxiMill 211-KN porcupine cutters.
Now they can be clamped perfectly, thanks to the adapted flange diameters.

Screw for drivers

Driver

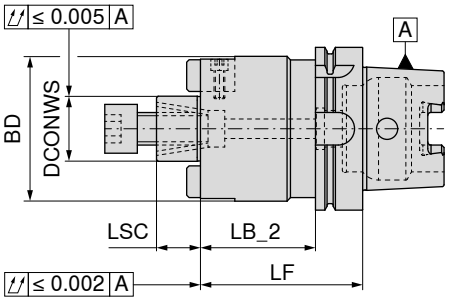
clamping screw

Spare parts DCONWS		83 950 ...		83 950 ...		83 950 ...
22	M4x8	**51700**	10x7x20,5	**51500**	M10x25	**124**
27	M5x8	**51800**	12x9x24,3	**51600**	M12x30	**125**

Shell mill adapter

▲ for face mills with transverse groove ISO 3937
▲ also available with Balluff chip **on request**

Scope of supply:
Toolholder with retaining screw and drive dogs



NEW

G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	BD_1 mm	BD_2 mm	LSC mm	82 745 ...
short	HSK-A 63	16	34	60	38			17	11657
	HSK-A 63	22	34	60	48			19	12257
	HSK-A 63	27	34	60	58			21	12757
	HSK-A 63	32	34	60	78			24	13257
	HSK-A 63	40	34	70	88			27	14057[1)]
	HSK-A 100	16	31	60	38			17	11655
	HSK-A 100	22	31	60	48			19	12255
	HSK-A 100	27	31	60	58			21	12755
	HSK-A 100	32	31	60	78			24	13255
	HSK-A 100	40	41	70	88			27	14055[1)]
medium length	HSK-A 63	16	74	100		38	44,3	17	21657
	HSK-A 63	22	74	100		48	50,3	19	22257
	HSK-A 63	27	74	100	58			21	22757
	HSK-A 63	32	74	100	78			24	23257
	HSK-A 63	40	74	100	88			27	24057[1)]
	HSK-A 100	16	71	100		38	46,3	17	21655
	HSK-A 100	22	71	100		48	56,3	19	22255
	HSK-A 100	27	71	100		58	66,3	21	22755
	HSK-A 100	32	71	100		78	80,3	24	23255
	HSK-A 100	40	71	100	88			27	24055[1)]
long	HSK-A 63	16	104	130		38	44,3	17	31657
	HSK-A 63	22	104	130		48	50,3	19	32257
	HSK-A 63	27	104	130	58			21	32757
	HSK-A 63	32	104	130	78			24	33257
	HSK-A 63	40	104	130	88			27	34057[1)]
	HSK-A 100	16	101	130		38	46,3	17	31655
	HSK-A 100	22	101	130		48	56,3	19	32255
	HSK-A 100	27	101	130		58	66,3	21	32755
	HSK-A 100	32	101	130		78	80,3	24	33255
	HSK-A 100	40	101	130	88			27	34055[1)]
extra-long	HSK-A 63	16	134	160		38	44,3	17	41657
	HSK-A 63	22	134	160		48	50,3	19	42257
	HSK-A 63	27	134	160	58			21	42757
	HSK-A 63	32	134	160	78			24	43257
	HSK-A 63	40	134	160	88			27	44057[1)]
	HSK-A 100	16	131	160		38	46,3	17	41655
	HSK-A 100	22	131	160		48	56,3	19	42255
	HSK-A 100	27	131	160		58	66,3	21	42755
	HSK-A 100	32	131	160		78	80,3	24	43255
	HSK-A 100	40	131	160	88			27	44055[1)]

1) with cross screw and 4 holes M12, Pitch Circle diameter = 66.7 mm, coolant outlet on the outer diameter of the spigot (DCONWS)!

Spare parts facemill adapters

Cross nut key

Cross screw

clamping screw

Spare parts DCONWS	83 368 ...		83 367 ...		83 950 ...
16	**116**	M8	**016**	M8x25	**113**
22	**122**	M10	**022**	M10x25	**124**
27	**127**	M12	**027**	M12x30	**125**
32	**132**	M16	**032**	M16x35	**126**
40	**140**	M20	**040**	M20x40 - SW17	**112**

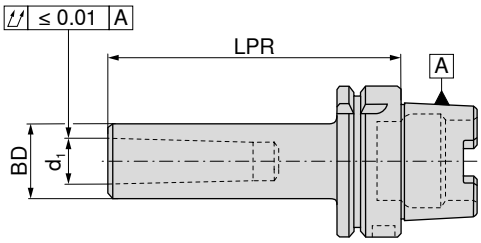
Screw for drivers

Driver

Spare parts DCONWS		83 950 ...		83 950 ...
16	M3x8	**296**	8x9x17,5	**120**
22	M4x12	**297**	10x11x20,5	**121**
27	M5x12	**136**	12x13x24,3	**122**
32	M5x20	**137**	14x21x21,2	**123**
40	M6x16	**138**	15,9x16,3x19,5	**295**

Milling sleeve adapter for Morse taper shanks to DIN 228-2 D

▲ also available with Balluff chip **on request**



NEW

G 6,3 n_{max} 8000

82 746 ...

Adapter	d_1	LPR mm	BD mm	
HSK-A 63	MK1	100	25	**01057**
HSK-A 63	MK2	120	32	**02057**
HSK-A 63	MK3	140	40	**03057**
HSK-A 63	MK4	160	48	**04057**
HSK-A 100	MK2	120	32	**02055**
HSK-A 100	MK3	150	40	**03055**
HSK-A 100	MK4	170	48	**04055**

Accessories

Morse taper adapter sleeve
→ 242

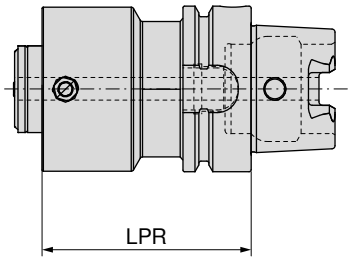
Coolant transfer pipe
→ 156

Others
→ 284

16

HSK-T extension

▲ for mounting HSK-T adapters according to ISO 12164-3
▲ also suitable for HSK-A and HSK-C
▲ also available with Balluff chip **on request**

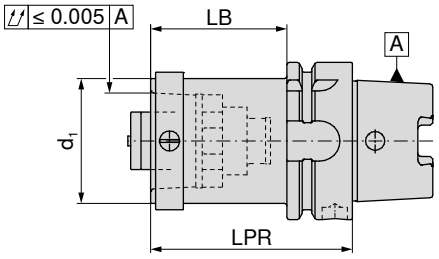


Adapter	LPR mm	84 621 ...
HSK-T 63	80	**08037**
HSK-T 63	120	**12037**
HSK-T 100	125	**12535**
HSK-T 100	160	**16035**
HSK-T 100	200	**20035**

HSK-A reduction

▲ for mounting HSK-A adapters according to ISO 12164
▲ also available with Balluff chip **on request**

Scope of supply:
with clamping cartridge and cover ring

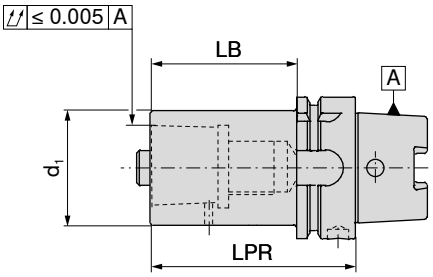


Adapter	d_1	LB mm	LPR mm	84 040 ...
HSK-A 63	HSK-A 40	54	80	**06359**
HSK-A 63	HSK-A 50	54	80	**06358**
HSK-A 100	HSK-A 50	51	80	**10058**
HSK-A 100	HSK-A 63	71	100	**10057**

HSK-A/PSC adapter

▲ for mounting PSC adapters according to ISO 26623-1
▲ also available with Balluff chip **on request**

Scope of supply:
with tightening screw



Adapter	d_1	LB mm	LPR mm	84 013 ...
HSK-A 63	PSC 32	49	75	**06387**
HSK-A 63	PSC 40	54	80	**06395**
HSK-A 63	PSC 50	64	90	**06394**
HSK-A 100	PSC 32	51	80	**10087**
HSK-A 100	PSC 40	61	90	**10095**
HSK-A 100	PSC 50	71	100	**10094**
HSK-A 100	PSC 63	81	110	**10093**
HSK-A 100	PSC 80	91	120	**10086**

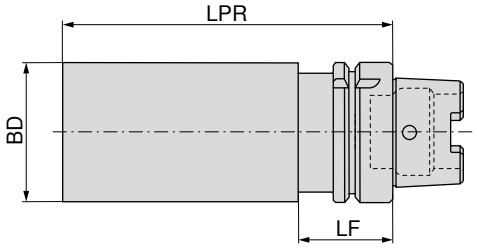
Threaded ring

tightening screw

Spare parts d_1	84 950 ...		84 950 ...
PSC 32	**127**	SW8	**122**
PSC 40	**128**	SW8	**123**
PSC 50	**129**	SW10	**124**
PSC 63	**130**	SW14	**126**
PSC 80	**130**	SW14	**126**

Blank

- ▲ Material: 16MnCr5
- ▲ for production of special tools
- ▲ Taper hardened and ground
- ▲ Tool 27$^{\pm 1}$ HRC
- ▲ also available with Balluff chip **on request**



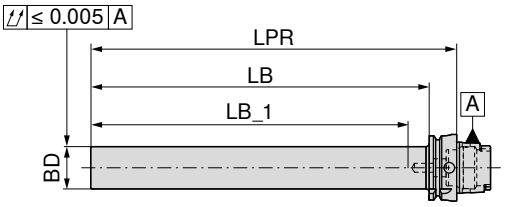
NEW

82 747 ...

Adapter	BD mm	LPR mm	LF mm	
HSK-A 63	63,0	200	42	**16357**
HSK-A 63	80,0	250	42	**18057**
HSK-A 100	63,0	200		**16355**
HSK-A 100	80,0	250		**18055**
HSK-A 100	97,5	250	45	**19755**

Test arbor

Scope of supply:
in wooden box



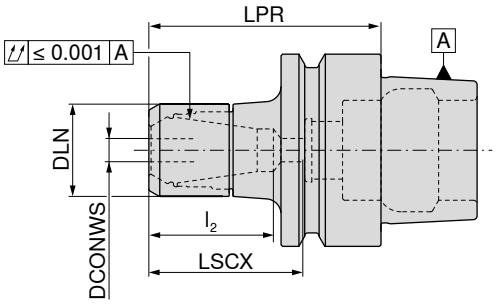
81 746 ...

Adapter	BD mm	LPR mm	LB_1 mm	LB mm	
HSK-A 63	40	346	300	320	**063**
HSK-A 100	40	349	300	320	**100**

ER Precision Collet chuck – Centro-P

- ▲ for standard or sealed nuts
- ▲ maximum size collet to ISO tolerance field H10
- ▲ for clamping a roll key is required
- ▲ p_{max} = 80 bar

Scope of supply:
Holder **without** nut, **without** backstop



G 2,5 n_{max} 30000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 mm	for collet	84 776 ...
HSK-E 40	2 - 16	60	40	39		430E (ER25)	**417**
HSK-E 50	2 - 16	70	40	49	30 - 39	430E (ER25)	**516**

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1
Dimension LPR when using tightening nuts with seals 4 mm longer

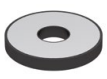
Lock nut IK

Lock nut

Spare parts for collet	84 950 ...	84 950 ...
430E (ER25)	**013**	**003**

Accessories

ER collet
→ 268–276, 279


Sealing ring
→ 280

Roll key
→ 286

Roll key device
→ 286

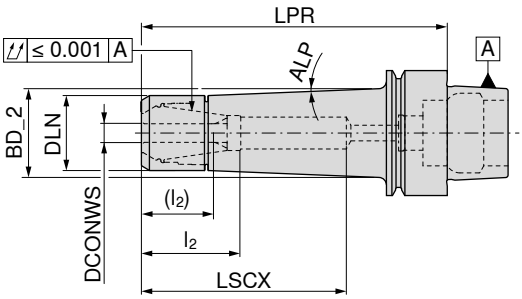
Coolant transfer pipe
→ 156

Others
→ 284

ER Precision tapered collet chuck – Centro-P

- ▲ for Mini Clamping Nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 80 bar

Scope of supply:
Holder **without** nut, **without** backstop



G 2,5 n_{max} 30000

	Adapter	DCONWS mm	LPR mm	DLN mm	BD_2 mm	LSCX mm	l_2 (l_2) mm	ALP	for collet	**84 774 ...**
short	HSK-E 25	1 - 7	35	16		22			4008E (ER11 mini)	**07200**
	HSK-E 32	1 - 7	50	16	17,5	31	18 - 20	4,5°	4008E (ER11 mini)	**307**
	HSK-E 40	1 - 7	50	16	17,5	31	18 - 20	4,5°	4008E (ER11 mini)	**407**
	HSK-E 25	1 - 10	45	22		30			426E (ER16 mini)	**101**
	HSK-E 32	1 - 10	55	22	25,8	40	28 - 32 (12 - 22)	4,5°	426E (ER16 mini)	**310**
	HSK-E 40	1 - 10	55	22	25,8	38	28 - 30 (12 - 20)	4,5°	426E (ER16 mini)	**410**
	HSK-E 50	1 - 10	60	22	25,4	39	28 - 31 (12 - 21)	4,5°	426E (ER16 mini)	**510**
medium length	HSK-E 40	1 - 7	100	16	25,4	64	18 - 36 (12 - 26)	4,5°	4008E (ER11 mini)	**408**
	HSK-E 40	1 - 10	100	22	29,0	66	28 - 48 (12 - 38)	2,5°	426E (ER16 mini)	**411**
	HSK-E 50	1 - 10	100	22	28,2	72	28 - 48 (12 - 38)	2,5°	426E (ER16 mini)	**511**

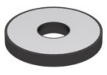
→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

Spare parts for collet	Mini lock nut IK **84 950 ...**	Mini lock nut **84 950 ...**	Stop screw 2 **83 950 ...**	Stop screw 1 **83 950 ...**
4008E (ER11 mini)		**041**	**340**	**336**
426E (ER16 mini)	**035**	**034**	**341**	**337**

Accessories

ER collet → 268–276, 279


Sealing ring → 280

Device → 285

Roll key → 286

Roll key device → 286

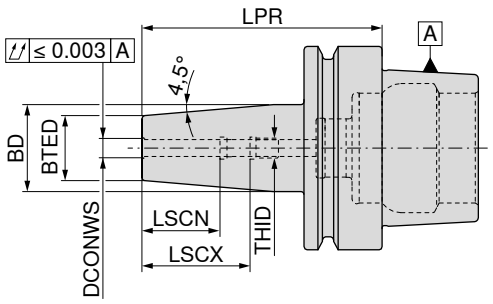
Coolant transfer pipe → 156

Others → 284

Shrink fit adapters

▲ for solid carbide and HSS shanks to h6 tolerance or better

TG



	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	G 2,5 n_{max} 25000 84 308 ...	G 2,5 n_{max} 25000 84 309 ...
short	HSK-E 40	3	60	10	15	28	12	M6	103	
	HSK-E 40	4	60	10	15	28	16	M6	104	
	HSK-E 40	5	60	10	15	30	20	M6	105	
	HSK-E 40	6	80	21	27	36	26	M5	106	
	HSK-E 40	8	80	21	27	36	26	M6	108	
	HSK-E 40	10	80	24	32	41	31	M8x1	110	
	HSK-E 40	12	90	24	32	47	37	M10x1	112	
	HSK-E 40	14	90	27	34	47	37	M10x1	114	
	HSK-E 40	16	90	27	34	50	40	M12x1	116	
	HSK-E 50	3	80	10	15	22	12	M6		103
	HSK-E 50	4	80	15	22	26	16	M6		104
	HSK-E 50	5	80	15	22	30	20	M6		105
	HSK-E 50	6	80	21	27	36	26	M5		106
	HSK-E 50	8	80	21	27	36	26	M6		108
	HSK-E 50	10	85	24	32	41	31	M8x1		110
	HSK-E 50	12	90	24	32	47	37	M10x1		112
	HSK-E 50	14	90	27	34	47	37	M10x1		114
	HSK-E 50	16	95	27	34	50	40	M12x1		116
	HSK-E 50	18	95	33	42	50	40	M12x1		118
	HSK-E 50	20	100	33	42	52	42	M16x1		120

→ Min. clamping depth, Page 312

Stop screw IK

Thro' coolant back stop screw

Stop screw IK

Spare parts DCONWS		83 950 ...		83 950 ...		83 950 ...
3 - 5	M6x14 - SW2	417	M5x14 - SW2	411		
6					M5x12,5 - SW2,5	418
8					M6x12,5 - SW3	419
10					M8x1x13,5 - SW3	420
12 - 14					M10x1x13,5 - SW5	421
16 - 18					M12x1x13,5 - SW5	422
20					M16x1x13,5 - SW5	423

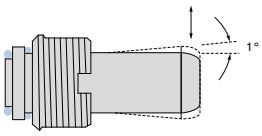
Spare part 83 950 411 only for HSK-E 32. Spare part 83 950 417 for HSK-E 40/HSK-E 50.

16

Coolant pipe – HSK

▲ use up to 100 bar

Scope of supply:
complete, including seals

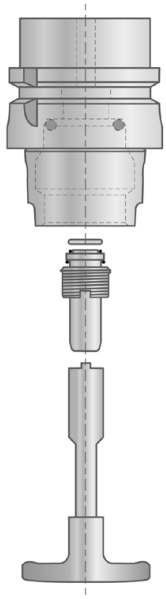


Adapter	THOD	83 760 ...
HSK 32	M10 x 1	032
HSK 40	M12 x 1	040
HSK 50	M16 x 1	050
HSK 63	M18 x 1	063
HSK 80	M20 x 1,5	080
HSK 100	M24 x 1,5	100

Key – HSK

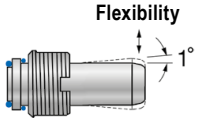
Adapter	83 758 ...
HSK 32	032
HSK 40	040
HSK 50	050
HSK 63	063
HSK 80	080
HSK 100	100

Coolant pipe for HSK tools



The coolant pipe is ideally mounted in vertical direction – from the bottom to the top. In this manner the sealing ring is prevented from being compressed during locating which would cause the loss of its sealing function. After mounting, the coolant pipe can be moved only to a minimum degree according to DIN (± 1°).

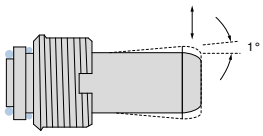
Flexibility



Coolant transfer pipe with strainer – HSK

▲ 75 µ filter screen, usable up to 80 bar

Scope of supply:
Complete, including sealing rings and filter screen



NEW

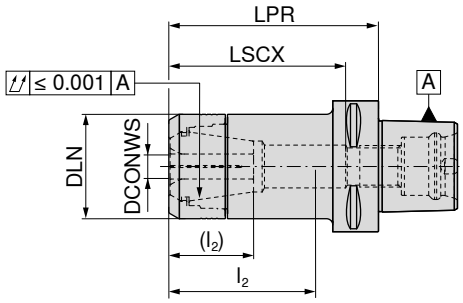
Adapter	THOD	83 760 ...
HSK 63	M18 x 1	16300
HSK 100	M24 x 1,5	20000

For usage with micro tools with thro‘ coolant, improved tool life due to reduced contamination of the coolant hole

ER Precision Collet chuck – Centro-P

- ▲ for standard or sealed nuts
- ▲ maximum size collet to ISO tolerance field H10
- ▲ for clamping a roll key is required
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:
Holder **without** nut, **without** backstop



G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	84 112 ...
PSC 40	1 - 10	55	30	47	29 - 38	426E (ER16)	**402**
PSC 50	1 - 10	60	30	47	29 - 38	426E (ER16)	**501**
PSC 50	1 - 10	100	30	87	29 - 51 (29 - 37)	426E (ER16)	**502**
PSC 50	1 - 16	60	40	48		430E (ER25)	**505**
PSC 50	2 - 20	60	50	49		470E (ER32)	**507**
PSC 63	1 - 10	60	30	44		426E (ER16)	**601**
PSC 63	1 - 10	100	30	83	29 - 53 (25 - 39)	426E (ER16)	**602**
PSC 63	1 - 16	60	40	38		430E (ER25)	**605**
PSC 63	1 - 16	100	40	78	36 - 62 (30 - 45)	430E (ER25)	**606**
PSC 63	1 - 16	130	40	99	34 - 70 (30 - 50)	430E (ER25)	**607**
PSC 63	1 - 16	160	40	118	34 - 70 (30 - 50)	430E (ER25)	**608**
PSC 63	2 - 20	60	50	42		470E (ER32)	**609**
PSC 63	2 - 20	100	50	79	45 - 63 (25 - 45)	470E (ER32)	**610**
PSC 63	2 - 20	130	50	99	45 - 63 (25 - 53)	470E (ER32)	**611**
PSC 63	3 - 26	65	63	51		472E (ER40)	**612**

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

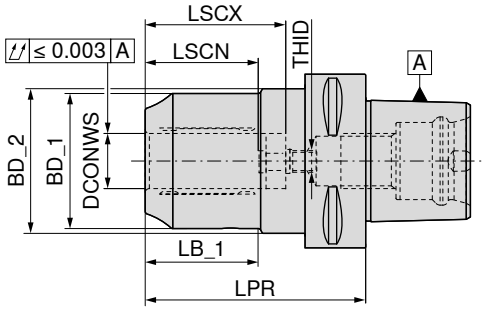
Spare parts for collet	Lock nut IK 84 950 ...		Lock nut 84 950 ...		Stop screw 2 83 950 ...		Stop screw 1 83 950 ...	
426E (ER16)	**011**		**001**	M11x1 - SW6	**341**	M11x1 - SW6	**337**	
430E (ER25)	**013**		**003**	M18x1,5 - SW6	**432**	M18x1,5 - SW6	**431**	
470E (ER32)	**015**		**005**	M22x1,5 - SW6	**402**	M22x1,5 - SW6	**401**	
472E (ER40)	**017**		**007**			M28x1,5 - SW6	**400**	

16

HyPower – Complus

▲ High pressure chuck, short and stable version
▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw



G 2,5 n_{max} 25000

84 108 ...

Adapter	DCONWS mm	LPR mm	LB_1 mm	BD_1 mm	BD_2 mm	LSCX mm	LSCN mm	THID	
PSC 63	20	80	41	49	52,5	51	41	M8x1	**62000**

→ Min. clamping depth, Page 312

Cylindrical screw
83 950 ...

Clamping key – T
80 397 ...

Pressure screw
83 950 ...

Stop screw IK
83 950 ...

Spare parts for Article no.								
84 108 62000	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x14	**429**	M16x1x13,5 - SW8	**424**

Accessories

Reduction sleeve
→ 282

Coolant transfer pipe
→ 176

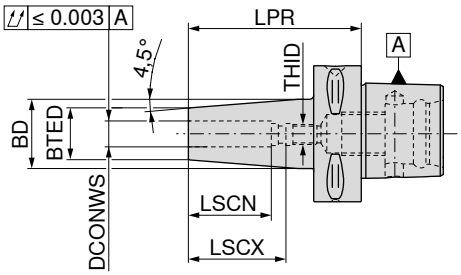
Others
→ 284

Shrink adapters

▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Holder **without** IK back stop screw

TG



G 6,3 n_{max} 15000

84 104 ...

	Adapter	LPR mm	DCONWS mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	
short	PSC 32	65	6	21	27	36	26	M5	**306**
	PSC 32	65	8	21	27	36	26	M6	**308**
	PSC 32	70	10	24	32	41	31	M8x1	**310**
	PSC 32	75	12	24	32	47	37	M10x1	**312**
	PSC 40	75	6	21	27	36	26	M5	**406**
	PSC 40	75	8	21	27	36	26	M6	**408**
	PSC 40	75	10	24	32	41	31	M8x1	**410**
	PSC 40	75	12	24	32	47	37	M10x1	**412**
	PSC 40	80	14	27	34	47	37	M10x1	**414**
	PSC 40	80	16	27	34	50	40	M12x1	**416**
	PSC 40	80	18	33	42	50	40	M12x1	**418**
	PSC 40	85	20	33	42	52	42	M16x1	**420**
	PSC 50	65	3	12	17				**503**
	PSC 50	65	4	12	17				**504**
	PSC 50	65	5	12	17				**505**
	PSC 50	75	6	21	30	36	26	M5	**506**
	PSC 50	75	8	21	30	36	26	M6	**508**
	PSC 50	75	10	24	33	41	31	M8x1	**510**
	PSC 50	75	12	24	33	47	37	M10x1	**512**
	PSC 50	80	14	27	34	47	37	M10x1	**514**
	PSC 50	80	16	27	34	50	40	M12x1	**516**
	PSC 50	80	18	33	42	50	40	M12x1	**518**
	PSC 50	85	20	33	42	52	42	M16x1	**520**
	PSC 50	90	25	44	53	58	48	M16x1	**525**
	PSC 63	80	3	12	17				**603**
	PSC 63	80	4	12	17				**604**
	PSC 63	80	5	12	17				**605**
	PSC 63	80	6	21	27	36	26	M5	**606**
	PSC 63	80	8	21	27	36	26	M6	**608**
	PSC 63	80	10	24	32	41	31	M8x1	**610**
	PSC 63	80	12	24	32	47	37	M10x1	**612**
	PSC 63	85	14	27	34	47	37	M10x1	**614**
	PSC 63	85	16	27	34	50	40	M12x1	**616**
	PSC 63	85	18	33	42	50	40	M12x1	**618**
	PSC 63	85	20	33	42	52	42	M16x1	**620**
	PSC 63	90	25	44	53	58	48	M16x1	**625**
	PSC 63	95	32	44	53	61	51	M16x1	**632**
	PSC 80	85	6	21	27	36	26	M5	**806**
	PSC 80	85	8	21	27	36	26	M6	**808**
	PSC 80	85	10	24	32	41	31	M8x1	**810**
	PSC 80	85	12	24	32	47	37	M10x1	**812**
	PSC 80	90	14	27	34	47	37	M10x1	**814**
	PSC 80	90	16	27	34	50	40	M12x1	**816**
	PSC 80	90	18	33	42	50	40	M12x1	**818**
	PSC 80	90	20	33	42	52	42	M16x1	**820**
	PSC 80	95	25	44	53	58	48	M16x1	**825**
	PSC 80	100	32	44	53	61	51	M16x1	**832**

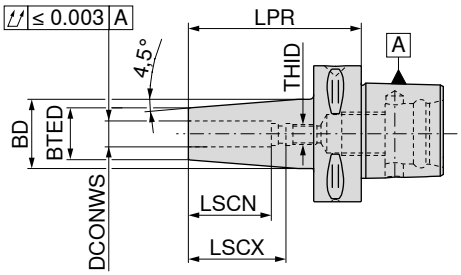
→ Min. clamping depth, Page 312

Shrink adapters

▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Holder **without** IK back stop screw

TG



	Adapter	LPR mm	DCONWS mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	G 6,3 n_{max} 15000 **84 105 ...**	G 6,3 n_{max} 15000 **84 106 ...**
medium length	PSC 50	120	6	21	32	36	26	M5	**506**	
	PSC 50	120	8	21	32	36	26	M6	**508**	
	PSC 50	120	10	24	34	41	31	M8x1	**510**	
	PSC 50	120	12	24	34	47	37	M10x1	**512**	
	PSC 50	120	14	27	36	47	37	M10x1	**514**	
	PSC 50	120	16	27	36	50	40	M12x1	**516**	
	PSC 50	120	18	33	42	50	40	M12x1	**518**	
	PSC 50	120	20	33	42	52	42	M16x1	**520**	
	PSC 50	120	25	44	53	58	48	M16x1	**525**	
	PSC 63	120	6	21	32	36	26	M5	**606**	
	PSC 63	120	8	21	32	36	26	M6	**608**	
	PSC 63	120	10	24	32	41	31	M8x1	**610**	
	PSC 63	120	12	24	32	47	37	M10x1	**612**	
	PSC 63	120	14	27	36	47	37	M10x1	**614**	
	PSC 63	120	16	27	36	50	40	M12x1	**616**	
	PSC 63	120	18	33	44	50	40	M12x1	**618**	
	PSC 63	120	20	33	44	52	42	M16x1	**620**	
	PSC 63	120	25	44	53	58	48	M16x1	**625**	
	PSC 63	120	32	44	53	61	51	M16x1	**632**	
	PSC 80	120	6	21	32	36	26	M5	**806**	
	PSC 80	120	8	21	32	36	26	M6	**808**	
	PSC 80	120	10	24	34	41	31	M8x1	**810**	
	PSC 80	120	12	24	34	47	37	M10x1	**812**	
	PSC 80	120	14	27	36	47	37	M10x1	**814**	
	PSC 80	120	16	27	36	50	40	M12x1	**816**	
	PSC 80	120	18	33	44	50	40	M12x1	**818**	
	PSC 80	120	20	33	44	52	42	M16x1	**820**	
	PSC 80	120	25	44	53	58	48	M16x1	**825**	
	PSC 80	120	32	44	53	61	51	M16x1	**832**	
extra-long	PSC 63	160	6	21	32	36	26	M5		**606**
	PSC 63	160	8	21	32	36	26	M6		**608**
	PSC 63	160	10	24	34	41	31	M8x1		**610**
	PSC 63	160	12	24	34	47	37	M10x1		**612**
	PSC 63	160	14	27	36	47	37	M10x1		**614**
	PSC 63	160	16	27	36	50	40	M12x1		**616**
	PSC 63	160	18	33	44	50	40	M12x1		**618**
	PSC 63	160	20	33	44	52	42	M16x1		**620**
	PSC 63	160	25	44	53	58	48	M16x1		**625**
	PSC 63	160	32	44	53	61	51	M16x1		**632**

→ Min. clamping depth, Page 312

Spare parts heat shrink adapter

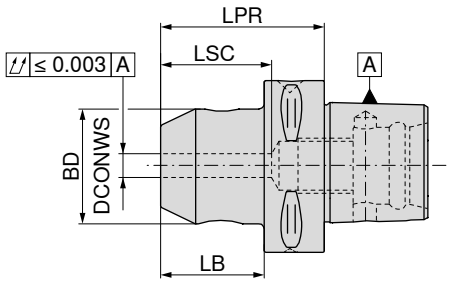
Backstop screw IK

84 950 ...

Spare parts DCONWS	
6	**140**
8	**141**
10	**142**
12 - 14	**143**
16 - 18	**144**
20 - 32	**145**

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**



G 6,3 n_{max} 15000

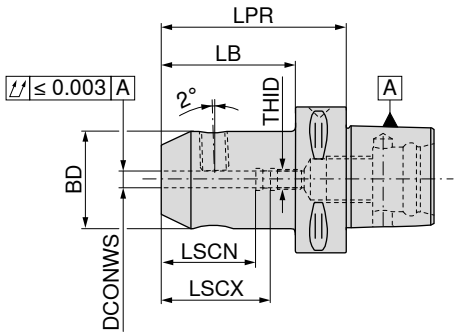
84 100 ...

Adapter	DCONWS mm	LPR mm	BD mm	LB mm	LSC mm	
PSC 32	6	45	25	30	35	**306**
PSC 32	8	45	28	30	35	**308**
PSC 32	10	50	35	35	39	**310**
PSC 32	12	55	42	40	44	**312**
PSC 40	6	50	25	30	35	**406**
PSC 40	8	50	28	30	35	**408**
PSC 40	10	50	35	30	39	**410**
PSC 40	12	55	42	35	44	**412**
PSC 40	14	55	44	35	44	**414**
PSC 40	16	55	48	35	47	**416**
PSC 50	6	50	25	30	35	**506**
PSC 50	8	50	28	30	35	**508**
PSC 50	10	55	35	35	39	**510**
PSC 50	12	60	42	40	44	**512**
PSC 50	14	60	44	40	44	**514**
PSC 50	16	60	48	40	47	**516**
PSC 50	18	60	50	40	47	**518**
PSC 50	20	60	52	40	47	**520**
PSC 50	25	80	65	60	54	**525** [1]
PSC 63	6	55	25	33	35	**606**
PSC 63	8	55	28	33	35	**608**
PSC 63	10	60	35	38	39	**610**
PSC 63	12	60	42	38	44	**612**
PSC 63	14	60	44	38	44	**614**
PSC 63	16	65	48	43	47	**616**
PSC 63	18	65	50	43	47	**618**
PSC 63	20	65	52	43	49	**620**
PSC 63	25	80	65	58	54	**625** [1]
PSC 63	32	90	72	68	58	**632** [1]
PSC 63	40	100	80	78	75	**640** [1]
PSC 80	6	70	25	40	35	**806**
PSC 80	8	70	28	40	35	**808**
PSC 80	10	70	35	40	39	**810**
PSC 80	12	70	42	40	44	**812**
PSC 80	14	70	44	40	44	**814**
PSC 80	16	70	48	50	47	**816**
PSC 80	18	70	50	40	47	**818**
PSC 80	20	70	52	40	49	**820**
PSC 80	25	80	65	50	54	**825** [1]
PSC 80	32	80	72	50	58	**832** [1]
PSC 80	40	110	80	80	75	**840** [1]
PSC 80	50	120	100	90	83	**850** [1]

1) Version with two grubscrews

Cylindrical Shank Adapter (Whistle Notch)

▲ For shanks according to DIN 6535 HE / 1835 E with angled clamping flat
▲ also available with Balluff chip **on request**



G 6,3 n_{max} 15000

Adapter	DCONWS mm	LPR mm	BD mm	LB mm	LSCX mm	LSCN mm	THID	84 102 ...
PSC 32	6	70	25	55	38	28	M5	**306**
PSC 32	8	70	28	55	38	28	M6	**308**
PSC 32	10	70	35	55	41	31	M8	**310**
PSC 32	12	75	42	60	47	37	M10	**312**
PSC 40	6	70	25	50	38	28	M5	**406**
PSC 40	8	70	28	50	38	28	M6	**408**
PSC 40	10	70	35	50	41	31	M8	**410**
PSC 40	12	75	42	55	47	37	M10	**412**
PSC 40	14	75	44	55	47	37	M10	**414**
PSC 50	6	70	25	50	38	28	M5	**506**
PSC 50	8	70	28	50	38	28	M6	**508**
PSC 50	10	70	35	50	41	31	M8	**510**
PSC 50	12	75	42	55	47	37	M10	**512**
PSC 50	14	75	44	55	47	37	M10	**514**
PSC 50	16	80	48	60	50	40	M12	**516**
PSC 50	18	80	50	60	50	40	M12	**518**
PSC 50	20	85	52	65	52	42	M16	**520**
PSC 63	6	75	25	53	38	28	M5	**606**
PSC 63	8	75	28	53	38	28	M6	**608**
PSC 63	10	75	35	53	41	31	M8	**610**
PSC 63	12	80	42	58	47	37	M10	**612**
PSC 63	14	80	44	58	47	37	M10	**614**
PSC 63	16	80	48	58	50	40	M12	**616**
PSC 63	18	80	50	58	50	40	M12	**618**
PSC 63	20	85	52	63	52	42	M16	**620**
PSC 63	25	90	65	68	58	48	M16	**625** 1)
PSC 63	32	95	72	73	61	51	M16	**632** 1)
PSC 80	6	65	25	35	38	28	M5	**806**
PSC 80	8	65	28	35	38	28	M6	**808**
PSC 80	10	65	35	35	41	31	M8	**810**
PSC 80	12	70	42	40	47	37	M10	**812**
PSC 80	14	70	44	40	47	37	M10	**814**
PSC 80	16	75	48	45	50	40	M12	**816**
PSC 80	18	75	50	45	50	40	M12	**818**
PSC 80	20	80	52	50	52	42	M16	**820**
PSC 80	25	90	65	60	58	48	M16	**825** 1)
PSC 80	32	95	72	65	61	51	M16	**832** 1)

1) Version with two grubscrews

Grubscrew

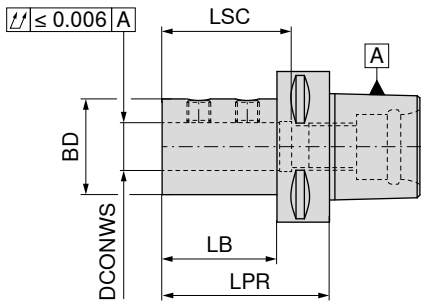
Backstop screw IK

Spare parts DCONWS	62 950 ...		84 950 ...	
6	M6x10	**006**	M5	**146**
8	M8x10	**008**	M6	**147**
10	M10x12	**010**	M8	**148**
12 - 14	M12x16	**012**	M10	**149**
16 - 18	M14x16	**016**	M12	**150**
20	M16x16	**020**	M16	**151**
25	M18x2x20	**025**	M16	**151**
32	M20x2x20	**032**	M16	**151**

16

Indexable insert drill adapter ISO 26623-1 PSC

- ▲ Run-out ≤ 0.005 mm
- ▲ max. speed 5,000 rpm
- ▲ Also available with Balluff chip **on request**



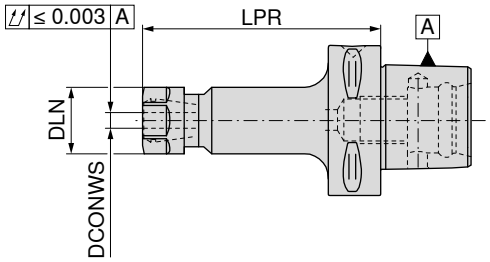
Adapter	DCONWS mm	LPR mm	BD mm	LB mm	LSC mm	84 128 ...
PSC 32	16	60	36	45	49	**316**
PSC 32	20	60	40	45	54	**320**
PSC 40	16	60	36	40	49	**416**
PSC 40	20	60	40	40	54	**420**
PSC 40	25	70	45	50	59	**425**
PSC 50	16	65	36	45	49	**516**
PSC 50	20	65	40	45	54	**520**
PSC 50	25	70	45	50	59	**525**
PSC 50	32	75	52	55	63	**532**
PSC 63	16	70	36	48	49	**616**
PSC 63	20	70	40	48	54	**620**
PSC 63	25	75	45	53	59	**625**
PSC 63	32	75	52	53	63	**632**
PSC 63	40	85	65	63	73	**640**
PSC 63	50	115	75	93	83	**650**
PSC 80	16	80	36	50	49	**816**
PSC 80	20	80	40	50	54	**820**
PSC 80	25	85	45	55	59	**825**
PSC 80	32	90	52	60	63	**832**
PSC 80	40	95	65	65	73	**840**
PSC 80	50	100	75	70	83	**850**

Grubscrew

Spare parts DCONWS		83 950 ...
16 - 20	M10x1x10	**180**
25 - 32	M12x1x12	**181**
40 - 50	M16x1x13	**182**

ER Collet chuck

▲ also available with Balluff chip **on request**



G 6,3 n_{max} 15000

84 114 ...

Adapter	DCONWS mm	LPR mm	DLN mm	TQX Nm	for collet	
PSC 32	1 - 10	45	28	8 - 56	426E (ER16)	**304**
PSC 40	1 - 10	55	28	8 - 56	426E (ER16)	**404**
PSC 50	1 - 10	60	28	8 - 56	426E (ER16)	**504**
PSC 50	1 - 10	100	28	8 - 56	426E (ER16)	**506**
PSC 63	1 - 10	60	28	8 - 56	426E (ER16)	**604**
PSC 63	1 - 10	100	28	8 - 56	426E (ER16)	**606**
PSC 80	1 - 10	100	28	8 - 56	426E (ER16)	**806**
PSC 80	1 - 10	60	28	8 - 56	426E (ER16)	**804**

Lock nut

62 950 ...

Spare parts for collet		
426E (ER16)	M22x1,5 - SW25	**044**

Accessories

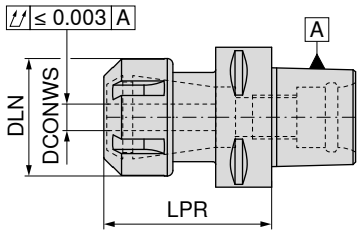
ER collet

→ 268–276, 279

16

ER Collet chuck

▲ also available with Balluff chip **on request**



G 6,3 n_{max} 15000

84 115 ...

Adapter	DCONWS mm	LPR mm	DLN mm	TQX Nm	for collet	
PSC 32	1 - 13	45	34	16 - 80	428E (ER20)	**306** [1]
PSC 40	1 - 13	55	34	16 - 80	428E (ER20)	**404** [1]
PSC 40	1 - 16	55	42	24 - 104	430E (ER25)	**406**
PSC 40	2 - 20	55	50	24 - 136	470E (ER32)	**408**
PSC 50	1 - 13	60	34	16 - 80	428E (ER20)	**502** [1]
PSC 50	1 - 13	100	34	16 - 80	428E (ER20)	**504** [1]
PSC 50	1 - 16	60	42	24 - 104	430E (ER25)	**506**
PSC 50	1 - 16	100	42	24 - 104	430E (ER25)	**508**
PSC 50	2 - 20	60	50	24 - 136	470E (ER32)	**510**
PSC 50	2 - 20	100	50	24 - 136	470E (ER32)	**512**
PSC 50	3 - 26	65	63	176	472E (ER40)	**514**
PSC 50	3 - 26	100	63	176	472E (ER40)	**516**
PSC 63	1 - 13	60	34	16 - 80	428E (ER20)	**602** [1]
PSC 63	1 - 13	100	34	16 - 80	428E (ER20)	**604** [1]
PSC 63	1 - 16	60	42	24 - 104	430E (ER25)	**606**
PSC 63	1 - 16	100	42	24 - 104	430E (ER25)	**608**
PSC 63	2 - 20	60	50	24 - 136	470E (ER32)	**610**
PSC 63	2 - 20	100	50	24 - 136	470E (ER32)	**612**
PSC 63	3 - 26	65	63	176	472E (ER40)	**614**
PSC 63	3 - 26	100	63	176	472E (ER40)	**616**
PSC 80	1 - 13	65	34	16 - 80	428E (ER20)	**802** [1]
PSC 80	1 - 13	100	34	16 - 80	428E (ER20)	**804** [1]
PSC 80	1 - 16	70	42	24 - 104	430E (ER25)	**806**
PSC 80	1 - 16	100	42	24 - 104	430E (ER25)	**808**
PSC 80	2 - 20	70	50	24 - 136	470E (ER32)	**810**
PSC 80	2 - 20	100	50	24 - 136	470E (ER32)	**812**
PSC 80	3 - 26	80	63	176	472E (ER40)	**814**
PSC 80	3 - 26	100	63	176	472E (ER40)	**816**

1) with 6 position lock nut

Dimension LPR is 5.0 mm longer for ER16, ER25 and ER32, and 5.5 mm for ER40 when using thro' coolant lock nuts

	Lock nut		Lock nut IK		Lock nut		Y clamping key
	62 950 ...		**83 950 ...**		**62 950 ...**		**83 357 ...**
Spare parts for collet							
428E (ER20)	M25x1,5 - SW30	**045**	M25x1,5	**053**			**12000**
430E (ER25)			M32x1,5	**055**	M32x1,5	**055**	**125**
470E (ER32)			M40x1,5	**056**	M40x1,5	**65600**	**132**
472E (ER40)			M50x1,5	**057**	M50x1,5	**65700**	**140**

Accessories

ER collet

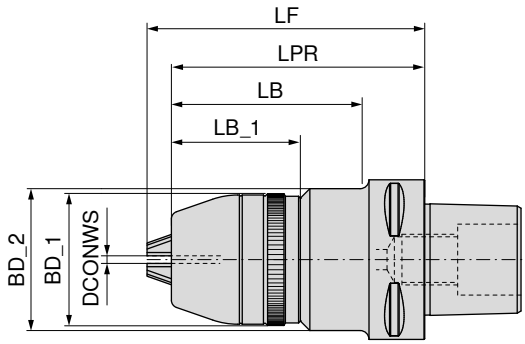
→ 268–276, 278–279

Short drill chuck – NC 2010

- ▲ Independent of direction of rotation
- ▲ Torque Moment = 12 Nm
- ▲ also available with Balluff chip **on request**

Scope of supply:

Toolholder including clamping key SW4



G 2,5 n_{max} 12000

84 111 ...

Adapter	DCONWS mm	BD_1 mm	BD_2 mm	LB_1 mm	LB mm	LPR mm	LF mm	
PSC 40	0,5 - 13	48,5	56	50,90	78,0	100	109,0	**01395**
PSC 40	2,5 - 16	51,0	56	52,15	78,0	100	110,5	**01695**
PSC 50	0,5 - 13	48,5	56	50,90	77,0	100	109,0	**01394**
PSC 50	2,5 - 16	51,0	56	52,15	77,0	100	110,5	**01694**
PSC 63	0,5 - 13	48,5	56	50,90	74,5	100	109,0	**01393**
PSC 63	2,5 - 16	51,0	56	52,15	74,5	100	110,5	**01693**

Can be used with G 2.5 to 30,000 1/min by subsequent balancing !

Accessories

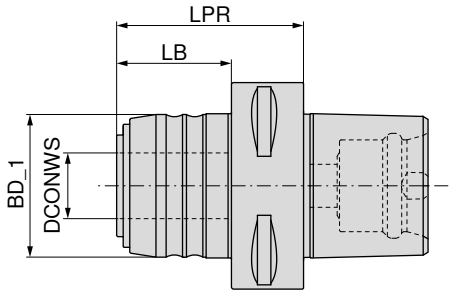
Others

→ 284

16

Synchronised quick change tap chuck with minimal length compensation

▲ For collets according to DIN 6499
▲ With length compensation under tension and under compression (LZD)
▲ $p_{max.}$ = 50 bar
▲ also available with Balluff chip **on request**



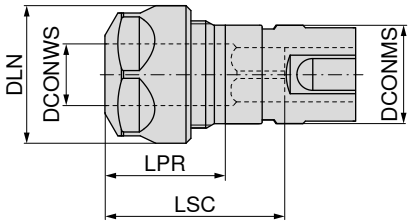
84 140 ...

Adapter	cutting range	SZID	LPR mm	BD_1 mm	DCONWS mm	LB mm	LZD± mm	
PSC 63	M3 - M12	1	57	43	20	35	1,0 / 0,2	**612**
PSC 63	M6 - M20	2	77	60	32	55	1,0 / 0,2	**620**

Insert for synchro quick change tapping chuck with minimum length compensation

▲ SZID = for insert size

Scope of supply:
Includes lock nut



83 608 ...

SZID	DCONWS mm	cutting range	LPR mm	DLN mm	LSC mm	for collet	DCONMS mm	
1	2 - 10	M3 - M12	24	28	42	426E (ER16)	20	**012** [1]
2	2 - 16	M6 - M20	28	42	59	430E (ER25)	32	**020**

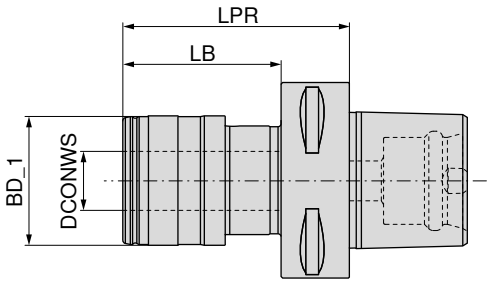
1) with 6 position lock nut

Spare parts insert for synchro quick change tapping chuck with minimum length compensation

		Lock nut		Lock nut IK		Lock nut	Y clamping key
		62 950 ...		83 950 ...		62 950 ...	83 357 ...
Spare parts for Article no.							
83 608 012	M22x1,5 - SW25	**044**	M22x1,5	**054**	M22x1,5	**054**	**116**
83 608 020			M32x1,5	**055**	M32x1,5	**055**	**125**

Quick change tap chuck with length compensation

▲ With length compensation under tension and compression (LZD)
▲ also available with Balluff chip **on request**



								84 142 ...
Adapter	cutting range	SZID	LPR mm	BD_1 mm	DCONWS mm	LB mm	LZD± mm	
PSC 63	M3 - M12	01	73	41	19	51	7,5	**612**
PSC 63	M6 - M20	02	97	60	31	75	10	**620**

Accessories

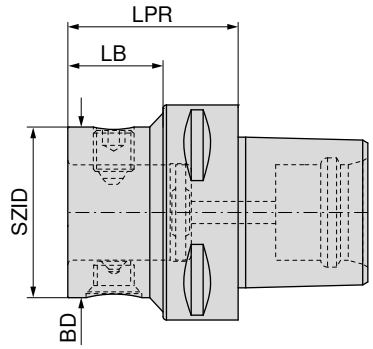
Collet

→ 288–292

16

Adapter with ABS Connection

▲ also available with Balluff chip **on request**



Adapter	KOMET no.	SZID	BD mm	LPR mm	LB mm	84 215 ...
PSC 40	A69 04050	ABS 50	50	50	30	**04097**
PSC 50	A69 05050	ABS 50	50	50	30	**05097**
PSC 63	A69 06050	ABS 50	50	50	28	**06397**
PSC 63	A69 06060	ABS 63	63	60	36	**06396**
PSC 80	A69 08050	ABS 50	50	50	23	**08097**
PSC 80	A69 08060	ABS 63	63	60	30	**08096**
PSC 80	A69 08070	ABS 80	80	80	50	**08092**

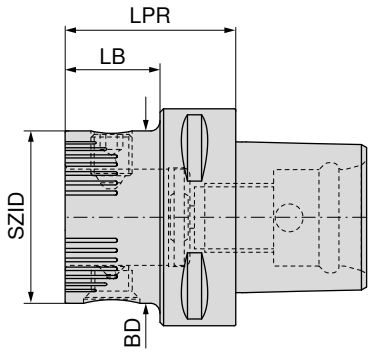
Clamping screw

Taper screw

Spare parts SZID	84 950 ...	84 950 ...
ABS 50	**20300**	**20400**
ABS 63	**25500**	**27300**
ABS 80	**25600**	**25100**

Torsional vibration damper with ABS connection

▲ also available with Balluff chip **on request**



NEW

Adapter	KOMET no.	SZID	BD mm	LPR mm	LB mm	84 206 ...
PSC 50	A69 05060	ABS 50	50	50	30	**05094**
PSC 63	A69 06070	ABS 50	50	50	28	**05093**
PSC 63	A69 06080	ABS 63	63	60	38	**06393**
PSC 80	A69 08090	ABS 50	50	50	23	**05086**
PSC 80	A69 08100	ABS 63	63	60	30	**06386**
PSC 80	A69 08110	ABS 80	80	80	50	**08086**

Clamping screw

Taper screw

Spare parts SZID	84 950 ...	84 950 ...
ABS 50	**20300**	**20400**
ABS 63	**25500**	**27300**
ABS 80	**25600**	**25100**

Accessories

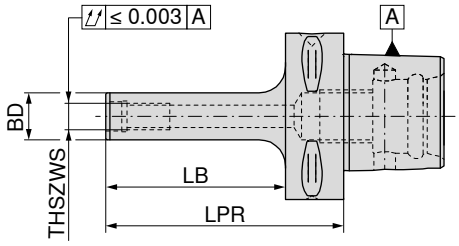
Coolant transfer pipe
→ 176

Others
→ 284

16

Adapter for screw-in milling cutter

▲ also available with Balluff chip **on request**



G 2,5 n_{max} 20000

84 110 ...

Adapter	THSZWS	LPR mm	BD mm	LB mm	
PSC 32	M8	60	13	45	**302**
PSC 32	M10	70	18	55	**306**
PSC 40	M8	70	13	50	**402**
PSC 40	M10	80	18	60	**405**
PSC 40	M12	80	21	60	**408**
PSC 50	M8	70	13	50	**502**
PSC 50	M10	80	18	60	**505**
PSC 50	M12	80	21	60	**508**
PSC 50	M16	80	29	60	**512**
PSC 63	M8	70	13	48	**602**
PSC 63	M10	90	18	68	**605**
PSC 63	M12	100	21	78	**608**
PSC 63	M16	100	29	78	**612**

Accessories

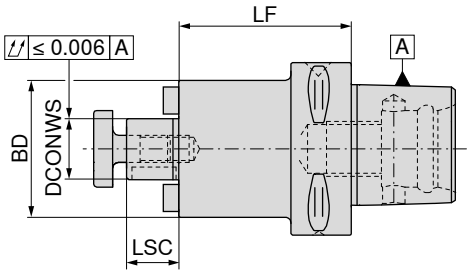
Coolant transfer pipe

→ 176

Shell mill adapters

▲ for cutters with longitudinal or transverse groove
▲ also available with Balluff chip **on request**

Scope of supply:
Holder with clamping screw and drive key



G 6,3 n_{max} 15000

84 122 ...

Adapter	DCONWS mm	LF mm	BD mm	LSC mm	
PSC 40	16	28	40	17	**401**
PSC 40	16	63	40	17	**402**
PSC 40	22	40	50	19	**411**
PSC 40	22	63	50	19	**412**
PSC 50	16	28	40	17	**501**
PSC 50	16	63	40	17	**502**
PSC 50	22	28	50	19	**511**
PSC 50	22	63	50	19	**512**
PSC 50	27	32	50	21	**521**
PSC 50	27	63	50	21	**522**
PSC 50	32	40	63	24	**531**
PSC 50	32	63	63	24	**532**
PSC 63	16	63	40	17	**602**
PSC 63	22	28	63	19	**611**
PSC 63	22	63	50	19	**612**
PSC 63	27	28	58	21	**621**
PSC 63	27	63	58	21	**622**
PSC 63	32	22	63	24	**631**
PSC 63	32	86	63	24	**632**
PSC 63	40	40	70	27	**641**
PSC 80	16	63	40	17	**802**
PSC 80	22	30	50	19	**811**
PSC 80	22	63	50	19	**812**
PSC 80	27	30	58	21	**821**
PSC 80	27	63	58	21	**822**
PSC 80	32	30	63	24	**831**
PSC 80	32	86	63	24	**832**
PSC 80	40	40	70	27	**841**

drive key

drive dog

Cross nut key

Cross screw

clamping screw

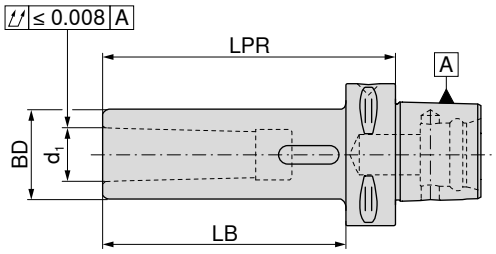
84 950 ... | **84 950 ...** | **83 368 ...** | **83 367 ...** | **83 950 ...**

Spare parts DCONWS								
16	**108**		**113**		**116**	M8	**016**	M8x25	**113**
22	**109**		**114**		**122**	M10	**022**	M10x25	**124**
27	**110**		**115**		**127**	M12	**027**	M12x30	**125**
32	**111**		**116**		**132**	M16	**032**	M16x35	**126**
40	**112**		**117**		**140**	M20	**040**	M20x40 - SW17	**112**

16

Taper sleeve DIN 6383 for DIN 228-2D Morse taper shanks

▲ also available with Balluff chip **on request**

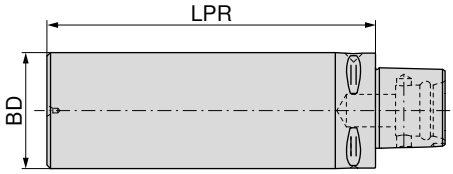


84 126 ...

Adapter	d_1	LPR mm	BD mm	LB mm	
PSC 40	MK2	110	32	90	**402**
PSC 40	MK3	130	40	119	**403**
PSC 50	MK2	110	32	90	**502**
PSC 50	MK3	130	40	110	**503**
PSC 50	MK4	150	48	132	**504**
PSC 63	MK2	110	32	88	**602**
PSC 63	MK3	130	40	108	**603**
PSC 63	MK4	150	48	128	**604**
PSC 80	MK2	120	32	90	**802**
PSC 80	MK3	140	40	110	**803**
PSC 80	MK4	160	48	130	**804**

Blank

- ▲ Material: 25CrMoV4
- ▲ for production of special tools
- ▲ Taper hardened and ground
- ▲ Special tool area in soft state
- ▲ also available with Balluff chip **on request**

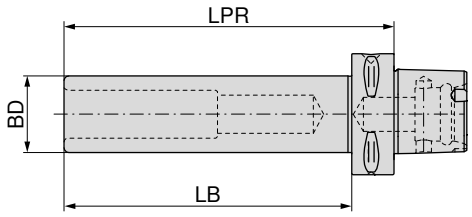


84 134 ...

Adapter	BD mm	LPR mm	
PSC 40	40	95	**402**
PSC 40	40	120	**403**
PSC 40	60	165	**404**
PSC 40	80	75	**405**
PSC 40	80	120	**406**
PSC 40	100	85	**408**
PSC 50	50	125	**502**
PSC 50	50	150	**503**
PSC 50	75	175	**504**
PSC 50	90	80	**506**
PSC 50	95	150	**508**
PSC 50	110	90	**510**
PSC 63	63	180	**602**
PSC 63	75	195	**604**
PSC 63	110	85	**606**
PSC 63	120	180	**608**
PSC 63	130	95	**610**
PSC 80	80	200	**802**
PSC 80	120	160	**804**
PSC 80	130	90	**806**
PSC 80	145	200	**808**

Test bar

▲ also available with Balluff chip **on request**



Adapter	LPR mm	BD mm	LB mm	84 136 ...
PSC 32	175	25	160	030
PSC 40	180	25	160	040
PSC 50	235	32	215	050
PSC 63	322	40	300	060
PSC 80	330	40	300	080

Coolant pipe – PSC

Scope of supply:
complete, including seals

Adapter	THOD	84 116 ...
PSC 40	M14 x 1,5	04000
PSC 50	M16 x 1,5	05000
PSC 63	M20 x 2,0	06300
PSC 80	M20 x 2,0	08000

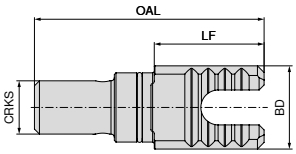
Key – PSC

Adapter	84 117 ...
PSC 40	04000
PSC 50	05000
PSC 63	06300
PSC 80	08000

Pull stud for PSC adapter

▲ for front clamping

Scope of supply:
including O-Ring



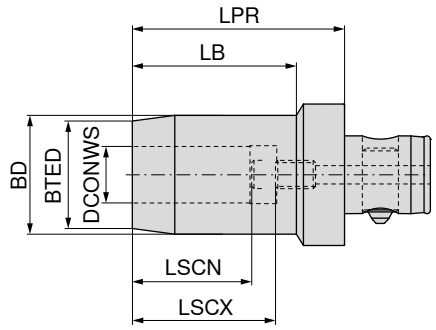
NEW

Adapter	LF mm	OAL mm	BD mm	CRKS	83 235 ...
PSC 40	26,3	56	20	M14x1,5	04000
PSC 50	33,0	69	25	M16x1,5	05000
PSC 63	33,0	79	31	M20x2	06300

HyTens – Fit

▲ Hydraulic chuck with ABS connection
▲ for solid carbide and HSS shanks to h6 tolerance or better

Scope of supply:
Base body including backstop screw



NEW

84 253 ...

Adapter	DCONWS mm	BTED mm	BD mm	LPR mm	LB mm	LSCX mm	LSCN mm	
ABS 40	6	22	26	55	36,5	37	27	**00688**
ABS 40	8	24	28	60	42,0	37	27	**00888**
ABS 40	10	26	30	65	47,5	41	31	**01088**
ABS 40	12	28	32	65	48,0	46	36	**01288**
ABS 50	6	22	26	55	33,5	37	27	**00697**
ABS 50	8	24	28	55	34,0	37	27	**00897**
ABS 50	10	26	30	65	45,0	41	31	**01097**
ABS 50	12	28	32	65	45,5	46	36	**01297**
ABS 50	14	30	34	65	46,0	46	36	**01497**
ABS 50	16	34	38	70	52,0	49	39	**01697**
ABS 50	18	36	40	70	52,5	49	39	**01897**
ABS 50	20	38	42	75	58,0	51	41	**02097**
ABS 63	20	38	42	78	56,0	51	41	**02096**
ABS 63	25	53	57	85	60,0	57	47	**02596**
ABS 63	32	60	64	90	61,0	61	51	**03296**

Stop screw IK

83 950 ...

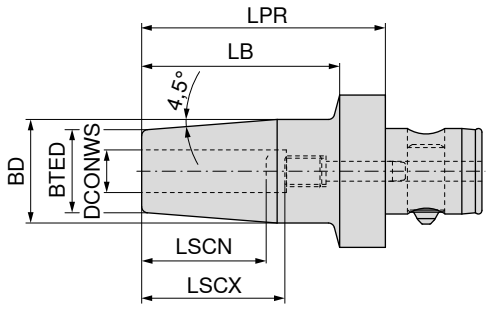
Spare parts DCONWS		
6	M5x12,5 - SW2,5	**418**
8	M6x12,5 - SW3	**419**
10	M8x1x13,5 - SW3	**420**
12	M10x1x13,5 - SW5	**421**
14	M10x1x13,5 - SW5	**421**
16	M10x1x13,5 - SW5	**421**
18	M10x1x13,5 - SW5	**421**
20	M16x1x13,5 - SW5	**423**
25	M16x1x13,5 - SW5	**423**
32	M16x1x13,5 - SW5	**423**

For an overview of the ABS spare parts, take a look at **page 314**.

16

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks to h6 tolerance or better



G 6,3 n_{max} 15000

84 222 ...

Adapter	KOMET no.	DCONWS mm	LPR mm	BD mm	BTED mm	LB mm	LSCX mm	LSCN mm	
ABS 32	A32 26040	6	70	27	21	56	36	26	**00689**
ABS 32	A32 26050	8	70	27	21	56	36	26	**00889**
ABS 32	A32 26061	10	70	32	24	56	42	32	**01089**
ABS 32	A32 26071	12	80	32	24	66	47	37	**01289**
ABS 40	A32 36050	8	70	27	21	56	36	26	**00888**
ABS 40	A32 36061	10	70	32	24	56	42	32	**01088**
ABS 40	A32 36071	12	80	32	24	66	47	37	**01288**
ABS 40	A32 36091	16	90	34	27	76	50	40	**01688**
ABS 50	A32 46040	6	75	27	21	56	36	26	**00697**
ABS 50	A32 46050	8	75	27	21	56	36	26	**00897**
ABS 50	A32 46061	10	80	32	24	61	42	32	**01097**
ABS 50	A32 46071	12	80	32	24	61	47	37	**01297**
ABS 50	A32 46081	14	80	34	27	61	47	37	**01497**
ABS 50	A32 46091	16	85	34	27	66	50	40	**01697**
ABS 50	A32 46101	18	85	42	33	66	50	40	**01897**
ABS 50	A32 46111	20	90	42	33	71	52	42	**02097**
ABS 63	A32 56111	20	90	42	33	71	52	42	**02096**
ABS 63	A32 56121	25	95	53	44	76	58	48	**02596**
ABS 63	A32 56131	32	95	53	44	76	58	48	**03296**

Backstop screw

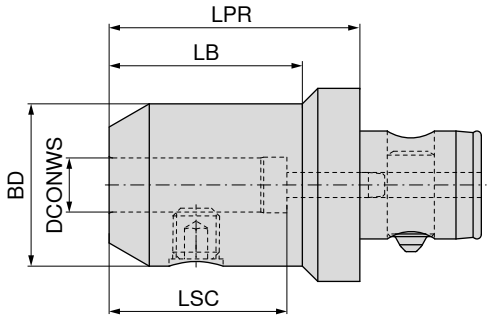
84 950 ...

Spare parts DCONWS		
6	M5x18	**21400**
8	M6x20	**21500**
10	M8x1x20	**21600**
12	M10x1x20	**21700**
14	M10x1x20	**21700**
16	M12x1x20	**21800**
18	M12x1x20	**21800**
20	M8x1x20	**21900**
25	M8x1x20	**21900**
32	M8x1x20	**21900**

For an overview of the ABS spare parts, take a look at **page 314**.

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat



Adapter	KOMET no.	DCONWS mm	LPR mm	BD mm	LB mm	LSC mm	84 221 ...
ABS 50	A32 40010	6	45	25,0	27	40	**00697**
ABS 50	A32 40020	8	45	28,0	27	40	**00897**
ABS 50	A32 40030	10	55	35,0	37	44	**01097**
ABS 50	A32 40040	12	65	42,0	50	49	**01297**
ABS 50	A32 40080	14	65	44,0	50	49	**01497**
ABS 50	A32 40050	16	65	48,0	50	52	**01697**
ABS 50	A32 40090	18	65	49,9	50	52	**01897**
ABS 50	A32 40060	20	65	52,0	50	54	**02097**
ABS 50	A32 40070	25	75	65,0	60	60	**02597**[1)]
ABS 63	A32 50040	12	65	42,0	50	49	**01296**
ABS 63	A32 50100	14	65	44,0	50	49	**01496**
ABS 63	A32 50050	16	65	48,0	50	52	**01696**
ABS 63	A32 50110	18	65	50,0	50	52	**01896**
ABS 63	A32 50060	20	65	52,0	45	54	**02096**
ABS 63	A32 50070	25	75	65,0	60	60	**02596**[1)]
ABS 63	A32 50080	32	80	72,0	65	64	**03296**[1)]
ABS 80	A32 60060	20	65	52,0	45	54	**02092**
ABS 80	A32 60070	25	75	65,0	55	60	**02592**[1)]
ABS 80	A32 60080	32	80	72,0	66	64	**03292**[1)]

1) Version with two grubscrews

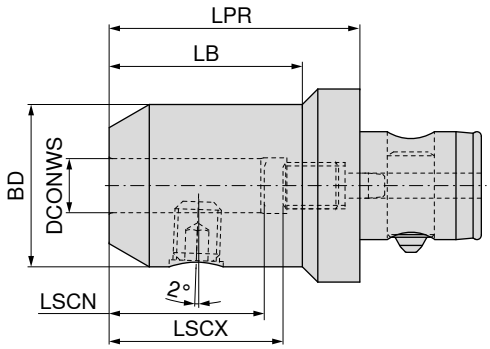
Grubscrew

Spare parts DCONWS		62 950 ...
6	M6x10	**006**
8	M8x10	**008**
10	M10x12	**010**
12	M12x16	**012**
14	M12x16	**012**
16	M14x16	**016**
18	M14x16	**016**
20	M16x16	**020**
25	M18x2x20	**025**
32	M20x2x20	**032**

For an overview of the ABS spare parts, take a look at **page 314**.

Cylindrical Shank Adapter (Whistle Notch)

▲ For shanks according to DIN 6535 HE / 1835 E with angled clamping flat



84 220 ...

Adapter	KOMET no.	DCONWS mm	LPR mm	LB mm	BD mm	LSCX mm	LSCN mm	
ABS 25	A30 10601	6	55	40	24,9	36	26	**00690**
ABS 25	A30 10801	8	55	40	28,0	36	26	**00890**
ABS 25	A30 11001	10	60	45	35,0	40	30	**01090**
ABS 32	A30 20601	6	55	40	25,0	36	26	**00689**
ABS 32	A30 20801	8	55	40	28,0	36	26	**00889**
ABS 32	A30 20901	9	55	40	28,0	36	26	**00989**
ABS 32	A30 21001	10	60	45	35,0	40	30	**01089**
ABS 32	A30 21201	12	65	50	42,0	45	35	**01289**
ABS 32	A30 21401	14	65		42,0	45	35	**01489**
ABS 40	A30 30601	6	55	35	25,0	36	26	**00688**
ABS 40	A30 30801	8	55	35	28,0	36	26	**00888**
ABS 40	A30 31001	10	60	45	35,0	40	30	**01088**
ABS 40	A30 31201	12	65	50	42,0	45	35	**01288**
ABS 40	A30 31401	14	65	50	42,0	45	35	**01488**
ABS 40	A30 31601	16	70	55	48,0	48	38	**01688**
ABS 40	A30 31801	18	70	55	48,0	48	38	**01888**
ABS 50	A30 40601	6	55	30	25,0	36	26	**00697**
ABS 50	A30 40801	8	55	30	28,0	36	26	**00897**
ABS 50	A30 41001	10	60	40	35,0	40	30	**01097**
ABS 50	A30 41201	12	65	50	42,0	45	35	**01297**
ABS 50	A30 41301	13	65	50	42,0	45	35	**01397**
ABS 50	A30 41401	14	65	50	42,0	45	35	**01497**
ABS 50	A30 41601	16	70	55	48,0	48	38	**01697**
ABS 50	A30 41801	18	70	55	48,0	48	38	**01897**
ABS 50	A30 42002	20	75	60	52,0	50	40	**02097**
ABS 50	A30 42202	22	75	60	52,0	50	40	**02297**
ABS 50	A30 42502	25	75	60	52,0	50	40	**02597**[1)]
ABS 63	A30 51001	10	60	35	35,0	40	30	**01096**
ABS 63	A30 51201	12	65	45	42,0	45	35	**01296**
ABS 63	A30 51401	14	65	45	42,0	45	35	**01496**
ABS 63	A30 51601	16	70	50	48,0	48	38	**01696**
ABS 63	A30 51801	18	70	50	48,0	48	38	**01896**
ABS 63	A30 52001	20	75	55	52,0	50	40	**02096**
ABS 63	A30 52501	25	80	65	65,0	56	46	**02596**[1)]
ABS 63	A30 52801	28	80	65	65,0	56	46	**02896**[1)]
ABS 80	A30 62501	25	80	60	65,0	56	46	**02592**[1)]
ABS 80	A30 63201	32	90	70	72,0	60	50	**03292**[1)]

1) Version with two grubscrews

Spare parts
cylindrical shank adapter (Whistle Notch) with ABS connection

Grubscrew

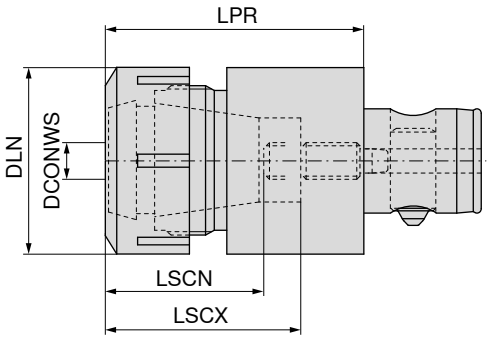
Backstop screw

	62 950 ...		84 950 ...	
Spare parts DCONWS				
6	M6x10	**006**	M5x16	**20500**
8	M8x10	**008**	M6x16 - SW2,5	**20600**
9	M8x10	**008**	M8x1x16 - SW3	**20800**
10	M10x12	**010**	M8x1x16 - SW2,5	**20700**
12	M12x16	**012**	M10x1x18 - SW3	**20900**
13	M12x16	**012**	M12x1x17 - SW3	**21000**
14	M12x16	**012**	M12x1x17 - SW3	**21000**
16	M14x16	**016**	M14x1x19 - SW4	**21100**
18	M14x16	**016**	M14x1x19 - SW4	**21100**
20	M16x16	**020**	M16x1x21 - SW5	**21200**
22	M16x16	**020**	M16x1x21 - SW5	**21200**
25	M16x16	**020**	M16x1x21 - SW5	**21200**
28	M18x2x20	**025**	M16x1x21 - SW5	**21200**
32	M20x2x20	**032**	M20x1x27 - SW8	**21300**

For an overview of the ABS spare parts, take a look at **page 314**.

ER collet chuck with ABS connection

Scope of supply:
Holder with lock nut and adjustable back stop



Adapter	KOMET no.	for collet	DCONWS mm	LPR mm	DLN mm	LSCX mm	LSCN mm	84 224 ...
ABS 25	A33 11120	426E (ER16)	1 - 10	40,1	28	31	28	**01690**[1)]
ABS 32	A33 12130	428E (ER20)	1 - 13	52,5	34	39	35	**02089**[1)]
ABS 40	A33 13141	430E (ER25)	1 - 16	62,0	42	46	43	**02588**
ABS 50	A33 14151	470E (ER32)	2 - 20	69,3	50	51	48	**03297**
ABS 63	A33 15161	472E (ER40)	3 - 26	78,3	63	55	52	**04096**

1) with 6 position lock nut

Lock nut

Lock nut IK

Lock nut

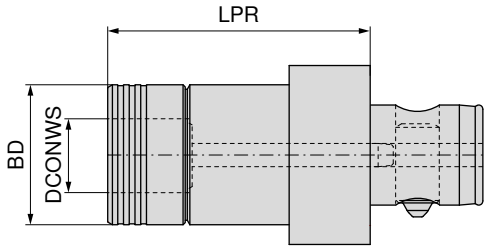
Backstop screw

Spare parts for collet	62 950 ...		83 950 ...		62 950 ...		84 950 ...	
426E (ER16)	M22x1,5 - SW25	**044**	M22x1,5	**054**			M5x8 - SW2	**22500**
428E (ER20)	M25x1,5 - SW30	**045**	M25x1,5	**053**			M6x12 - SW2,5	**22000**
430E (ER25)			M32x1,5	**055**	M32x1,5	**055**	M8x1x14 - SW4	**22600**
470E (ER32)			M40x1,5	**056**	M40x1,5	**65600**	M10x1x14 - SW5	**22700**
472E (ER40)			M50x1,5	**057**	M50x1,5	**65700**	M12x1x18 - SW8	**22800**

For an overview of the ABS spare parts, take a look at **page 314**.

Quick change tap chuck with length compensation

▲ With length compensation under tension and compression (LZD)



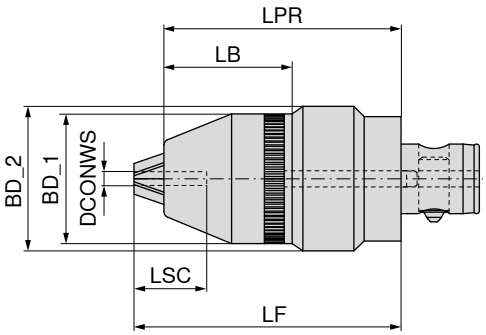
84 225 ...

Adapter	KOMET no.	DCONWS mm	BD mm	LPR mm	SZID	
ABS 32	A34 32060	19	39	69	01	**01989**
ABS 40	A34 33060	19	39	73	01	**01988**
ABS 50	A34 34060	19	39	72	01	**01997**
ABS 50	A34 34070	31	60	98	02	**03197**
ABS 63	A34 35070	31	60	111	02	**03196**

Short drill chuck

Scope of supply:

Toolholder including clamping key SW4



G 6,3 n_{max} 10000

84 247 ...

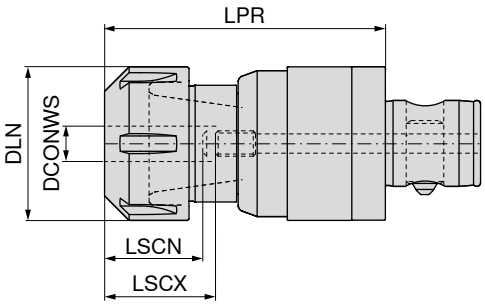
Adapter	DCONWS mm	BD_1 mm	BD_2 mm	LPR mm	LSC mm	LF mm	LB mm	
ABS 50	0,5 - 13	49	57,5	95	29	104,0	51,5	**01397**
ABS 50	2,5 - 16	52	57,5	95	29	105,5	52,0	**01697**

Accessories

Collet	Pull studs	Others
→ 288–292	→ 58	→ 284

16

Synchro tapping chuck



84 226 ...

Adapter	KOMET no.	for collet	DCONWS mm	LPR mm	DLN mm	LSCX mm	LSCN mm	
ABS 32	50795131002000	ER 20	1 - 13	78,0	34	42	29	**02089**
ABS 50	50795135002000	ER 20	1 - 13	85,0	34	42	29	**02097**
ABS 50	50795135003200	ER 32	2 - 20	90,5	50	45	31	**03297**

For an overview of the ABS spare parts, take a look at **page 314**.

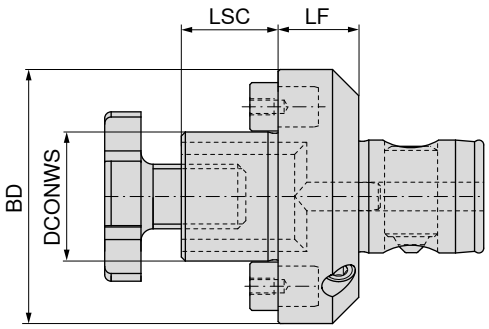
Accessories

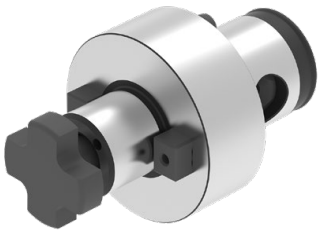
ER collet

→ 268–276, 278–279

Shell mill adapter

Scope of supply:
Base body including drive dogs and retaining screw





Adapter	KOMET no.	DCONWS mm	LSC mm	LF mm	BD mm	84 228 ...	84 228 ...
ABS 50	A40 24023	16	17	20	50		**01697**
ABS 50	A40 24034	22	19	20	50		**02297**
ABS 50	A40 24043	27	21	20	50		**02797**
ABS 50	A40 24053	32	24	20	63		**03297**
ABS 63	A40 25032	22	19	22	63		**02296**
ABS 63	A40 25042	27	21	22	63		**02796**
ABS 63	A40 25052	32	24	22	63		**03296**
ABS 63	A40 25062	40	27	22	80		**04096**
ABS 80	A40 26042	27	21	25	80		**02792**
ABS 80	A40 26052	32	24	25	80		**03292**
ABS 80	A40 26062	40	27	25	80		**04092**
ABS 80	A40 16062	40	30	43	88	**14092**	
ABS 100	A40 27052	32	24	25	100		**03291**
ABS 100	A40 17062	40	30	38	88	**14091**	
ABS 100	A40 27062	40	27	25	100		**04091**
ABS 100	A40 17072	60	40	56	130	**06091**	

Drive dog

Driver

Cross screw

Spare parts DCONWS	84 950 ...	83 950 ...	83 367 ...
16			**016**
22	**22900**		**022**
27	**23000**		**027**
32	**23100**		**032**
40			**040**
40		**295**	
60		**298**	

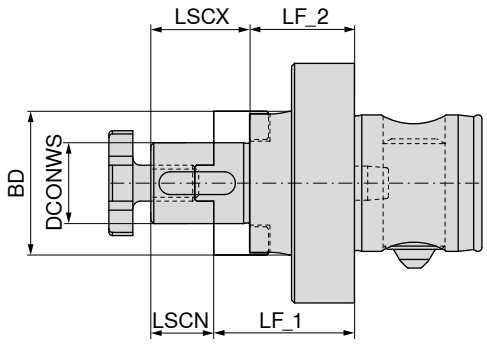
For an overview of the ABS spare parts, take a look at **page 314**.

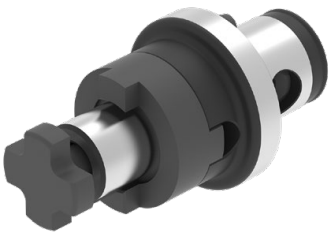
Combination shell mill adapter

▲ For milling cutters with transverse or longitudinal groove according to DIN 6358

Scope of supply:

Base body including retaining screw, drive ring and drive key





Adapter	KOMET no.	DCONWS mm	BD mm	LF_1 mm	LF_2 mm	LSCX mm	LSCN mm	84 229 ...
ABS 50	A40 04022	16	32	32	22	27	17	**01697**
ABS 50	A40 04032	22	40	34	22	31	19	**02297**
ABS 63	A40 05021	16	32	36	26	27	17	**01696**
ABS 63	A40 05031	22	40	38	26	31	19	**02296**
ABS 63	A40 05041	27	48	38	26	33	21	**02796**
ABS 80	A40 06031	22	40	45	33	31	19	**02292**
ABS 80	A40 06041	27	48	45	33	33	21	**02792**
ABS 80	A40 06051	32	58	47	33	38	24	**03292**
ABS 80	A40 06061	40	70	47	33	41	27	**04092**

Parallel key

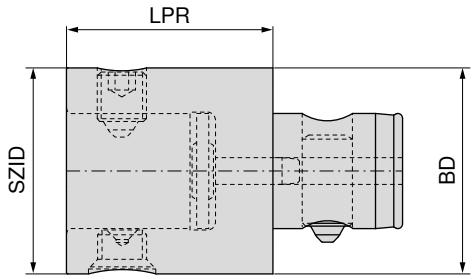
Drive ring

Cross screw

Spare parts DCONWS		83 950 ...	83 370 ...		83 367 ...
16	4 x 4 x 20	**284**	**116**	M8	**016**
22	6 x 6 x 25	**285**	**122**	M10	**022**
27	7 x 7 x 25	**286**	**127**	M12	**027**
32	8 x 7 x 28	**287**	**132**	M16	**032**
40	10 x 8 x 32	**288**	**140**	M20	**040**

For an overview of the ABS spare parts, take a look at **page 314**.

Extension with ABS Connection



Adapter	KOMET no.	SZID	BD mm	LPR mm	84 209 ...
ABS 25	A20 00020	ABS 25	25	45	**04590**
ABS 25	A20 00220	ABS 25	25	60	**06090**
ABS 32	A20 00530	ABS 32	32	35	**03589**
ABS 32	A20 00030	ABS 32	32	50	**05089**
ABS 32	A20 00230	ABS 32	32	70	**07089**
ABS 40	A20 00540	ABS 40	40	40	**04088**
ABS 40	A20 00040	ABS 40	40	60	**06088**
ABS 40	A20 00240	ABS 40	40	90	**09088**
ABS 50	A20 00550	ABS 50	50	50	**05097**
ABS 50	A20 00050	ABS 50	50	65	**06597**
ABS 50	A20 00250	ABS 50	50	100	**10097**
ABS 50	A20 00150	ABS 50	50	150	**15097**
ABS 63	A20 00560	ABS 63	63	60	**06096**
ABS 63	A20 00060	ABS 63	63	85	**08596**
ABS 63	A20 00260	ABS 63	63	125	**12596**
ABS 63	A20 00160	ABS 63	63	190	**19096**
ABS 80	A20 00570	ABS 80	80	70	**07092**
ABS 80	A20 00070	ABS 80	80	85	**08592**
ABS 80	A20 00270	ABS 80	80	125	**12592**
ABS 80	A20 00170	ABS 80	80	240	**24092**
ABS 100	A20 00580	ABS 100	100	85	**08591**
ABS 100	A20 00080	ABS 100	100	125	**12591**
ABS 100	A20 00280	ABS 100	100	160	**16091**
ABS 125	A20 00090	ABS 125	125	160	**16085**
ABS 125	A20 00290	ABS 125	125	200	**20085**

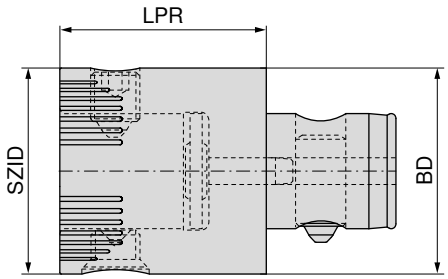
	Clamping screw	Clamping screw	Positioning pin	Pendulum bolt	Coolant pipe	Taper screw
	62 950 ...	**84 950 ...**	**84 950 ...**	**84 950 ...**	**84 950 ...**	**84 950 ...**
Spare parts Adapter						
ABS 25		**26800**	**23600**	**26000**	**24400**	**27000**
ABS 32	**13989**		**23700**	**26100**	**24500**	**27100**
ABS 40		**26900**	**23800**	**26200**	**24600**	**27200**
ABS 50		**20300**	**20200**	**20000**	**20100**	**20400**
ABS 63		**25500**	**23900**	**26300**	**24700**	**27300**
ABS 80		**25600**	**24000**	**26400**	**24800**	**25100**
ABS 100		**25700**	**24100**	**26500**	**24900**	**25200**
ABS 125		**25800**	**24200**	**26600**	**25000**	**25300**

For an overview of the ABS spare parts, take a look at **page 314**.

16

Torsional vibration dampers with ABS Connection

Scope of supply:
Base body with sealing disc



Adapter	KOMET no.	SZID	BD mm	LPR mm	84 216 ...
ABS 50	A20 00651	ABS 50	50	50	**05097**
ABS 63	A20 00661	ABS 63	63	60	**06096**
ABS 80	A20 00670	ABS 80	80	70	**07092**

Clamping screw

Taper screw

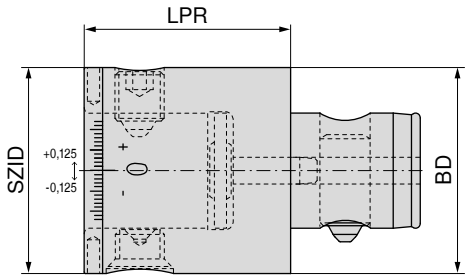
Spare parts Adapter	84 950 ...	84 950 ...
ABS 50	**20300**	**20400**
ABS 63	**25500**	**27300**
ABS 80	**25600**	**25100**

For an overview of the ABS spare parts, take a look at **page 314**.

Eccentric adjuster with ABS Connection

▲ Adjustment ± 0.25 mm on diameter

Scope of supply:
Eccentric adjuster with adjuster key Ø 2.8 mm



Adapter	KOMET no.	SZID	BD mm	LPR mm	84 217 ...
ABS 50	A20 00620	ABS 50	50	50	**05097**
ABS 63	A20 00630	ABS 63	63	60	**06096**

Clamping screw

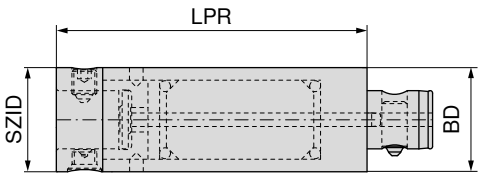
Taper screw

Spare parts Adapter	84 950 ...	84 950 ...
ABS 50	**20300**	**20400**
ABS 63	**25500**	**27300**

For an overview of the ABS spare parts, take a look at **page 314**.

Damping element with ABS connection

- ▲ The specially mounted damping core enables perfect machining results even with longer tool overhangs
- ▲ Reduction in machining times due to optimum machining parameters
- ▲ Damped machining and therefore perfect surface qualities
- ▲ Protection of the machine spindle and increased tool service life



Adapter	KOMET no.	SZID	BD mm	LPR mm	RPMX 1/min.	84 218 ...
ABS 40	A20 01240	ABS 40	40	120	8000	**12088**
ABS 50	A20 01250	ABS 50	50	150	6300	**15097**
ABS 63	A20 01260	ABS 63	63	190	5000	**19096**
ABS 80	A20 01270	ABS 80	80	240	4000	**24092**

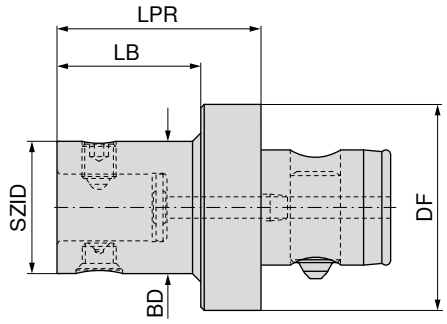
Clamping screw

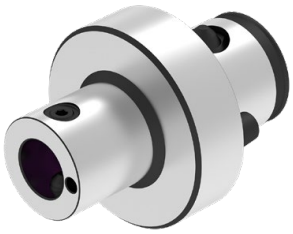
Taper screw

Spare parts Adapter	84 950 ...	84 950 ...
ABS 40	**26900**	**27200**
ABS 50	**20300**	**20400**
ABS 63	**25500**	**27300**
ABS 80	**25600**	**25100**

For an overview of the ABS spare parts, take a look at **page 314**.

ABS reduction





Adapter	KOMET no.	SZID	BD mm	DF mm	LPR mm	LB mm	84 219 ...
ABS 32	A20 10120	ABS 25	25	32	40	30	**03290**
ABS 40	A20 10220	ABS 25	25	40	40	28	**04090**
ABS 40	A20 10230	ABS 32	32	40	40	28	**04089**
ABS 50	A20 10320	ABS 25	25	50	50	35	**05090**
ABS 50	A20 10330	ABS 32	32	50	50	35	**05089**
ABS 50	A20 10340	ABS 40	40	50	50	35	**05088**
ABS 63	A20 10420	ABS 25	25	63	60	40	**06390**
ABS 63	A20 10430	ABS 32	32	63	60	40	**06389**
ABS 63	A20 10440	ABS 40	40	63	60	40	**06388**
ABS 63	A20 10450	ABS 50	50	63	60	40	**06397**
ABS 80	A20 10530	ABS 32	32	80	60	35	**08089**
ABS 80	A20 10540	ABS 40	40	80	60	35	**08088**
ABS 80	A20 10550	ABS 50	50	80	60	35	**08097**
ABS 80	A20 10560	ABS 63	63	80	60	35	**08096**
ABS 100	A20 10650	ABS 50	50	100	80	50	**10097**
ABS 100	A20 10660	ABS 63	63	100	80	50	**10096**
ABS 100	A20 10670	ABS 80	80	100	80	50	**10092**
ABS 125	A20 10770	ABS 80	80	125	100	50	**12592**
ABS 125	A20 10780	ABS 100	100	125	100	50	**12591**

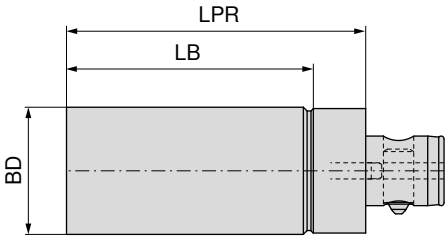
Spare parts SZID	Clamping screw 62 950 ...	Clamping screw 84 950 ...	Taper screw 84 950 ...
ABS 25		**26800**	**27000**
ABS 32	**13989**		**27100**
ABS 40		**26900**	**27200**
ABS 50		**20300**	**20400**
ABS 63		**25500**	**27300**
ABS 80		**25600**	**25100**
ABS 100		**25700**	**25200**

For an overview of the ABS spare parts, take a look at **page 314**.

16

Blank

▲ Connection area hardened and ground
▲ Dimension BD x dimension LB = unhardened area for further processing

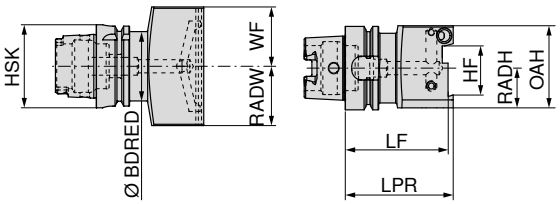


84 230 ...

Adapter	KOMET no.	LPR mm	BD mm	LB mm	
ABS 25	B10 01011	70	26	55	**02690**
ABS 32	B10 02011	80	33	65	**03389**
ABS 40	B10 03011	100	41	82	**04188**
ABS 50	B10 04011	120	51	99	**05197**
ABS 63	B10 05011	150	64	124	**06496**
ABS 80	B10 06011	180	81	145	**08192**
ABS 100	B10 07011	200	101	158	**10191**

For an overview of the ABS spare parts, take a look at **page 314**.

MonoClamp – HSK-T Blade Holder GX/LX/FX/SX



NEW

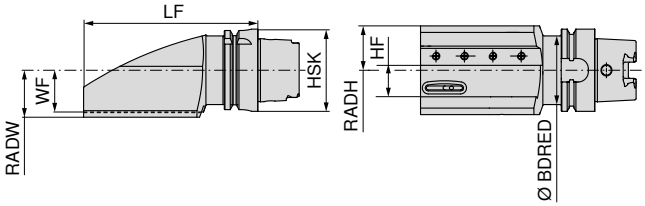
Direct Cooling

radial

74 586 ...

Adapter	LPR mm	LF mm	BDRED mm	WF mm	HF mm	OAH mm	RADW mm	RADH mm	for parting blades	
HSK-T 63	84,0	80	52,6	45	26	62	45	30	XLCF N 26...	**02637**
HSK-T 63	85,5	80	52,6	45	32	68	45	34	XLCF N 32...	**03237**

MonoClamp – HSK-T Blade Holder GX/LX/FX/SX



Illustrations show right-hand versions

NEW

Direct Cooling

Left-hand

74 585 ...

NEW

Direct Cooling

Right-hand

74 584 ...

Adapter	LF mm	BDRED mm	WF mm	HF mm	RADW mm	RADH mm	for parting blades		
HSK-T 63	155	52,6	32	26	36,0	34	XLCF R/L 26...	**02637**	**02637**
HSK-T 63	155	52,6	32	32	37,5	35	XLCF R/L 32...	**03237**	**03237**

O-Ring

70 950 ...

O-Ring

70 950 ...

Clamping wedge

70 950 ...

clamping screw

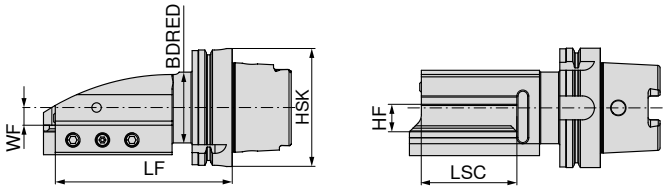
70 950 ...

Spare parts for parting blades								
XLCF R/L 26...	19x2,5	**293**	23x2,5	**292**	**860**	M6x12	**861**
XLCF R/L 32...	19x2,5	**293**	23x2,5	**292**	**860**	M6x12	**861**

16

HSK-T square shank adapter 0°

▲ Suitable for stationary tool holder HF = 20 / 25 / 32 mm
▲ These HF values can be achieved by removing the mounting adapter and clamping block



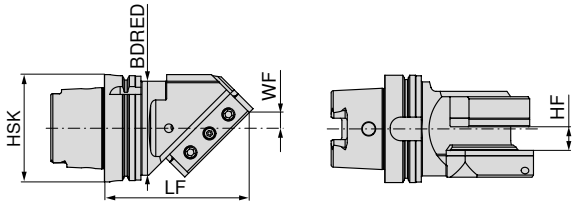
Illustrations show right-hand versions

NEW Direct Cooling — Left-hand — 74 571 ...
NEW Direct Cooling — Right-hand — 74 570 ...

Adapter	LF mm	BDRED mm	WF mm	LSC mm	HF mm	74 571 ...	74 570 ...
HSK-T 63	145	52,6	15	80	20 / 25 / 32	02537	02537
HSK-T 100	150	60,0	15	80	20 / 25 / 32	02535	02535

HSK-T square shank adapter 45°

▲ Suitable for stationary tool holder HF = 20 / 25 / 32 mm
▲ These HF values can be achieved by removing the mounting adapter and clamping block



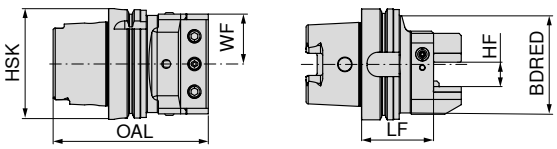
Illustrations show right-hand versions

NEW Direct Cooling — Left-hand — 74 573 ...
NEW Direct Cooling — Right-hand — 74 572 ...

Adapter	LF mm	BDRED mm	WF mm	HF mm	74 573 ...	74 572 ...
HSK-T 63	130	52,6	14,6	20 / 25 / 32	02537	02537
HSK-T 100	135	87,6	14,6	20 / 25 / 32	02535	02535

HSK-T square shank adapter 90°

▲ Suitable for stationary tool holder HF = 20 / 25 / 32 mm
▲ These HF values can be achieved by removing the mounting adapter and clamping block



NEW Direct Cooling — Neutral — 74 575 ...

Adapter	LF mm	BDRED mm	WF mm	OAL mm	HF mm	74 575 ...
HSK-T 63	60	52,6	45	117	20 / 25 / 32	02537
HSK-T 100	65	87,6	45	140	20 / 25 / 32	02535

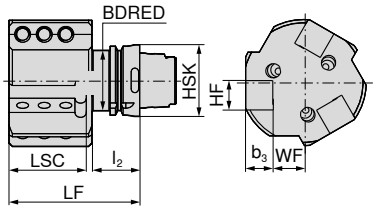
Spare parts HSK-T square shank holders with DirectCooling

Cylindrical screw

Clamping screw

			83 950 ...		**62 950 ...**	
Spare parts						
Adapter						
HSK-T 63	M5x5 - SW2,5	**157**		M12x16 - SW6	**51100**	
HSK-T 100	M5x5 - SW2,5	**157**		M12x16 - SW6	**51100**	

HSK-T square shank adapter 3-face 0°



Left-hand

74 576 ...

ISO designation	Adapter	LF mm	l_2 mm	BDRED mm	WF mm	LSC mm	b_3 mm	HF mm	
HSK T63 SH3 L 00 2525	HSK-T 63	115	42	53	28	68	25	25	**525**
HSK T100 SH3 L 00 2525	HSK-T 100	120	45	88	33	70	25	25	**725**

Protection plugs

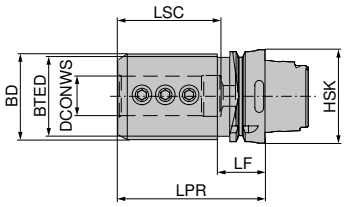
Nozzle

Hollow key with nose

Grubscrew

		70 950 ...			**70 950 ...**	**70 950 ...**		**70 950 ...**
Spare parts								
Adapter								
HSK-T 63	UNJF 7/16"-20	**05600**		UNJF 7/16"-20	**05500**	**05700**	M12x1,75x25	**851**
HSK-T 100	UNJF 7/16"-20	**05600**		UNJF 7/16"-20	**05500**	**05700**	M12x1,75x25	**851**

HSK-T Boring bar holder

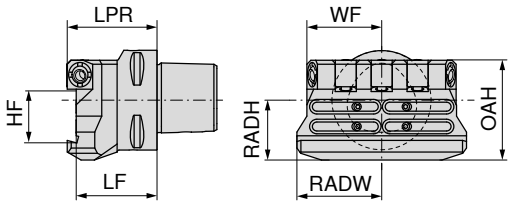


74 577 ...

ISO designation	Adapter	LPR mm	DCONWS mm	BD mm	LSC mm	LF mm	BTED mm	
HSK T63 BH08 80	HSK-T 63	80	8	32	41			**508**
HSK T63 BH10 80	HSK-T 63	80	10	40	41			**510**
HSK T63 BH12 80	HSK-T 63	80	12	40	41			**512**
HSK T63 BH16 80	HSK-T 63	80	16	40	51			**516**
HSK T63 BH20 80	HSK-T 63	80	20	50	51			**520**
HSK T63 BH25 90	HSK-T 63	90	25	53	61			**525**
HSK T63 BH32 95	HSK-T 63	95	32	68	61	42	53	**532**
HSK T100 BH20 90	HSK-T 100	90	20	55	56			**720**
HSK T100 BH25 95	HSK-T 100	95	25	55	61			**725**
HSK T100 BH32 110	HSK-T 100	110	32	68	61			**732**
HSK T100 BH40 120	HSK-T 100	120	40	83	81			**740**
HSK T100 BH50 125	HSK-T 100	125	50	98	91	45	88	**750**

16

MonoClamp – PSC parting blade holder GX/LX/FX/SX with DirectCooling



NEW

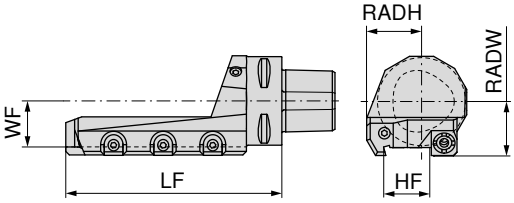
Direct Cooling

radial

84 617 ...

Adapter	LF mm	LPR mm	WF mm	HF mm	OAH mm	RADW mm	RADH mm	for parting blades	
PSC 40	40,5	45	37,5	26	50	42,5	30	XLCF N 26...	**62695**
PSC 50	40,5	45	37,5	26	50	42,5	30	XLCF N 26...	**62694**
PSC 63	45,5	50	40,0	32	57	45,0	35	XLCF N 32...	**63293**

MonoClamp – PSC parting blade holder GX/LX/FX/SX with DirectCooling



Diagrams show right hand versions

NEW

Direct Cooling

Left-hand

84 617 ...

NEW

Direct Cooling

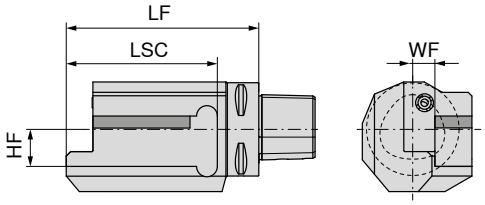
Right-hand

84 617 ...

Adapter	LF mm	WF mm	HF mm	RADW mm	RADH mm	for parting blades		
PSC 40	122	21	26	25,5	31	XLCF N 26...	**32695**	**22695**
PSC 50	122	26	26	30,5	31	XLCF N 26...	**32694**	**22694**
PSC 63	160	32	32	36,5	37	XLCF N 32...	**33293**	**23293**

PSC square shank holder 0° with DirectCooling

▲ Suitable for tool holders with PSC 63 – HF = 20 / 25 mm / PSC 80 – HF = 25 mm
▲ These HF values can be achieved by removing the clamping block



Diagrams show right hand versions

NEW

Direct Cooling

Left-hand

84 616 ...

NEW

Direct Cooling

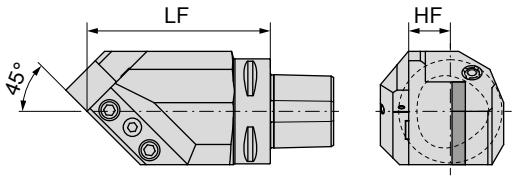
Right-hand

84 616 ...

Adapter	LF mm	WF mm	LSC mm	HF mm		
PSC 63	130	15	102	20 / 25	**32593**	**22593**
PSC 80	130	20	102	25	**32586**	**22586**

PSC square shank holder 45° with DirectCooling

▲ Suitable for tool holders with PSC 50 – HF = 20 mm / PSC 63 – HF = 20 / 25 mm
▲ These HF values can be achieved by removing the clamping block



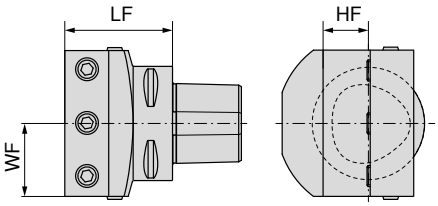
Diagrams show right hand versions

NEW Direct Cooling — Left-hand — 84 616 ...
NEW Direct Cooling — Right-hand — 84 616 ...

Adapter	LF mm	HF mm	Left-hand 84 616 ...	Right-hand 84 616 ...
PSC 50	85	20	12094	02094
PSC 63	110	20 / 25	12593	02593

PSC square shank holder 90° with DirectCooling

▲ Suitable for tool holders with PSC 40 – HF = 20 mm / PSC 63 HF = 20 / 25 mm
▲ These HF values can be achieved by removing the clamping block

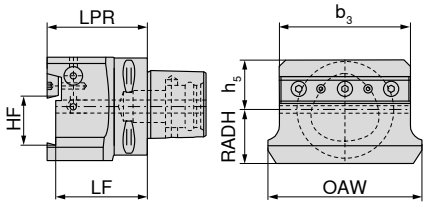


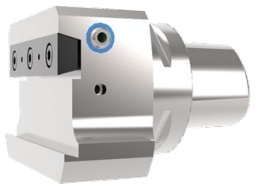
NEW Direct Cooling — Neutral — 84 616 ...

Adapter	LF mm	WF mm	HF mm	84 616 ...
PSC 40	55	40	20	62095
PSC 63	71	40	20 / 25	62593

16

Radial parting blade holder, right / left



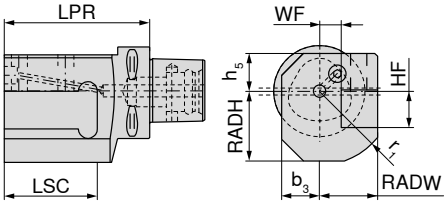


Neutral

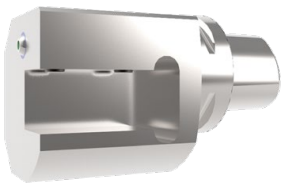
84 132 ...

Adapter	HF	LPR	OAW	b_3	h_5	RADH	LF	
	mm	mm	mm	mm	mm	mm	mm	
PSC 63	26	65	91	75	30	30	60	**626**
PSC 63	32	65	100	85	32	35	60	**632**

Square section adapter, single face



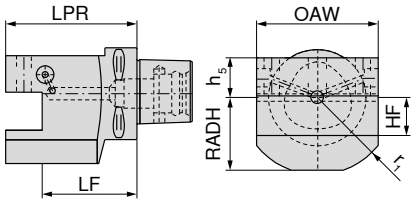
Illustrations show right-hand versions

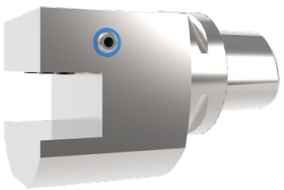


Left-hand **84 611 ...** Right-hand **84 610 ...**

Adapter	HF	LPR	b_3	RADW	r_1	WF	h_5	RADH	LSC		
	mm	mm	mm	mm	mm	mm	mm	mm	mm		
PSC 50	20	80	26	35	45	15	26	43	53	**520**	**520**
PSC 50	25	90	26	40	51	15	26	48	64	**525**	**525**
PSC 50	32	115	26	47	61	15	26	55	90	**532**	**532**
PSC 63	20	90	26	35	45	15	26	43	53	**620**	**620**
PSC 63	25	100	26	40	51	15	26	48	64	**625**	**625**
PSC 63	32	125	26	47	61	15	26	55	90	**632**	**632**
PSC 80	20	90	26	35	45	15	26	43	53	**820**	**820**
PSC 80	25	100	26	40	51	15	26	48	64	**825**	**825**
PSC 80	32	125	26	47	61	15	26	55	90	**832**	**832**

Radial square section tool holders 90°



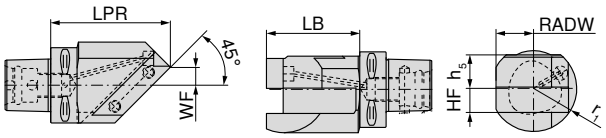


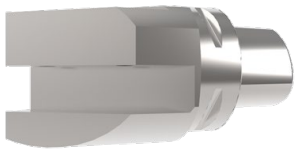
Neutral

84 602 ...

Adapter	HF	LPR	OAW	r_1	RADH	h_5	LF	
	mm	mm	mm	mm	mm	mm	mm	
PSC 50	20	70	70	45	43	26	50	**520**
PSC 50	25	80	80	51	48	26	55	**525**
PSC 50	32	90	90	61	55	26	58	**532**
PSC 63	20	80	70	45	43	26	60	**620**
PSC 63	25	90	80	51	48	26	65	**625**
PSC 63	32	100	90	61	55	26	68	**632**
PSC 80	20	80	70	45	43	26	60	**820**
PSC 80	25	90	80	51	48	26	65	**825**
PSC 80	32	100	90	61	55	26	68	**832**

Square section adapter 45°

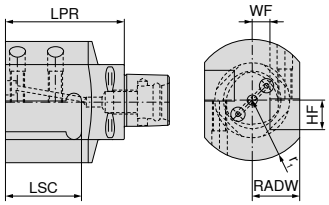


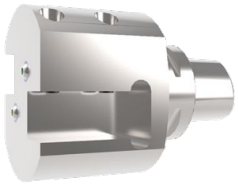


Illustrations show right-hand versions

Adapter	HF	LPR	RADW	r_1	WF	h_5	LB	Left-hand 84 605 ...	Right-hand 84 604 ...
	mm	mm	mm	mm	mm	mm	mm		
PSC 50	20	100	31	36	15	26	80	**520**	**520**
PSC 63	20	100	32	36	15	28	78	**620**	**620**
PSC 80	32	135	45	70	17	40	105	**832**	**832**

Square section adapter, double face

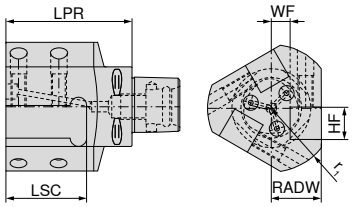


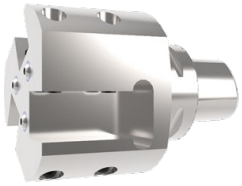


Illustrations show right-hand versions

Adapter	HF	LPR	RADW	r_1	WF	LSC	Left-hand 84 613 ...	Right-hand 84 612 ...
	mm	mm	mm	mm	mm	mm		
PSC 50	20	80	35	45	15	53	**520**	**520**
PSC 50	25	90	40	51	15	64	**525**	**525**
PSC 50	32	115	47	61	15	90	**532**	**532**
PSC 63	20	90	35	45	15	53	**620**	**620**
PSC 63	25	100	40	51	15	64	**625**	**625**
PSC 63	32	125	47	61	15	90	**632**	**632**
PSC 80	20	90	35	45	15	53	**820**	**820**
PSC 80	25	100	40	51	15	64	**825**	**825**
PSC 80	32	125	47	61	15	90	**832**	**832**

Square section adapter, triple face

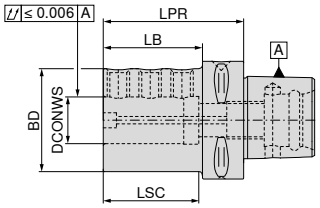




Illustrations show right-hand versions

Adapter	HF	LPR	RADW	r_1	WF	LSC	Left-hand 84 615 ...	Right-hand 84 614 ...
	mm	mm	mm	mm	mm	mm		
PSC 50	20	80	35	45	15	53	**520**	**520**
PSC 50	25	90	40	51	15	64	**525**	**525**
PSC 50	32	115	47	61	15	90	**532**	**532**
PSC 63	20	90	35	45	15	53	**620**	**620**
PSC 63	25	100	40	51	15	64	**625**	**625**
PSC 63	32	125	47	61	15	90	**632**	**632**
PSC 80	20	90	35	45	15	53	**820**	**820**
PSC 80	25	100	40	51	15	64	**825**	**825**
PSC 80	32	125	47	61	15	90	**832**	**832**

Boring bar holder



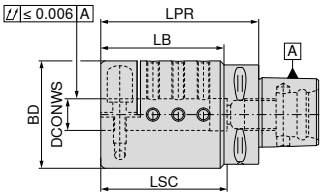
Adapter	DCONWS mm	LPR mm	BD mm	LB mm	LSC mm	84 130 ...
PSC 50	6	70	40	50	40	**506**
PSC 50	8	70	44	50	40	**508**
PSC 50	10	70	44	50	45	**510**
PSC 50	12	70	44	50	45	**512**
PSC 50	16	75	44	55	45	**516**
PSC 50	20	75	50	75	51	**520**
PSC 50	25	80	55	50	51	**525**
PSC 50	32	90	63	70	60	**532**
PSC 63	6	75	40	53	40	**606**
PSC 63	8	75	44	53	40	**608**
PSC 63	10	75	44	53	45	**610**
PSC 63	12	75	44	53	45	**612**
PSC 63	16	75	44	53	45	**616**
PSC 63	20	75	50	53	51	**620**
PSC 63	25	75	55	53	51	**625**
PSC 63	32	75	72	52	60	**632**
PSC 63	40	105	70	82	90	**640**

Grubscrew

Spare parts DCONWS		84 950 ...
6	M6x16	**153**
8	M8x16	**154**
10	M10x16	**155**
12 - 40	M12x14	**156**

Boring bar adapter, split version

▲ vibration-damped
▲ ideally suited for large overhangs

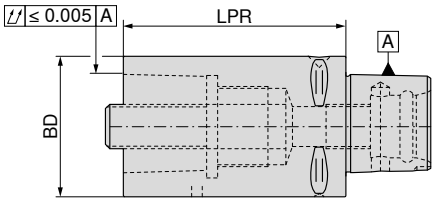


Adapter	DCONWS mm	LPR mm	BD mm	LB mm	LSC mm	84 131 ...
PSC 63	6	80	40	58	60	**606**
PSC 63	8	85	45	63	65	**608**
PSC 63	10	85	50	63	65	**610**
PSC 63	12	100	63	78	80	**612**
PSC 63	16	100	63	78	80	**616**
PSC 63	20	100	68	78	80	**620**
PSC 63	25	100	68	78	80	**625**
PSC 63	32	100	72	78	80	**632**

Spare parts DCONWS		Grubscrew 83 950 ...		Grubscrew 84 950 ...	
8	M6x20	**462**			
10			M6x16		**153**
12 - 20	M8x20	**468**			
25	M8x25	**467**			
32	M10x20	**471**			

Extension, axial clamping

▲ Run-out ≤ 0.002 mm
▲ max. speed 8,000 rpm



Adapter	BD mm	LPR mm	84 620 ...
PSC 32	32	60	**301**
PSC 32	32	80	**302**
PSC 40	40	60	**401**
PSC 40	40	80	**402**
PSC 50	50	80	**501**
PSC 50	50	100	**502**
PSC 63	63	100	**601**
PSC 63	63	140	**602**
PSC 80	80	100	**801**
PSC 80	80	125	**802**

Threaded ring

tightening screw

Spare parts Adapter	84 950 ...		84 950 ...
PSC 32	**127**	SW8	**122**
PSC 40	**128**	SW8	**123**
PSC 50	**129**	SW10	**124**
PSC 63	**130**	SW14	**126**
PSC 80	**130**	SW14	**126**

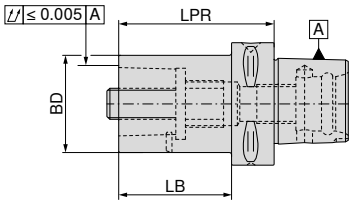
Accessories

Hollow nose keys

→ 204

Cylindrical reduction

▲ Run-out ≤ 0.002 mm
▲ max. speed 8,000 rpm

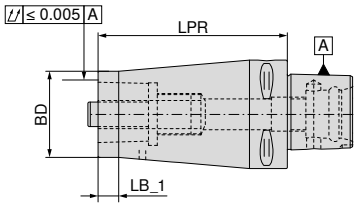


Adapter	BD mm	LPR mm	LB mm	84 624 ...
PSC 40	32	55	35	**403**
PSC 50	32	60	40	**503**
PSC 50	40	65	45	**504**
PSC 63	32	70	48	**603**
PSC 63	40	80	58	**604**
PSC 63	50	80	58	**605**
PSC 80	32	60	30	**803**
PSC 80	40	70	40	**804**
PSC 80	50	80	50	**805**
PSC 80	63	80	50	**806**
PSC 80X	63	80	48	**816** [1]
PSC 80X	80	100	68	**818** [1]

1) PSC 80X = variant with enlarged flange diameter of 100 mm / standard flange diameter PSC 80 = 80 mm

Tapered reduction

▲ Run-out ≤ 0.002 mm
▲ max. speed 8,000 rpm



Adapter	BD mm	LPR mm	LB_1 mm	84 625 ...
PSC 40	32	70	12	**403**
PSC 50	40	85	12	**504**
PSC 63	50	110	12	**605**
PSC 80	63	120	12	**806**
PSC 80X	80	150	12	**818** [1]

1) PSC 80X = variant with enlarged flange diameter of 100 mm / standard flange diameter PSC 80 = 80 mm

Threaded ring

tightening screw

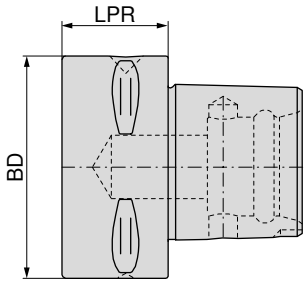
Spare parts Adapter	84 950 ...		84 950 ...
PSC 40	**128**	SW8	**123**
PSC 50	**129**	SW10	**124**
PSC 63	**130**	SW14	**126**
PSC 80	**130**	SW14	**126**
PSC 80X	**130**	SW14	**126**

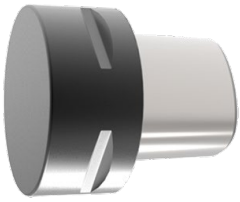
Accessories

Hollow nose keys
→ 204

16

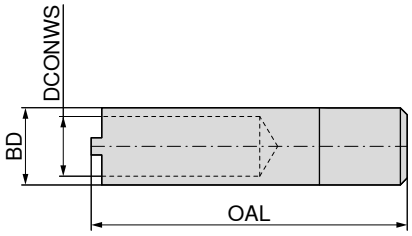
Sealing plugs





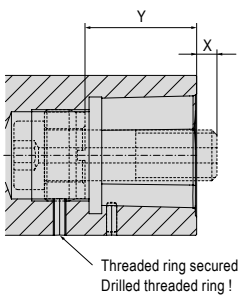
Adapter	BD mm	LPR mm	84 135 ...
PSC 40	40	28	040
PSC 50	50	28	050
PSC 63	63	30	060
PSC 80	80	38	080

Hollow nose key for clamping screw for PSC extensions and reductions



Adapter	BD mm	OAL mm	DCONWS mm	84 651 ...
PSC 32	16	80	12,5	032
PSC 40	20	80	15,0	040
PSC 50	22	90	17,0	050
PSC 63/80/80X	34	110	21,0	063

Installation instructions: clamping screw for PSC extensions and reductions

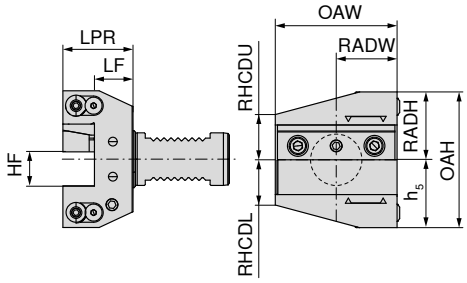


X = Screw leading edge
Y = Threaded ring insertion depth

Adapter	X mm	Y mm
PSC 32	5	24
PSC 40	5	29
PSC 50	6	36
PSC 63	8	44
PSC 80	0	53
PSC 80X	0	53

Radial square section tool holder with DirectCooling – B1 / B2 / B3 / B4

- ▲ Double tooth profile for normal and overhead applications
- ▲ The clamping rails can be attached at the top or bottom (left or right application).
- ▲ for turning tool holders with DirectCooling
- ▲ can be used up to 100 bar



NEW

Direct Cooling

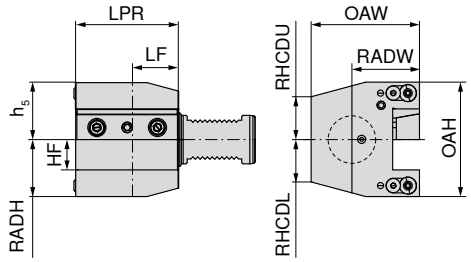
double

82 245 ...

Adapter	HF $_{0/-0,1}$ mm	LF $_{0/+0,5}$ mm	LPR mm	OAW mm	RADH mm	RADW mm	h_5 mm	OAH mm	RHCDL mm	RHCDU mm	
VDI 20	16	16	30	55	30	30,0	30	60	22	22	**01629**
VDI 20	16	26	40	55	30	30,0	30	60	22	22	**51629**
VDI 25	16	16	30	55	30	30,0	30	60	22	22	**01628**
VDI 30	20	22	40	70	39	35,0	39	78	26	26	**02027**
VDI 40	25	22	44	85	47	42,5	47	94	33	33	**02526**
VDI 50	25	22	44	98	55	50,0	55	110	42	42	**02525**

Axial square section tool holder with DirectCooling – C1 / C2 / C3 / C4

- ▲ Double tooth profile for normal and overhead applications
- ▲ The clamping rails can be attached at the top or bottom (left or right application).
- ▲ for turning tool holders with DirectCooling
- ▲ can be used up to 100 bar



NEW

Direct Cooling

double

82 246 ...

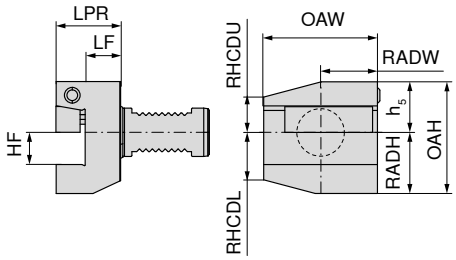
Adapter	HF $_{0/-0,1}$ mm	LF mm	LPR mm	OAW mm	RADH mm	RADW mm	h_5 mm	OAH mm	RHCDL mm	RHCDU mm	
VDI 30	20	30	70	74	39	39,0	39	78	26	26	**02027**
VDI 40	25	30	85	94	47	52,5	47	94	35	35	**02526**
VDI 50	25	30	85	105	50	63,0	50	100	42	42	**02525**

You can find spare parts on → **Page 264+265**

16

Radial square section tool holder with DirectCooling – B1 / B4

▲ Double tooth profile for normal and overhead applications
▲ for turning tool holders with DirectCooling
▲ can be used up to 100 bar



NEW

Direct Cooling

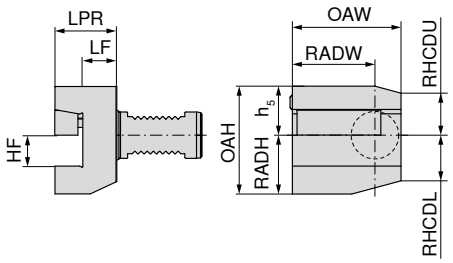
double

82 247 ...

Adapter	HF $_{0/-0,1}$ mm	LF $_{0/+0,5}$ mm	LPR mm	OAW mm	RADH mm	RADW mm	h_5 mm	OAH mm	RHCDL mm	RHCDU mm	
VDI 30	20	22	40	70,0	38	35,0	31,5	69,5	29,5	22	**02027**
VDI 40	25	22	44	85,0	48	42,5	38,0	86,0	35,0	30	**02526**
VDI 50	25	22	44	92,5	48	50,0	43,0	91,0	43,0	30	**02525**

Radial square section tool holder with DirectCooling – B2 / B3

▲ Double tooth profile for normal and overhead applications
▲ for turning tool holders with DirectCooling
▲ can be used up to 100 bar



NEW

Direct Cooling

double

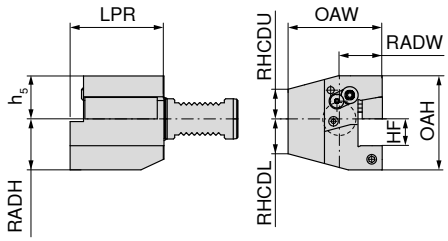
82 247 ...

Adapter	HF $_{0/-0,1}$ mm	LF $_{0/+0,5}$ mm	LPR mm	OAW mm	RADH mm	RADW mm	h_5 mm	OAH mm	RHCDL mm	RHCDU mm	
VDI 30	20	22	40	70,0	38	35,0	31,5	69,5	29,5	27	**12027**
VDI 40	25	22	44	85,0	48	42,5	38,0	86,0	35,0	30	**12526**
VDI 50	25	22	44	92,5	48	50,0	43,0	91,0	35,0	38	**12525**

You can find spare parts on → **Page 264+265**

Axial square section tool holder with DirectCooling – C1 / C4

▲ Double tooth profile for normal and overhead applications
▲ for turning tool holders with DirectCooling
▲ can be used up to 100 bar



NEW

Direct Cooling

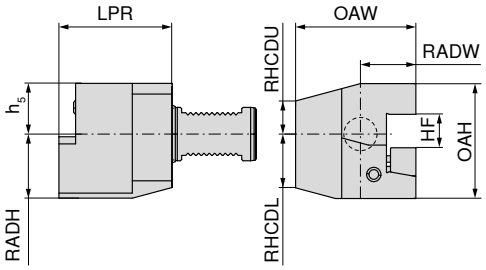
double

82 248 ...

Adapter	HF $_{0/-0,1}$ mm	LPR mm	OAW mm	RADH mm	RADW mm	h_5 mm	OAH mm	RHCDL mm	RHCDU mm	
VDI 30	20	70	70,0	38	35,0	32	70	26	22	**02027**
VDI 40	25	85	85,0	48	42,5	38	86	35	30	**02526**
VDI 50	25	85	90,5	48	48,0	44	92	42	35	**02525**

Axial square section tool holder with DirectCooling – C2 / C3

▲ Double tooth profile for normal and overhead applications
▲ for turning tool holders with DirectCooling
▲ can be used up to 100 bar



NEW

Direct Cooling

double

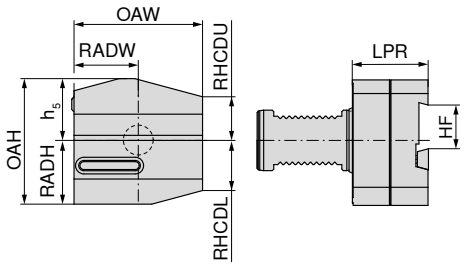
82 248 ...

Adapter	HF $_{0/-0,1}$ mm	LPR mm	OAW mm	RADH mm	RADW mm	h_5 mm	OAH mm	RHCDL mm	RHCDU mm	
VDI 30	20	70	76	38	41,0	32	70	26	26	**12027**
VDI 40	25	85	90	48	47,5	38	86	35	30	**12526**
VDI 50	25	85	95	48	52,5	44	92	42	37	**12525**

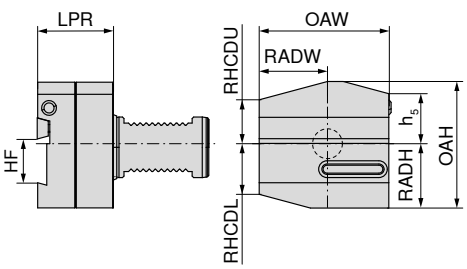
You can find spare parts on → **Page 264+265**

Parting blade holder for parting blades with DirectCooling

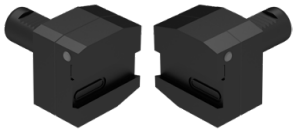
▲ Double tooth profile for normal and overhead applications
▲ for parting blades with DirectCooling
▲ can be used up to 100 bar



left



right



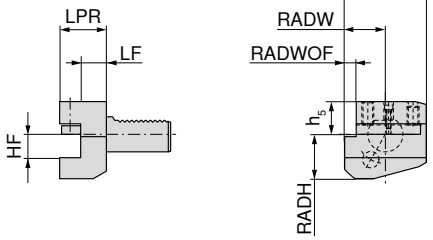
NEW Direct Cooling

NEW Direct Cooling

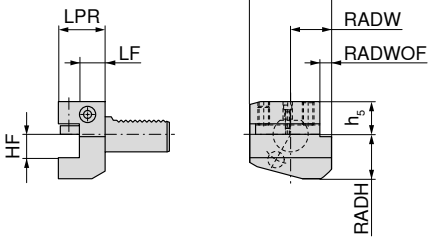
Adapter	HF mm	LPR mm	OAW mm	RADH mm	RADW mm	h_5 mm	OAH mm	RHCDL mm	RHCDU mm	Left-hand 82 249 ...	Right-hand 82 249 ...
VDI 30	26	50	70	37	35,0	32	69	30	25	**12627**	**02627**
VDI 40	32	50	85	40	42,5	43	83	31	31	**13226**	**03226**
VDI 40	26	50	85	40	42,5	43	83	31	31	**12626**	**02626**
VDI 50	32	50	100	45	50,0	43	88	37	35	**13225**	**03225**

You can find spare parts on → **Page 264+265**

Radial tool holders, short



B2



B1

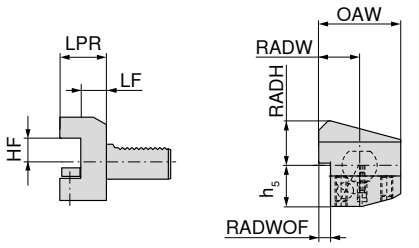
B2

B1

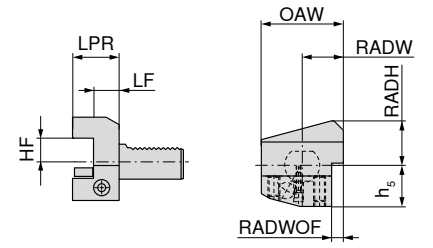
Adapter	$HF_{0/-0,1}$ mm	OAW mm	RADW mm	RADWOF mm	h_5 mm	RADH mm	$LF_{0/+0,5}$ mm	LPR mm	Left-hand 82 189 ...	Right-hand 82 185 ...
VDI 16	12	42	23,0	5,0	20,0	22	13,0	24	160	160
VDI 20	16	55	30,0	7,0	25,0	30	26,0	40	201	201
VDI 20	16	55	30,0	7,0	25,0	30	16,0	30	200	200
VDI 20	16	55	30,0	7,0	25,0	30	18,0	30	202 1)	202 1)
VDI 20	16	55	30,0	7,0	25,0	30	25,5	40		203 1)
VDI 30	20	70	35,0	10,0	28,0	38	18,5	40	300	300
VDI 30	20	70	35,0	10,0	28,0	38	42,0	60	301	301
VDI 30	20	70	35,0	10,0	28,0	35	32,0	50		302 1)
VDI 40	25	85	42,5	12,5	32,5	48	18,5	44	400	400
VDI 50	32	100	50,0	16,0	35,0	60	30,0	55	500	500

1) Height adjustable +/- 1 mm

Radial tool holders, overhead, short



B4



B3

B4

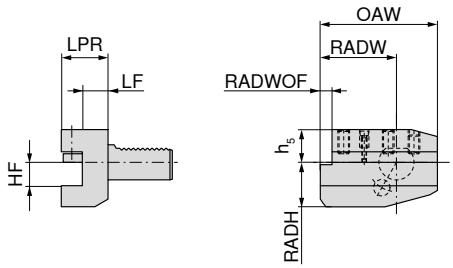
B3

Adapter	$HF_{0/-0,1}$ mm	OAW mm	RADW mm	RADWOF mm	h_5 mm	RADH mm	$LF_{0/+0,5}$ mm	LPR mm	Left-hand 82 196 ...	Right-hand 82 193 ...
VDI 16	12	42	23,0	5,0	20,0	22	13,0	24		160
VDI 20	16	55	30,0	7,0	25,0	30	26,0	40	201	201
VDI 20	16	55	30,0	7,0	25,0	30	18,5	30	202 1)	202 1)
VDI 20	16	55	30,0	7,0	25,0	30	26,0	40	203 1)	203 1)
VDI 30	20	70	35,0	10,0	35,0	38	18,5	40	300	300
VDI 40	25	85	42,5	12,5	42,5	48	18,5	44	400	400
VDI 50	32	100	50,0	16,0	50,0	60	30,0	55	500	500

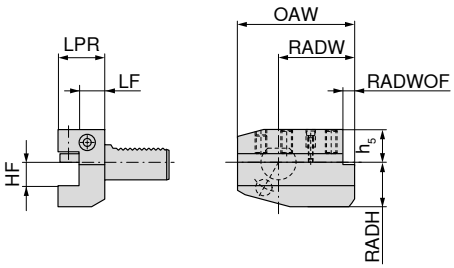
1) Height adjustable +/- 1 mm

You can find spare parts on → **Page 266**

Radial tool holders, long



B6



B5

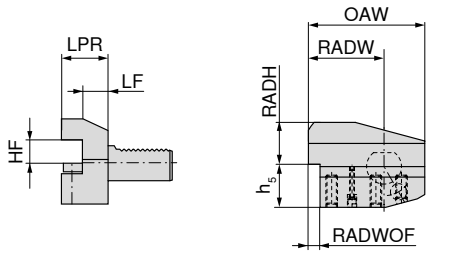
B6

B5

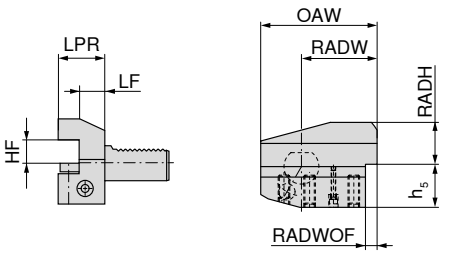
Adapter	$HF_{0/-0,1}$ mm	OAW mm	RADW mm	RADWOF mm	h_5 mm	RADH mm	$LF_{0/+0,5}$ mm	LPR mm	Left-hand 82 202 ...	Right-hand 82 199 ...
VDI 20	16	75	50,0	7,0	25,0	30	26,0	40	**201**	**201**
VDI 20	16	75	50,0	7,0	25,0	30	18,0	30		**202** [1]
VDI 30	20	100	65,0	10,0	28,0	38	18,5	40	**300**	**300**
VDI 40	25	118	75,5	12,5	32,5	48	18,5	44	**400**	**400**
VDI 50	32	130	80,0	16,0	35,0	60	30,0	55	**500**	**500**

1) Height adjustable +/- 1 mm

Radial tool holders, overhead, long



B8



B7

B8

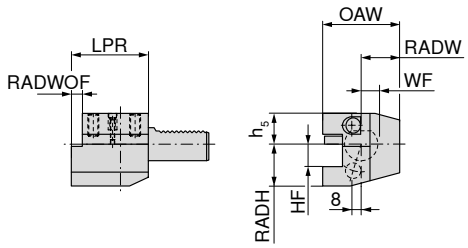
B7

Adapter	$HF_{0/-0,1}$ mm	OAW mm	RADW mm	RADWOF mm	h_5 mm	RADH mm	$LF_{0/+0,5}$ mm	LPR mm	Left-hand 82 208 ...	Right-hand 82 205 ...
VDI 20	16	75	50,0	7,0	25,0	30	16,0	30	**200**	**200**
VDI 20	16	75	50,0	7,0	25,0	30	18,0	30		**202** [1]
VDI 30	20	100	65,0	10,0	35,0	38	42,0	60		**301**
VDI 30	20	100	65,0	10,0	35,0	38	18,5	40	**300**	**300**
VDI 40	25	118	75,5	12,5	42,5	48	18,5	44	**400**	**400**
VDI 50	32	130	80,0	16,0	50,0	60	30,0	55	**500**	**500**

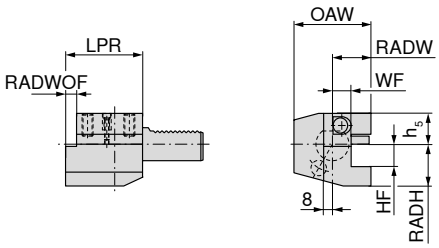
1) Height adjustable +/- 1 mm

You can find spare parts on → **Page 266**

Axial tool holders



C2



C1

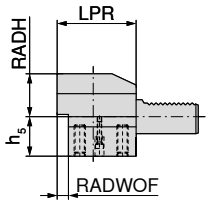
C2

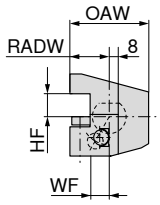
C1

Adapter	HF $_{0/-0,1}$ mm	OAW mm	RADW mm	WF $_{0/+0,3}$ mm	h_5 mm	RADH mm	LPR mm	Left-hand 82 214 ...	Right-hand 82 211 ...
VDI 16	12	43	24,0	13,0	20,0	22	44		160
VDI 20	16	65	40,0	25,5	25,0	30	50		202 [1]
VDI 20	16	65	40,0	26,0	25,0	30	50	200	201
VDI 30	20	76	41,0	23,0	28,0	38	70	300	
VDI 30	20	70	35,0	17,0	28,0	38	70		300
VDI 40	25	85	42,5	20,5	32,5	48	85		400
VDI 40	25	90	47,5	25,5	32,5	48	85	400	
VDI 50	32	105	55,0	30,5	35,0	60	100	500	
VDI 50	32	100	50,0	25,5	35,0	60	100		500

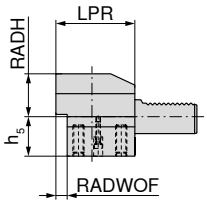
1) Height adjustable +/- 1 mm

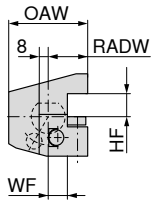
Axial tool holders, overhead





C4





C3

C4

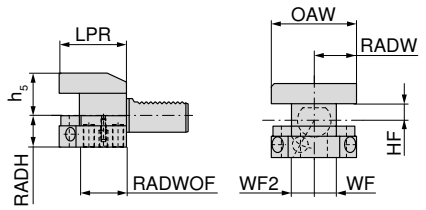
C3

Adapter	HF $_{0/-0,1}$ mm	OAW mm	RADW mm	WF $_{0/+0,3}$ mm	h_5 mm	RADH mm	LPR mm	Left-hand 82 220 ...	Right-hand 82 217 ...
VDI 16	12	43	24,0	13,0	20,0	22	44		160
VDI 20	16	65	40,0	25,5	30,0	25	50		202 [1]
VDI 20	16	65	40,0	26,0	25,0	30	50	200	201
VDI 20	16	65	40,0	25,5	25,0	30	50	201 [1]	
VDI 30	20	70	35,0	17,0	35,0	38	70		300
VDI 30	20	76	41,0	23,0	35,0	38	70	300	
VDI 40	25	85	42,5	20,5	42,5	48	85		400
VDI 40	25	90	47,5	25,5	42,5	48	85	400	
VDI 50	32	100	50,0	25,5	50,0	60	100		500
VDI 50	32	105	55,0	30,5	50,0	60	100	500	

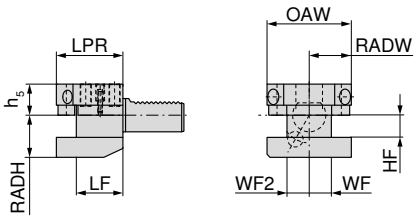
1) Height adjustable +/- 1 mm

You can find spare parts on → **Page 266**

Multiple tool holders



D2



D1

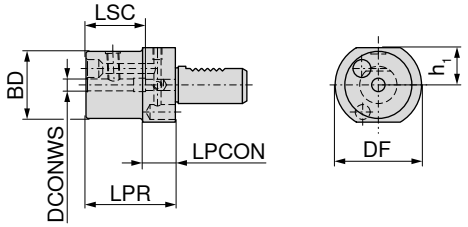
D2

D1

Adapter	HF $_{0/-0,1}$ mm	RADW mm	WF $_{0/+0,3}$ mm	WF2 $_{0/+0,3}$ mm	OAW mm	h_5 mm	RADH mm	LF $_{0/+0,5}$ mm	LPR mm	82 224 ...	82 222 ...
VDI 30	20	35,0	17,0	23,0	76	28,0	38	42	60		**300**
VDI 30	20	35,0	17,0	23,0	76	35,0	38	42	60	**300**	
VDI 40	25	42,5	20,5	25,5	90	32,5	48	50	72		**400**
VDI 40	25	42,5	20,5	25,5	90	42,5	48	50	72	**400**	

Cylindrical tool holders

▲ for tools with cylindircal shank to DIN 6535 and DIN 1835 Form E (Whistle Notch)
▲ Coolant supply either centrally through the tool or via the adjustable ball spray nozzles



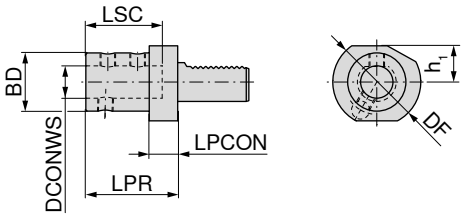
E

Cooling through nozzle

Adapter	DCONWS mm	DF mm	BD mm	h_1 mm	LPR mm	LPCON mm	LSC mm	83 269 ...
VDI 20	6	50	45	23,0	60	22	40	**206**
VDI 20	8	50	45	23,0	60	22	40	**208**
VDI 20	10	50	45	23,0	60	22	44	**210**
VDI 20	12	50	45	23,0	60	22	49	**212**
VDI 20	14	50	45	23,0	62	22	49	**214**
VDI 20	16	50	45	23,0	67	22	52	**216**
VDI 20	18	50	45	23,0	67	22	52	**218**
VDI 20	20	50	45	23,0	67	22	52	**220**
VDI 30	6	68	52	28,0	67	22	35	**306**
VDI 30	8	68	52	28,0	67	22	35	**308**
VDI 30	10	68	52	28,0	67	22	39	**310**
VDI 30	12	68	52	28,0	67	22	44	**312**
VDI 30	14	68	52	28,0	67	22	44	**314**
VDI 30	16	68	52	28,0	67	22	47	**316**
VDI 30	18	68	52	28,0	67	22	47	**318**
VDI 30	20	68	52	28,0	67	22	52	**320**
VDI 40	6	83	52	32,5	67	22	35	**406**
VDI 40	8	83	52	32,5	67	22	35	**408**
VDI 40	10	83	52	32,5	67	22	39	**410**
VDI 40	12	83	52	32,5	67	22	44	**412**
VDI 40	14	83	52	32,5	67	22	44	**414**
VDI 40	16	83	52	32,5	67	22	47	**416**
VDI 40	18	83	52	32,5	67	22	47	**418**
VDI 40	20	83	52	32,5	67	22	52	**420**

Cylindrical tool holders for indexable insert drills

▲ for drilling tools with internal coolant supply



E1

AD

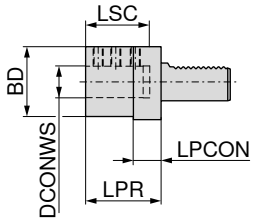
82 274 ...

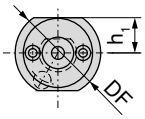
Adapter	DCONWS $_{H6}$ mm	DF mm	BD mm	h_1 mm	LPR mm	LPCON mm	LSC mm	
VDI 20	16	50	36	23,0	67	18	54	**200**
VDI 20	20	50	40	23,0	67	18	54	**201**
VDI 20	25	50	45	23,0	71	18	59	**202**
VDI 30	16	68	36	28,0	67	22	54	**300**
VDI 30	20	68	40	28,0	67	22	54	**301**
VDI 30	25	68	45	28,0	71	22	59	**302**
VDI 30	32	68	52	28,0	75	22	63	**303**
VDI 30	40	68	60	28,0	87	22	73	**304**
VDI 40	16	83	36	32,5	67	22	54	**400**
VDI 40	20	83	40	32,5	67	22	54	**401**
VDI 40	25	83	45	32,5	75	22	59	**402**
VDI 40	32	83	52	32,5	75	22	63	**403**
VDI 40	40	83	60	32,5	90	22	73	**404**
VDI 50	20	98	40	35,0	80	30	54	**500**
VDI 50	25	98	45	35,0	80	30	59	**501**
VDI 50	32	98	52	35,0	80	30	63	**502**
VDI 50	40	98	60	35,0	90	30	73	**503**
VDI 50	50	98	70	35,0	100	30	83	**504**

You can find spare parts on → **Page 266**

Boring bar holder

▲ for turning tools with cylindrical shank
▲ Coolant supply either through the tool or via the ball-shaped spray nozzle





E2

Cooling through nozzle

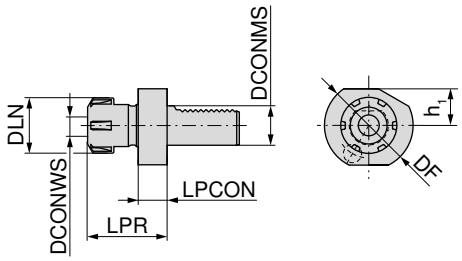
82 268 ...

Adapter	DCONWS $_{H7}$ mm	DF mm	BD mm	h_1 mm	LPR mm	LPCON mm	LSC mm	
VDI 16	6	40	32	18,0	44	13	34	**160** [1]
VDI 16	8	40	32	18,0	44	13	34	**161** [1]
VDI 16	10	40	32	18,0	44	13	34	**162** [1]
VDI 16	12	40	40	18,0	44	13	34	**163** [1]
VDI 16	16	40	40	18,0	44	13	34	**164** [1]
VDI 20	8	50	40	23,0	50	18	41	**200**
VDI 20	10	50	40	23,0	50	18	41	**201**
VDI 20	12	50	40	23,0	50	18	41	**202**
VDI 20	16	50	40	23,0	50	18	41	**203**
VDI 20	20	50	50	23,0	50	18	41	**204**
VDI 20	25	50	50	23,0	60	18	51	**205**
VDI 30	8	68	55	28,0	60	22	51	**300**
VDI 30	10	68	55	28,0	60	22	51	**301**
VDI 30	12	68	55	28,0	60	22	51	**302**
VDI 30	16	68	55	28,0	60	22	51	**303**
VDI 30	20	68	55	28,0	60	22	51	**304**
VDI 30	25	68	55	28,0	60	22	51	**305**
VDI 30	32	68	68	28,0	75	22	61	**306**
VDI 40	8	83	55	32,5	75	22	61	**400**
VDI 40	10	83	55	32,5	75	22	61	**401**
VDI 40	12	83	55	32,5	75	22	61	**402**
VDI 40	16	83	55	32,5	75	22	61	**403**
VDI 40	20	83	55	32,5	75	22	61	**404**
VDI 40	25	83	55	32,5	75	22	61	**405**
VDI 40	32	83	83	32,5	75	22	61	**406**
VDI 40	40	83	83	32,5	90	22	76	**407**
VDI 50	12	98	68	35,0	90	30	76	**500**
VDI 50	16	98	68	35,0	90	30	76	**501**
VDI 50	20	98	68	35,0	90	30	76	**502**
VDI 50	25	98	68	35,0	90	30	76	**503**
VDI 50	32	98	68	35,0	90	30	76	**504**
VDI 50	40	98	98	35,0	90	30	76	**505**
VDI 50	50	98	98	35,0	100	30	86	**506**

1) Coolant supply through pipe joint

You can find spare parts on → **Page 266**

ER Collet chucks



E4

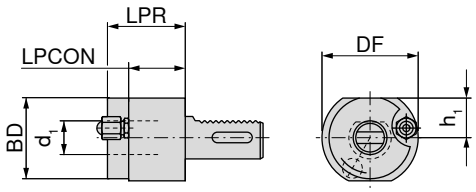
82 286 ...

Adapter	DCONWS mm	DF mm	DLN mm	h_1 mm	LPR mm	LPCON mm	for collet	
VDI 16	1 - 10	40	28	18,0	43,5	14	426E (ER16)	**160**
VDI 16	1 - 13	40	34	18,0	44,0	14	428E (ER20)	**161**
VDI 20	1 - 16	50	42	23,0	57,0	18	430E (ER25)	**202**
VDI 20	2 - 20	50	50	23,0	62,0	18	470E (ER32)	**203**
VDI 30	1 - 16	68	42	28,0	57,0	22	430E (ER25)	**300**
VDI 30	2 - 20	68	50	28,0	75,0	22	470E (ER32)	**301**
VDI 40	1 - 16	83	42	32,5	75,0	22	430E (ER25)	**400**
VDI 40	2 - 20	83	50	32,5	75,0	22	470E (ER32)	**401**
VDI 40	3 - 26	83	63	32,5	75,0	22	472E (ER40)	**402**
VDI 50	2 - 20	94	50	35,0	75,0	30	470E (ER32)	**500**
VDI 50	3 - 26	94	63	35,0	63,0	30	472E (ER40)	**501**

ER collets can be found on → **Pages 268–279**.

Morse taper adapters

▲ For taper shanks with ejector tang



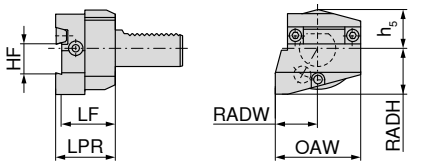
F1

82 277 ...

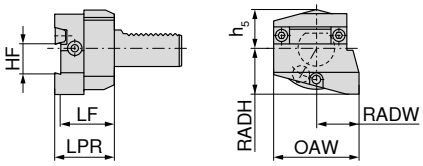
Adapter	d_1	BD mm	DF mm	h_1 mm	LPR mm	LPCON mm	
VDI 20	MK1		50	23,0	23		**200**
VDI 20	MK2		50	23,0	87		**201**
VDI 30	MK1		68	28,0	27		**300**
VDI 30	MK2		68	28,0	27		**301**
VDI 30	MK3	58	68	28,0	55	40	**302**
VDI 40	MK2	55	83	32,5	36	22	**401**
VDI 40	MK3	58	83	32,5	36	22	**402**
VDI 40	MK4	68	83	32,5	80	22	**403**
VDI 50	MK2	55	98	35,0	36	30	**500**
VDI 50	MK3	58	98	35,0	36	30	**501**
VDI 50	MK4	68	98	35,0	50	30	**502**

Parting blade holders, height adjustable

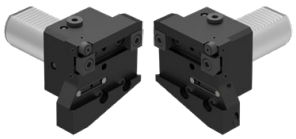
▲ Vertical adjustment ± 1 mm
▲ Suitable for internal cooling through the parting blade (DC)
▲ axially parallel, adjustable external coolant supply



left



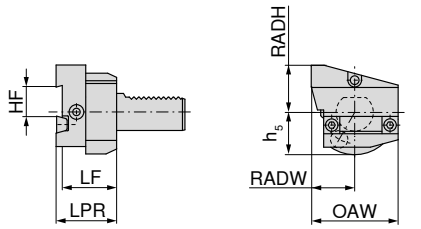
right



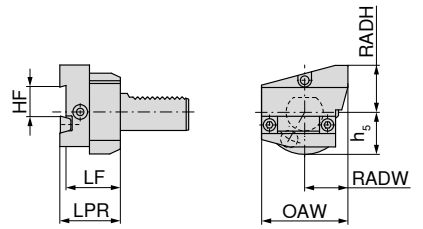
Adapter	OAW mm	RADW mm	HF mm	h_5 mm	RADH mm	LF mm	LPR mm	Left-hand 82 237 ...	Right-hand 82 236 ...
VDI 30	70	35,0	26	28,0	38	44	49	**300**	**300**
VDI 30	70	35,0	32	30,5	38	44	49	**302**	**302**
VDI 40	73	42,5	26	32,0	48	44	49	**040**	**040**
VDI 40	85	42,5	32	32,0	48	44	49	**400**	**400**

Parting blade holders, height adjustable, overhead

▲ Vertical adjustment ± 1 mm
▲ Suitable for internal cooling through the parting blade (DC)
▲ axially parallel, adjustable external coolant supply



left

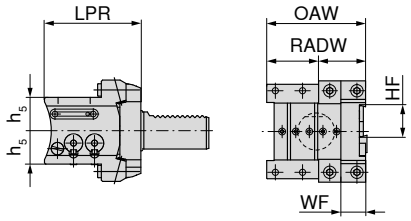


right

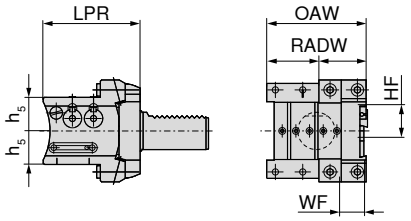
Adapter	OAW mm	RADW mm	HF mm	h_5 mm	RADH mm	LF mm	LPR mm	Left-hand 82 243 ...	Right-hand 82 242 ...
VDI 30	70	35,0	26	34,0	38	44	49	**300**	**300**
VDI 30	70	35,0	32	30,5	38	44	49	**302**	**302**
VDI 40	73	42,5	26	32,0	48	44	49	**040**	**040**
VDI 40	85	42,5	32	32,0	48	44	49	**400**	**400**

Parting blade holders, height adjustable

▲ Vertical adjustment ± 1 mm
▲ Suitable for internal cooling through the parting blade (DC)
▲ axially parallel, adjustable external coolant supply



Universal-overhead

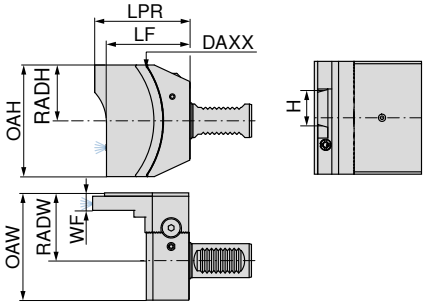


Universal

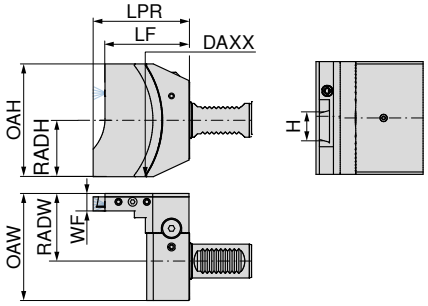
Adapter	OAW mm	RADW mm	HF mm	h_5 mm	WF mm	LPR mm	Universal-overhead 82 244 ...	Universal 82 238 ...
VDI 30	80	40	26	27	20	78	**300**	**300**
VDI 40	80	40	26	27	20	88	**400**	**400**
VDI 40	80	40	32	32	20	88	**402**	**402**

Parting blade holder

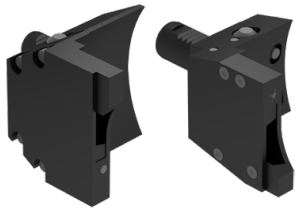
▲ doubles = reciprocally interlocked VDI shank



double – overhead



double



Adapter	LPR mm	LF mm	OAH mm	RADH mm	OAW mm	RADW mm	WF mm	DAXX mm	H mm	double – overhead 83 227 ...	double 83 226 ...
VDI 20	85,5	75	94	47	85	60	15,5	176	26	**02629**[1)]	**02629**[1)]
VDI 30	85,5	75	100	50	95	60	15,5	176	32	**03227**[1)]	**03227**[1)]
VDI 30	85,5	75	100	50	95	60	15,5	176	26	**02627**[1)]	**02627**[1)]
VDI 40	88,5	78	100	50	95	60	15,5	176	32	**03226**[1)]	**03226**[1)]
VDI 40	88,5	78	100	50	95	60	15,5	176	26	**02626**[1)]	**02626**[1)]

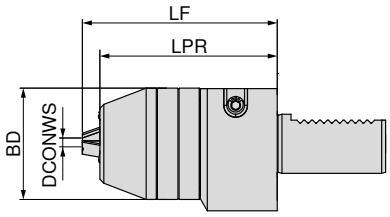
1) Not ex-stock

With star turrets, there is the danger of a collision for failure to comply to the machine-default nominal maximum height (LPR).

Short drill chuck – NC 2010

▲ Coolant supply via 3 adjustable ball-shaped spray nozzles in the housing
▲ Independent of direction of rotation

Scope of supply:
Basic body including chuck key SW 4

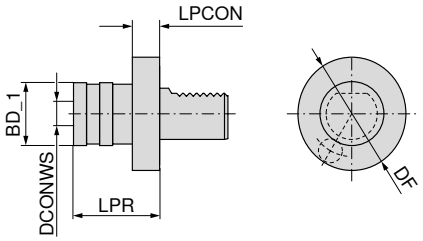


Adapter	DCONWS mm	BD mm	LPR mm	LF mm	84 297 ...
VDI 20	0,5 - 10	48,5	40	50	**210** [1]
VDI 30	0,5 - 13	56,5	90	99	**313**
VDI 30	2,5 - 16	56,5	90	99	**316**
VDI 40	0,5 - 13	56,5	90	99	**413**
VDI 40	2,5 - 16	56,5	90	99	**416**

1) Without Through Coolant

Quick-change tap chucks GSF

▲ LZD = Length compensation under tension and compression



83 307 ...

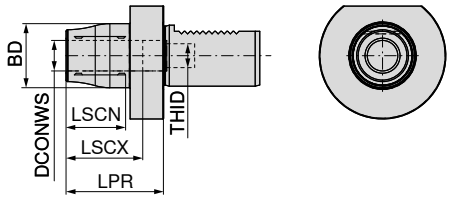
Adapter	cutting range	SZID	DCONWS mm	BD_1 mm	LPR mm	LZD± mm	
VDI 20	M3 - M12	01	19	38	55	9	**112**
VDI 30	M3 - M12	01	19	38	55	9	**312**
VDI 40	M3 - M12	01	19	38	55	9	**412**
VDI 20	M6 - M20	02	31	55	77	15	**120**
VDI 30	M6 - M20	02	31	55	77	15	**320**
VDI 40	M6 - M20	02	31	55	77	15	**420**

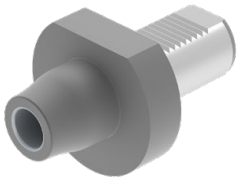
Quick change adapters can be found on → **Page 288–292**.

HyTens – Turn

▲ Hydraulic chuck
▲ For the hydraulic clamping of cylindrical tool shanks tol. h6, boring bars and cylindrical tool holders tol. h7, g6 in fixed base holders
▲ One screw for locking the boring bar
▲ High-precision clamping with a repeatability of 3 µm

Scope of supply:
Base body with backstop screw and pressure screw





AD

83 402 ...

Adapter	DCONWS mm	BD mm	LPR mm	LSCX mm	LSCN mm	THID	
VDI 30	20	42	64	51	41	M16x1	**02027**
VDI 40	20	42	64	51	41	M16x1	**02026**

Stop screw IK

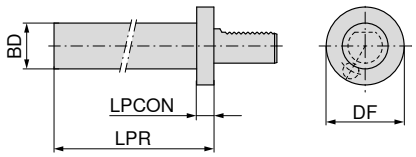
83 950 ...

Spare parts

DCONWS		
20	M16x1x31 - SW5	**48700**

Test arbors

▲ Radial run-out ≤ 0.02 mm

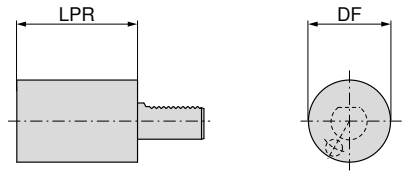


83 324 ...

Adapter	BD $_{h5}$ mm	DF mm	LPR mm	LPCON mm	
VDI 16	30	40	120	15	**016**
VDI 20	40	50	150	15	**020**
VDI 30	40	68	200	15	**030**
VDI 40	40	83	200	15	**040**
VDI 50	40	98	200	15	**050**

Tool holders, rough machined, round

▲ Manufactured from C45



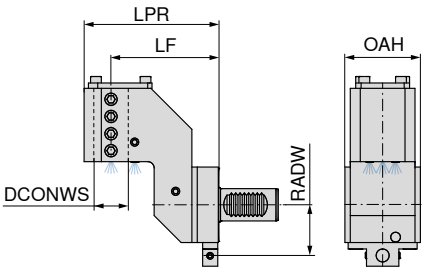
A2

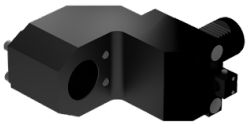
82 330 ...

Adapter	LPR mm	DF mm	
VDI 16	60	40	**160**
VDI 20	70	50	**200**
VDI 30	100	68	**300**
VDI 30	240	68	**303**
VDI 40	120	83	**400**
VDI 40	320	83	**403**
VDI 50	135	98	**500**
VDI 50	400	98	**502**

Boring bar holder, with offset, with through coolant

▲ doubles = reciprocally interlocked VDI shank
▲ external coolant supply available





IC

double

83 229 ...

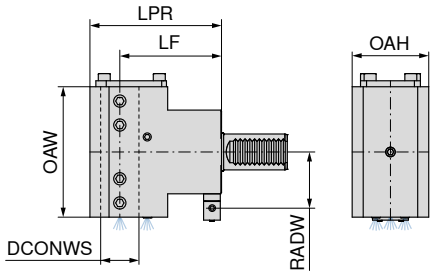
Adapter	DCONWS mm	LPR mm	LF mm	OAH mm	RADW mm	
VDI 25	25	99,5	75	30	40	**02528**[1)]
VDI 30	32	125,0	100	70	47	**03227**[1)]
VDI 40	40	133,0	100	85	56	**04026**[1)]

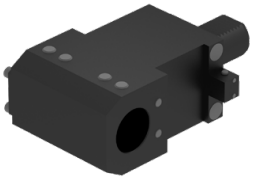
1) Not ex-stock

With star turrets, there is the danger of a collision for failure to comply to the machine-default nominal maximum height (LPR).

Double boring bar holder with through coolant

▲ for use of two boring bars for main and sub-spindle machining
▲ external coolant supply available





IC

83 230 ...

Adapter	DCONWS mm	LPR mm	LF mm	OAH mm	RADW mm	OAW mm	
VDI 25	25	99,5	75	54	40	104	**02528**[1)]
VDI 30	32	110,0	85	62	47	109	**03227**[1)]
VDI 30	32	125,0	100	62	47	118	**13227**[1)]
VDI 40	40	152,0	120	76	56	116	**04026**[1)]

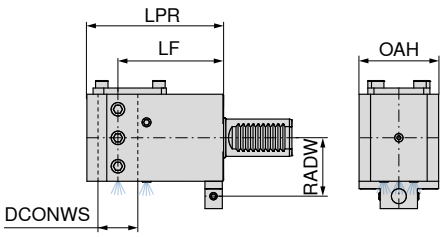
1) Not ex-stock

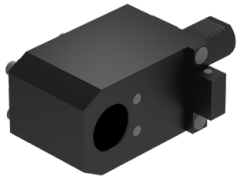
With star turrets, there is the danger of a collision for failure to comply to the machine-default nominal maximum height (LPR).

16

Boring bar holder with through coolant

▲ external coolant supply available





IC

83 228 ...

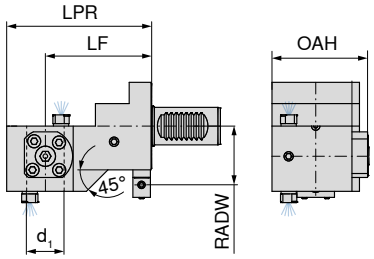
Adapter	DCONWS mm	LPR mm	LF mm	OAH mm	RADW mm	
VDI 25	25	100	75	60	40	**02528**[1)]
VDI 30	32	110	85	64	47	**03227**[1)]
VDI 30	32	125	100	64	47	**13227**[1)]
VDI 40	40	130	100	76	56	**04026**[1)]
VDI 40	40	152	120	76	56	**14026**[1)]
VDI 50	50	155	120	98	64	**05025**[1)]

1) Not ex-stock

With star turrets, there is the danger of a collision for failure to comply to the machine-default nominal maximum height (LPR).

90° VDI to VDI adapter, double sided

▲ for rotating toolholder



IC

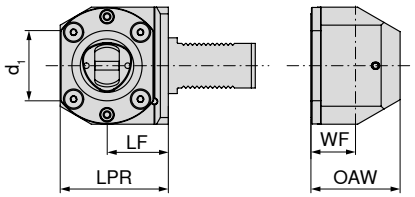
83 225 ...

Adapter	DCONWS mm	LPR mm	LF mm	OAH mm	RADW mm	
VDI 25	25	104	75	38,0	40	**02528**[1)]
VDI 25	20	104	75	67,5	40	**02028**[1)]
VDI 30	30	116	85	76,5	47	**03027**[1)]
VDI 30	30	131	100	76,5	47	**13027**[1)]
VDI 40	40	133	100	89,0	56	**04026**[1)]
VDI 40	40	153	120	89,0	56	**14026**[1)]

1) Not ex-stock

90° VDI to PSC adapter

Scope of supply:
including pull stud

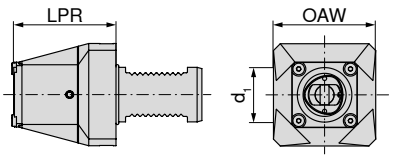


						90°
						83 231 ...
Adapter	d_1	LF mm	LPR mm	WF mm	OAW mm	
VDI 30	PSC 40	41	65	21	56	**04027**[1)]
VDI 40	PSC 40	51	75	30	86	**04026**[1)]
VDI 40	PSC 50	53	85	40	80	**05026**[1)]
VDI 40	PSC 63	53	95	40	80	**06326**[1)]
VDI 50	PSC 50	53	85	40	80	**05025**[1)]
VDI 50	PSC 63	55	97	40	80	**06325**[1)]

1) Not ex-stock

VDI to PSC adapter

Scope of supply:
including pull stud



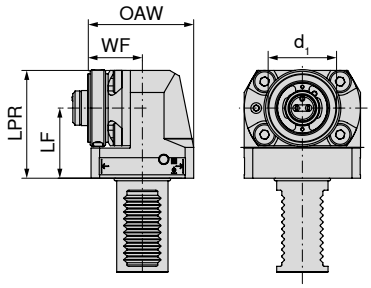
				83 232 ...
Adapter	d_1	LPR mm	OAW mm	
VDI 30	PSC 40	70	60	**04027**[1)]
VDI 40	PSC 40	75	75	**04026**[1)]
VDI 40	PSC 50	85	82	**05026**[1)]
VDI 40	PSC 63	90	105	**06326**[1)]
VDI 50	PSC 50	85	91	**05025**[1)]
VDI 50	PSC 63	100	105	**06325**[1)]

1) Not ex-stock

Accessories

Pull stud PSC
→ 176

90° VDI to HSK-T adapter

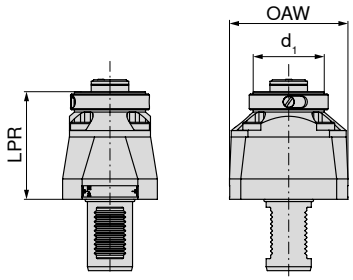


90°

Adapter	d_1	LF mm	LPR mm	WF mm	OAW mm	83 233 ...
VDI 30	HSK-T 40	41	65	25	60	**04027**[1)]
VDI 40	HSK-T 40	51	75	34	90	**04026**[1)]
VDI 40	HSK-T 63	53	90	45	85	**06326**[1)]
VDI 50	HSK-T 63	55	97	45	85	**06325**[1)]

1) Not ex-stock

VDI to HSK-T adapter



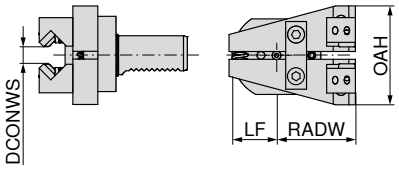
Adapter	d_1	LPR mm	OAW mm	83 234 ...
VDI 30	HSK-T 40	74	60	**04027**[1)]
VDI 40	HSK-T 40	79	75	**04026**[1)]
VDI 40	HSK-T 63	95	105	**06326**[1)]
VDI 50	HSK-T 63	105	105	**06325**[1)]

1) Not ex-stock

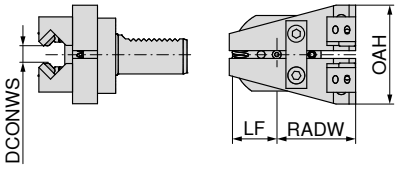
Bar pullers for disc turrets, radial

▲ Two adjustable, spring-mounted, replaceable grippers are fitted to the main body. Each of these is equipped with a carbide insert. The grippers are set to a slightly smaller diameter than the bar and then pressed onto the bar in an axial direction (x axis) by the tool turret.
▲ GA = Gripper set

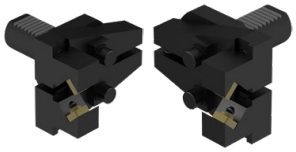
Scope of supply:
Bar puller incl. GA 1 for VDI 16, and GA 3 from VDI 20



left



right

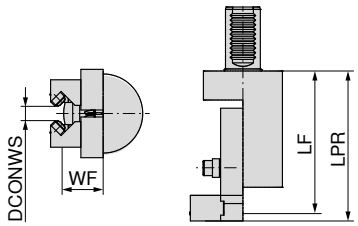


Adapter	DCONWS mm	LF mm	OAH mm	RADW mm	GA	Left-hand 80 309 ...	Right-hand 80 306 ...
VDI 16	2 - 22	28	74	35	1		**01600**
VDI 20	2 - 42	34	85	61	3		**02000**
VDI 30	2 - 42	34	105	61	3 - 4	**03000**	**03000**
VDI 40	2 - 65	34	125	61	3 - 4	**04000**	**04000**

Bar pullers for star turrets

▲ Two adjustable, spring-mounted, replaceable grippers are fitted to the main body. Each of these is equipped with a carbide insert. The grippers are set to a slightly smaller diameter than the bar and then pressed onto the bar in an axial direction (x axis) by the tool turret.
▲ 90° angle head
▲ GA = Gripper set

Scope of supply:
Bar puller with GA 3

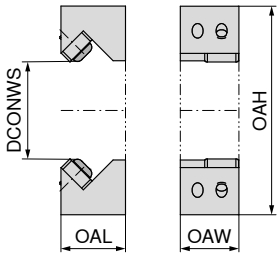


Adapter	DCONWS mm	LF mm	LPR mm	WF mm	GA	Left-hand 80 310 ...
VDI 30	2 - 42	122,5	129	37,0	3 - 4	**03000**
VDI 40	2 - 65	142,5	149	41,5	3 - 4	**04000**

16

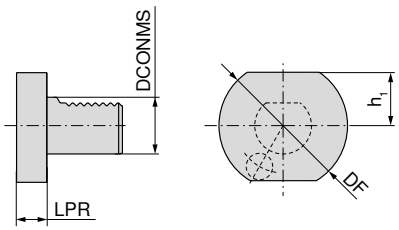
Gripper accessories

▲ For bar pullers 80 306 ... / 80 309 ... / 80 310 ...
▲ Price per pair

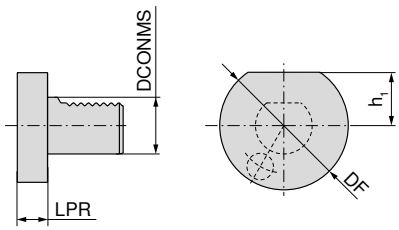


GA	DCONWS mm	OAL mm	OAW mm	OAH mm	80 312 ...
1	2 - 22	24,5	13	58	12200
3	2 - 42	26,0	22	86	14200
4	42 - 65	29,5	22	102	16500

Protection plugs



Steel



Plastic

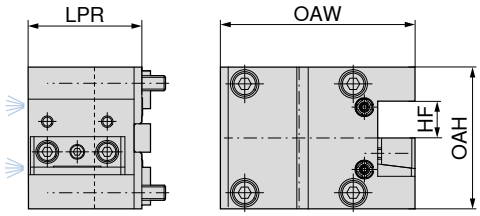
Z2

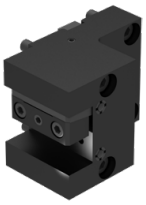
Z2

DCONMS h8 mm	DF mm	h_1 mm	LPR mm	Steel 82 317 ...	Plastic 83 318 ...
16	40	18,0	16	160	160
20	50	23,0	16	200	200
30	68	28,0	16	300	300
40	83	32,5	20	400	400
50	98	35,0	20	500	500

Doosan/Spinner – BMT 45 – Axial square section tool holder

▲ directly screwed version





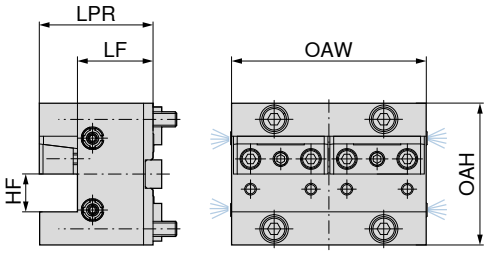
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	Left-hand 82 480 ...	Left-hand 82 480 ...
BMT 45	58 x 58	20	60	75	99,5	**00001**	**00006**

Doosan/Spinner – BMT 45 – Radial square section tool holder

▲ directly screwed version



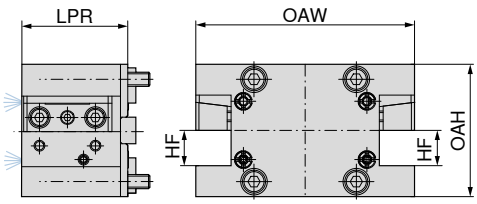
NEW

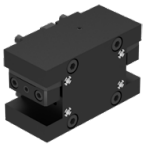
Direct Cooling

Adapter	Hole pattern	HF mm	LF mm	LPR mm	OAH mm	OAW mm	Left-hand 82 480 ...	Left-hand 82 480 ...
BMT 45	58 x 58	20	40	60	75	103	**01002**	
BMT 45	58 x 58	20	40	60	75	80		**01007**

Doosan/Spinner – BMT 45 – Multi square section tool holder

▲ directly screwed version





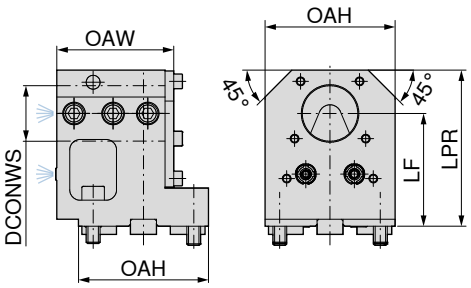
NEW

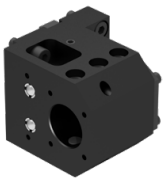
Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	82 480 ...	82 480 ...
BMT 45	58 x 58	20	60	75	124	**02003**	**02008**

Doosan/Spinner – BMT 45 – Combi tool holder

▲ directly screwed version



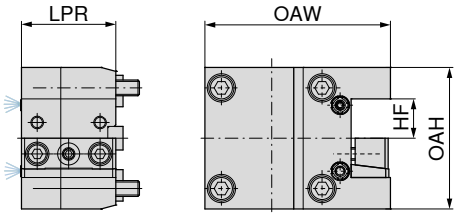


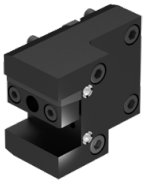
IC

Adapter	Hole pattern	DCONWS mm	LF mm	OAW mm	OAH mm	LPR mm	82 480 ...
BMT 45	58 x 58	32	65	67,5	75	90	**03004**
BMT 45	58 x 58	32	85	67,5	75	110	**03005**

Doosan – BMT 55 – Axial square section tool holder

▲ directly screwed version





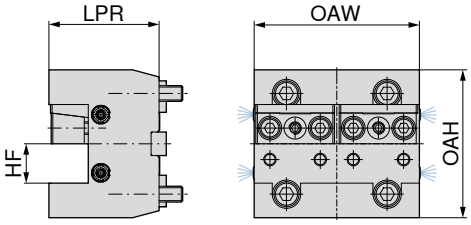
NEW

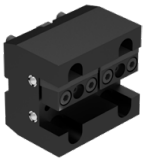
Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	Left-hand 82 481 ...	Left-hand 82 481 ...
BMT 55	64 x 64	25	60	90	118	00001	00005

Doosan – BMT 55 – Radial square section tool holder

▲ directly screwed version





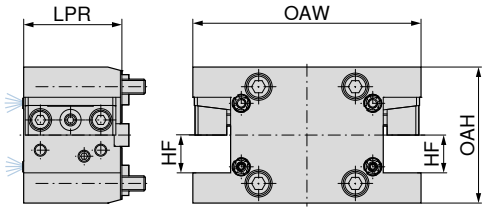
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	Left-hand 82 481 ...	Left-hand 82 481 ...
BMT 55	64 x 64	25	70	94	105	01002	
BMT 55	64 x 64	25	95	94	105		01006

Doosan – BMT 55 – Multi square section tool holder

▲ directly screwed version



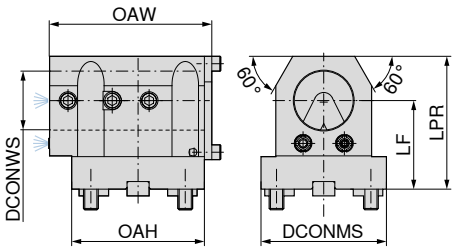
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	82 481 ...	82 481 ...
BMT 55	64 x 64	25	65	90	151	**02003**	
BMT 55	64 x 64	25	60	90	151		**02007**

Doosan – BMT 55 – Boring bar holder

▲ directly screwed version

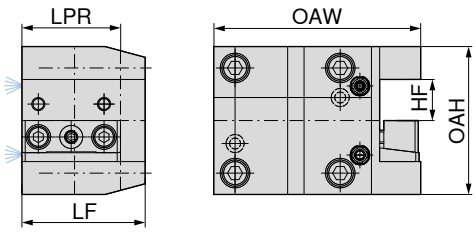


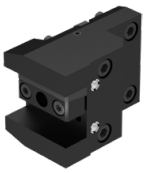
IC

Adapter	Hole pattern	DCONWS mm	LF mm	DCONMS mm	LPR mm	OAH mm	OAW mm	82 481 ...
BMT55	64 x 64	40	60	85	90	90	110	**04004**

EMAG – BMT 55 –
Axial square section tool holder

▲ directly screwed version





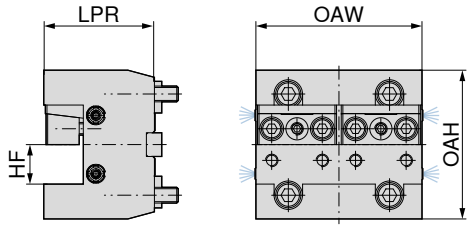
NEW

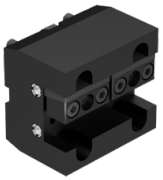
Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	LF mm	OAH mm	OAW mm	Left-hand 82 482 ...	Left-hand 82 482 ...
BMT 55	64 X 64	25	60	75	90	126	**00001**	**00004**

EMAG – BMT 55 –
Radial square section tool holder

▲ directly screwed version



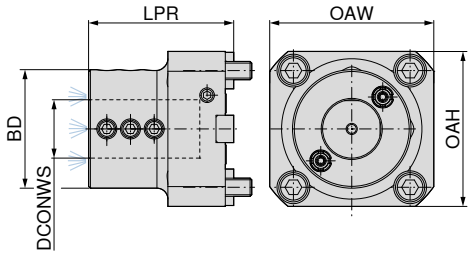


IC

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	Left-hand 82 482 ...
BMT 55	64 x 64	25	70	94	105	**01002**

EMAG – BMT 55 – Boring bar holder

▲ directly screwed version



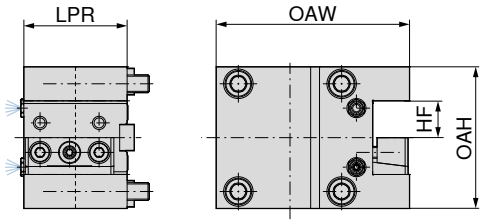
IC

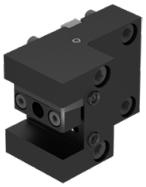
82 482 ...

Adapter	Hole pattern	DCONWS mm	BD mm	LPR mm	OAW mm	OAH mm	
BMT55	64 x 64	32	65	75	85	90	**04003**

HAAS/Doosan – BMT 65 – Axial square section tool holder

▲ directly screwed version





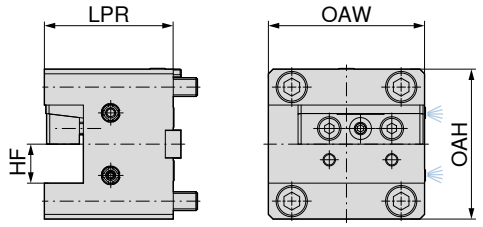
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	Left-hand 82 483 ...	Left-hand 82 483 ...
BMT 65	70 x 73	25	70	96	131	**00001**	
BMT 65	70 x 73	25	75	97	131		**00005**

HAAS/Doosan – BMT 65 – Radial square section tool holder

▲ directly screwed version



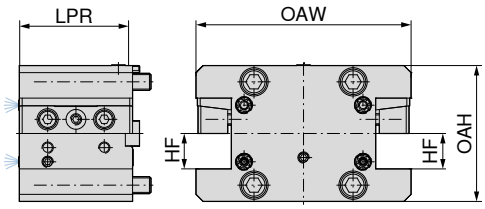
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	Right-hand 82 483 ...	Right-hand 82 483 ...
BMT 65	70 x 73	25	82,5	96	100	**05002**	**05006**

HAAS/Doosan – BMT 65 – Multi square section tool holder

▲ directly screwed version
▲ For right and left direction of rotation



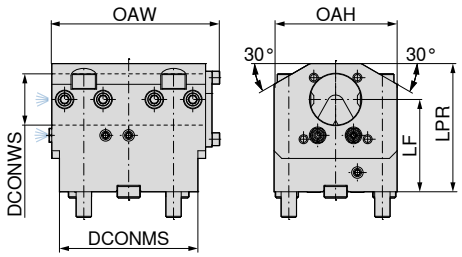
NEW

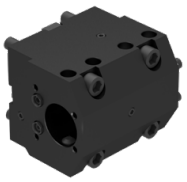
Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	82 483 ...	82 483 ...
BMT 65	70 x 73	25	80	96	152	**02003**	**02007**

HAAS/Doosan – BMT 65 – Combi tool holder

▲ directly screwed version
▲ double-sided version



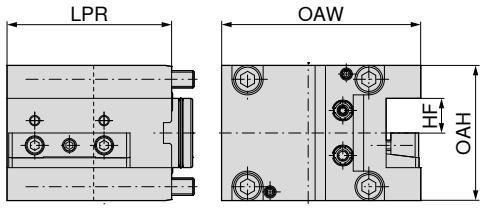


IC

Adapter	Hole pattern	DCONWS mm	LF mm	OAH mm	LPR mm	DCONMS mm	OAW mm	82 483 ...
BMT 65	70 x 73	40	78	96	100	108	125	**03004**

Mori/Seiki – BMT 40 – Axial square section tool holder

▲ directly screwed version
▲ For right and left direction of rotation



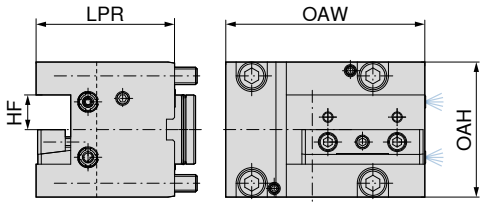
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	Left-hand 82 484 ...	Left-hand 82 484 ...
BMT 40	70 x 62	20	95	78	115	**00001**	**00005**

Mori/Seiki – BMT 40 – Radial square section tool holder

▲ directly screwed version
▲ For right and left direction of rotation



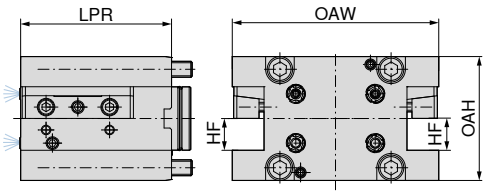
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	Left-hand 82 484 ...	Left-hand 82 484 ...
BMT 40	70 x 62	20	80	78	115	**01002**	**01006**

Mori/Seiki – BMT 40 – Multi square section tool holder

▲ directly screwed version
▲ For right and left direction of rotation



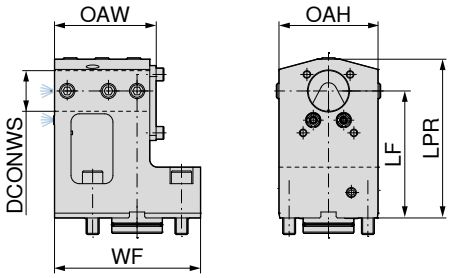
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	82 484 ...	82 484 ...
BMT 40	70 x 62	20	95	78	130	**02003**	**02007**

Mori/Seiki – BMT 40 – Combi tool holder

▲ directly screwed version

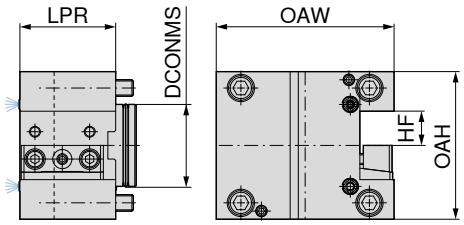


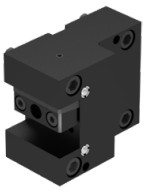
IC

Adapter	Hole pattern	DCONWS mm	OAH mm	OAW mm	LF mm	WF mm	LPR mm	82 484 ...
BMT 40	70 x 62	32	78	80	100	115	125	**03004**

Mori/Seiki – BMT 60 – Axial square section tool holder

▲ directly screwed version
▲ For right and left direction of rotation





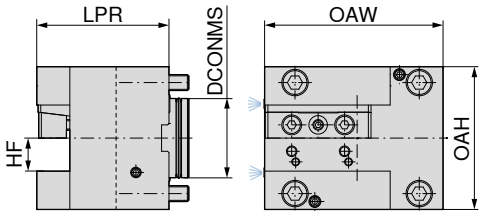
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	DCONMS mm	LPR mm	OAH mm	OAW mm	Left-hand 82 485 ...	Left-hand 82 485 ...
BMT 60	94 x 84	25	60	70	108	130	**00001**	**00005**

Mori/Seiki – BMT 60 – Radial square section tool holder

▲ directly screwed version
▲ For right and left direction of rotation



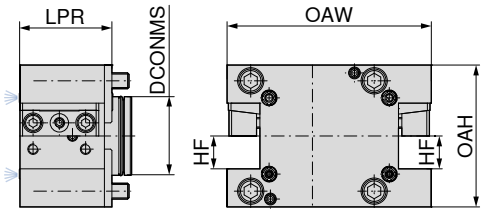
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	DCONMS mm	LPR mm	OAH mm	OAW mm	Left-hand 82 485 ...	Left-hand 82 485 ...
BMT 60	94 x 84	25	60	100	108	135	**01002**	**01006**

Mori/Seiki – BMT 60 – Multi square section tool holder

▲ directly screwed version
▲ For right and left direction of rotation



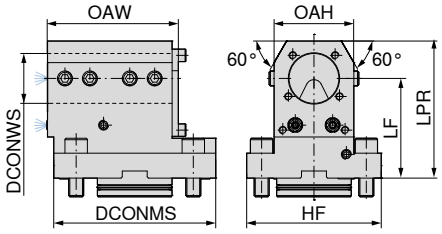
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	DCONMS mm	LPR mm	OAH mm	OAW mm	82 485 ...	82 485 ...
BMT 60	94 x 84	25	60	70	108	155,5	**02003**	**02007**

Mori/Seiki – BMT 60 – Combi tool holder

▲ directly screwed version

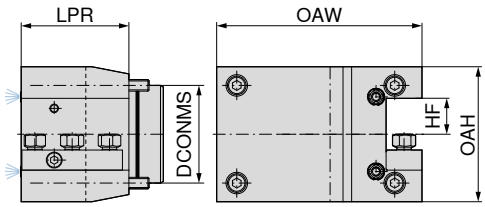


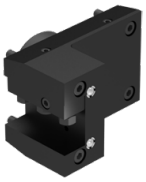
IC

Adapter	Hole pattern	DCONWS mm	OAH mm	LF mm	OAW mm	HF mm	LPR mm	DCONMS mm	82 485 ...
BMT 60	94 x 84	40	64	80	105	108	110	130	**03004**

Mazak – BMT 68 – Axial square section tool holder

▲ directly screwed version
▲ For right and left direction of rotation





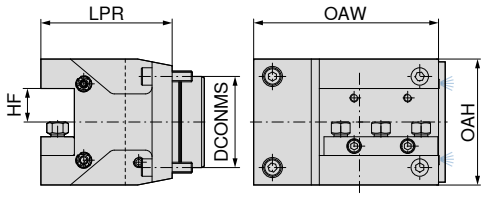
NEW

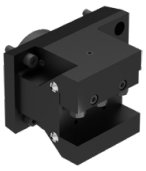
Direct Cooling

Adapter	Hole pattern	HF mm	DCONMS mm	LPR mm	OAH mm	OAW mm	Left-hand 82 486 ...	Left-hand 82 486 ...
BMT 68	110 x 68	25	68	75	94	143	**00001**	**00005**

Mazak – BMT 68 – Radial square section tool holder

▲ directly screwed version
▲ For right and left direction of rotation





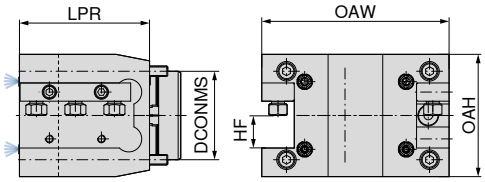
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	DCONMS mm	OAH mm	LPR mm	OAW mm	Left-hand 82 486 ...	Left-hand 82 486 ...
BMT 68	110 x 68	25	68	94	98	143	**01002**	**01006**

EMAG – BMT 68 –
Multi square section tool holder

▲ directly screwed version



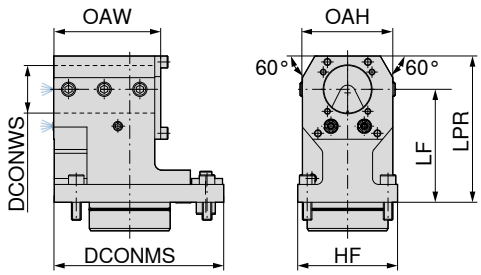
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	DCONMS mm	OAH mm	LPR mm	OAW mm	82 486 ...	82 486 ...
BMT 68	110 x 68	25	68	94	100	144	**02003**	**02007**

Mazak – BMT 68 –
Combi tool holder

▲ directly screwed version



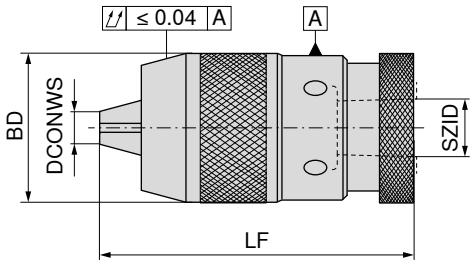
IC

Adapter	Hole pattern	DCONWS mm	OAH mm	HF mm	OAW mm	LF mm	LPR mm	DCONMS mm	82 486 ...
BMT 68	110 x 68	40	76	84	90	95	123	142,5	**03004**

Drill chuck

▲ For manual and key clamping
▲ Through-hardened and ground

Scope of supply:
Holder with clamping key



SZID	DCONWS mm	LF mm	BD mm	83 636 ...
B12	0 - 8	73	35	**012**
B12	0 - 10	92	43	**112**
B16	1 - 13	106	50	**016**
B16	3 - 16	110	57	**116**
B18	3 - 16	110	57	**018**

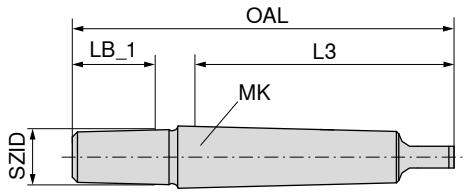
NC clamping key

Spare parts DCONWS	83 302 ...
0 - 8	**008**
0 - 10	**010**
1 - 13	**013**
3 - 16	**016**

16

Drill chuck adapter DIN 238

▲ Through-hardened and ground

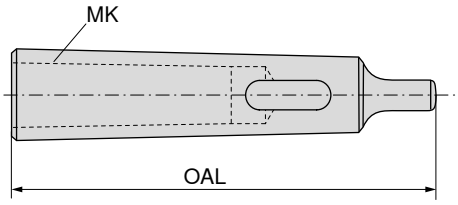


83 642 ...

Adapter	SZID	l_3 mm	LB_1 mm	OAL mm	
MK1	B12	62,0	18,5	89,0	**120**
MK1	B16	62,0	24,0	97,0	**160**
MK1	B18	62,0	32,0	106,0	**180**
MK2	B12	75,0	18,5	106,5	**121**
MK2	B16	75,0	24,0	110,5	**161**
MK2	B18	75,0	32,0	117,5	**181**
MK3	B12	94,0	18,5	125,0	**122**
MK3	B16	94,0	24,0	134,0	**162**
MK3	B18	94,0	32,0	141,0	**182**
MK4	B16	117,5	24,0	159,0	**163**
MK4	B18	117,5	32,0	168,0	**183**
MK5	B16	149,5	24,0	196,0	**164**
MK5	B18	149,5	32,0	204,5	**184**

Reduction sleeve DIN 2185

▲ Through-hardened, ground internally and externally



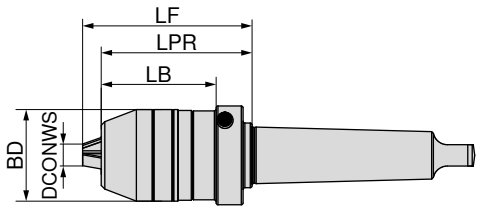
83 644 ...

Adapter	d_1	OAL mm	
MK1	MK0	80	**010**
MK2	MK1	92	**020**
MK3	MK1	99	**130**
MK3	MK2	112	**030**
MK4	MK1	124	**240**
MK4	MK2	124	**140**
MK4	MK3	140	**040**
MK5	MK2	156	**250**
MK5	MK3	156	**150**
MK5	MK4	171	**050**

Short drill chuck – NC 2010

▲ bidirectional
▲ Torque moment = 12 Nm
▲ with Morse taper

Scope of supply:
Holder with clamping key



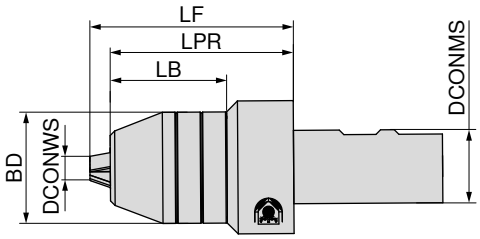
84 314 ...

Adapter	DCONWS mm	BD mm	LB mm	LPR mm	LF mm	
MK3	0,5 - 13	48,5	64	84	93,0	**313**
MK3	2,5 - 16	51,0	64	84	94,5	**316**
MK4	2,5 - 16	51,0	64	84	94,5	**416**

Short drill chuck – NC 2010

▲ bidirectional
▲ Torque moment = 12 Nm
▲ with cylindrical shank

Scope of supply:
Holder with clamping key



G 6,3 n_{max} 10000

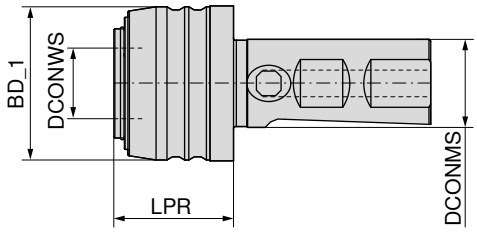
84 311 ...

DCONMS mm	DCONWS mm	BD mm	LB mm	LPR mm	LF mm	
25	0,5 - 13	48,5	50,9	80	89,0	**213**
32	0,5 - 13	48,5	50,9	80	89,0	**313**
32	2,5 - 16	51,0	50,9	80	90,5	**316**

16

Synchro quick change tapping chuck with minimum length compensation

▲ For collets according to DIN 6499
▲ With length compensation under tension and under compression (LZD)
▲ $p_{max.}$ = 50 bar



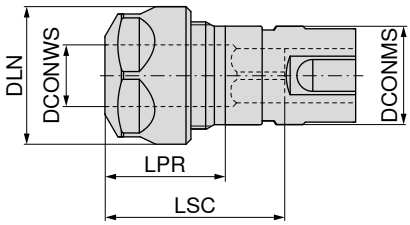
83 641 ...

DCONWS mm	cutting range	SZID	LPR mm	BD_1 mm	DCONMS mm	LZD± mm	
20	M3 - M12	1	35	43,5	25	1,0 / 0,2	**012**
32	M6 - M20	2	56	60,0	25	1,0 / 0,2	**020**

Insert for synchro quick change tapping chuck with minimum length compensation

▲ SZID = for insert size

Scope of supply:
Includes lock nut



83 608 ...

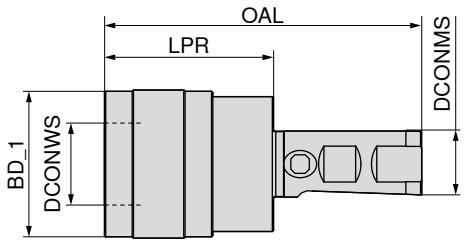
SZID	DCONWS mm	cutting range	LPR mm	DLN mm	LSC mm	for collet	DCONMS mm	
1	2 - 10	M3 - M12	24	28	42	426E (ER16)	20	**012** [1]
2	2 - 16	M6 - M20	28	42	59	430E (ER25)	32	**020**

1) with 6 position lock nut

	Lock nut		Lock nut IK		Lock nut		Y clamping key	
	62 950 ...		**83 950 ...**		**62 950 ...**		**83 357 ...**	
Spare parts for Article no.								
83 608 012	M22x1,5 - SW25	**044**	M22x1,5	**054**	M22x1,5	**054**		**116**
83 608 020			M32x1,5	**055**	M32x1,5	**055**		**125**

Quick change tap chuck with length compensation

▲ With cylindrical shank
▲ With length compensation under tension and compression (LZD)
▲ Quick change adapters

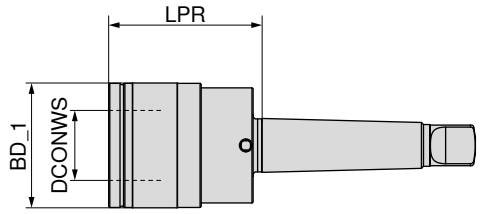


83 648 ...

DCONMS mm	cutting range	SZID	LPR mm	BD_1 mm	DCONWS mm	OAL mm	LZD± mm	
20	M3 - M12	01	41	38	19	91	9	**112**
20	M6 - M20	02	63	55	31	138	15	**120**
25	M3 - M12	01	41	38	19	97	9	**212**
25	M6 - M20	02	63	55	31	119	15	**220**
32	M3 - M12	01	41	38	19	102	9	**312**
32	M6 - M20	02	63	55	31	124	15	**320**

DIN 228B – Quick change tap chuck with length compensation

▲ With Morse taper shank
▲ With length compensation under tension and compression (LZD)



83 646 ...

Adapter	cutting range	SZID	LPR mm	BD_1 mm	DCONWS mm	LZD± mm	
MK 2	M3 - M12	01	46	38	19	9	**212**
MK 3	M3 - M12	01	46	38	19	9	**312**
MK 3	M6 - M20	02	69	55	31	15	**320**
MK 4	M6 - M20	02	70	55	31	15	**420**

Accessories

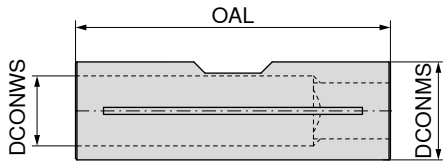
Collet

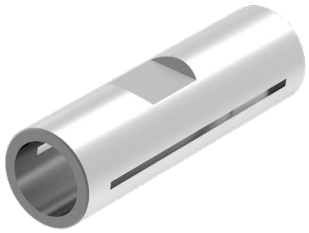
→ 288, 290–292

16

Clamping sleeve for taps in Weldon chucks

▲ For machines with rigid tapping
▲ For safe clamping of taps



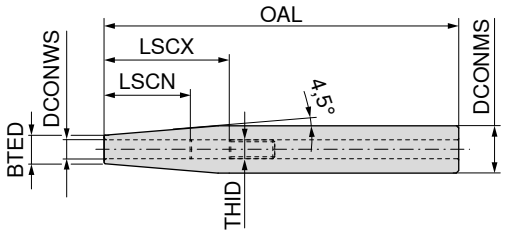


DCONWS h7 mm	DCONMS f6 mm	OAL mm	80 699 ...
3,5	6	26	**03500**
4,0	8	32	**04000**
4,5	8	26	**04500**
6,0	10	30	**06000**
7,0	10	31	**07000**
8,0	12	38	**08000**
9,0	12	38	**09000**
10,0	14	42	**10000**
11,0	14	42	**11000**
12,0	16	44	**12000**
14,0	18	45	**14000**
16,0	20	46	**16000**

Shrink fit extension

▲ For solid carbide and HSS shanks with h6 tolerance or better
▲ DRVS = Key size of the adjustment screw

TG



84 310 ...

DCONMS h6 mm	DCONWS mm	BTED mm	OAL mm	LSCX mm	LSCN mm	THID	DRVS mm	
12	3	8	150					**003**
12	4	8	150					**004**
12	5	10	150					**005**
12	6	10	150	36	26	M5	2,5	**006**
16	3	10	150					**103**
16	4	10	150					**104**
16	5	10	150					**105**
16	6	10	150	36	26	M5	2,5	**106**
16	8	12	150	36	26	M6	3,0	**108**
20	3	10	150					**203**
20	4	10	150					**204**
20	5	10	150					**205**
20	6	10	150	36	26	M5	2,5	**206**
20	8	12	150	36	26	M6	3,0	**208**
20	10	14	150	42	32	M8x1	3,0	**210**
20	12	16	150	47	37	M10x1	5,0	**212**
25	3	10	150					**303**
25	4	10	150					**304**
25	5	15	150					**305**
25	6	20	150	36	26	M5	2,5	**306**
25	8	20	150	36	26	M6	3,0	**308**
25	10	20	150	42	32	M8x1	3,0	**310**
25	12	20	150	47	37	M10x1	5,0	**312**
25	14	20	150	47	37	M10x1	5,0	**314**
25	16	22	150	50	40	M10x1	5,0	**316**
32	6	20	150	36	26	M5	2,5	**406**
32	8	20	150	36	26	M6	3,0	**408**
32	10	24	150	42	32	M8x1	3,0	**410**
32	12	24	150	47	37	M10x1	5,0	**412**
32	14	27	150	47	37	M10x1	5,0	**414**
32	16	27	150	50	40	M10x1	5,0	**416**
32	18	27	150	50	40	M10x1	5,0	**418**
32	20	27	150	52	42	M10x1	5,0	**420**

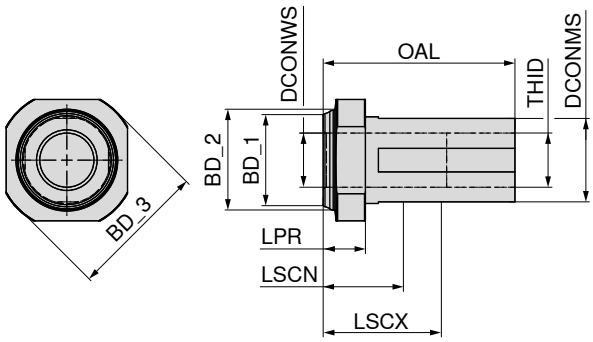
Observe the minimum clamping depth on → **Page 312**.

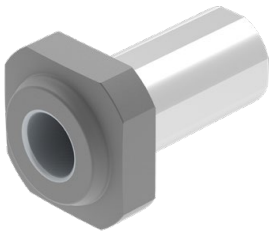
HyTens – Turn

- ▲ Hydraulic chuck with cylindrical shank
- ▲ For the hydraulic clamping of cylindrical tool shanks tol. h6, boring bars and cylindrical tool holders tol. h7, g6 in fixed base holders
- ▲ One screw for locking the boring bar
- ▲ With length setting screw – can also be removed, to enable the boring bar to be slid through
- ▲ High-precision clamping with a repeatability of 3 µm

Scope of supply:

Base body with backstop screw and pressure screw





83 402 ...

DCONMS mm	DCONWS mm	BD_1 mm	BD_2 mm	BD_3 mm	LPR mm	OAL mm	LSCX mm	LSCN mm	THID	
32	16	38	41	59	19,5	78,5	51	41	M22x1	**31699**
32	20	38	41	59	19,5	78,5	51	41	M22x1	**32099**
40	16	43	46	64	19,5	88,5	51	41	M22x1	**41699**
40	20	43	46	64	19,5	88,5	51	41	M22x1	**42099**
40	25	43	46	64	19,5	88,5	57	47	M27x1	**42599**

Stop screw IK

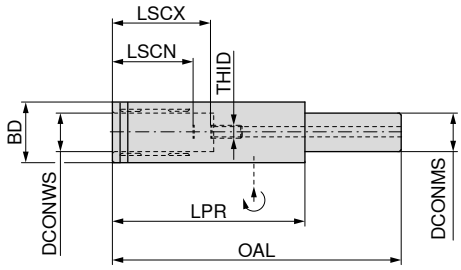
83 950 ...

Spare parts DCONWS	
16 - 20	**48500**
25	**48600**

Hydraulic expansion extension especially for Hydraulic Chucks

▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:
Base body with backstop screw and pressure screw



G 2,5 n_{max} 25000

DCONMS mm	DCONWS mm	BD mm	LPR mm	OAL mm	LSCX mm	LSCN mm	THID	84 313 ...
20	12	25,0	100	150	46	36	M6	**112**
20	20	31,5	100	150	51	41	M10x1	**120**
32	20	31,5	90	150	51	41	M10x1	**132**
32	20	31,5	90	200	51	41	M10x1	**232**

Observe the minimum clamping depth on → **Page 312**.

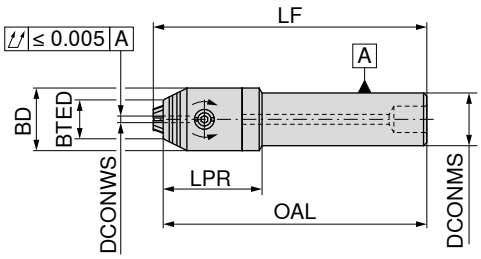
Stop screw IK

Spare parts for Article no.		83 950 ...
84 313 112	M6x12,5 - SW3	**419**
84 313 120	M10x1x13,5 - SW5	**421**
84 313 132	M10x1x13,5 - SW5	**421**
84 313 232	M10x1x13,5 - SW5	**421**

Micro-precision collet chuck

▲ bidirectional
▲ for speeds up to 60,000 1/min.

Scope of supply:
Holder including clamping wrench SW 2 x 60 mm



G 2,5 n_{max} 18000

84 315 ...

DCONMS mm	DCONWS mm	LPR mm	OAL mm	LF mm	BD mm	BTED mm	TQX Nm	
16	0,2 - 3,4	30	80	83	19	12	2	**161**
16	0,2 - 3,4	30	100	103	19	12	2	**162**
16	0,2 - 3,4	30	160	163	19	12	2	**163**
20	0,2 - 3,4	28	80	83	19	12	2	**201**
20	0,2 - 3,4	28	100	103	19	12	2	**202**
20	0,2 - 3,4	28	160	163	19	12	2	**203**

Torx blade

80 950 ...

Torque screwdriver

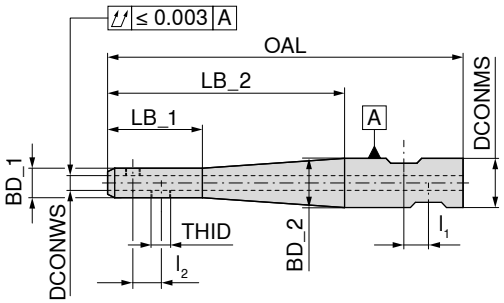
80 950 ...

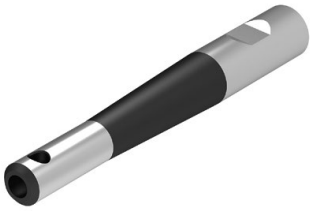
Spare parts for Article no.			
84 315 161	**152**	0,5 - 2,0 Nm	**191**
84 315 162	**152**	0,5 - 2,0 Nm	**191**
84 315 163	**152**	0,5 - 2,0 Nm	**191**
84 315 201	**152**	0,5 - 2,0 Nm	**191**
84 315 202	**152**	0,5 - 2,0 Nm	**191**
84 315 203	**152**	0,5 - 2,0 Nm	**191**

Micro-extension

▲ for shanks with lateral clamping flat to DIN 6535 HB / 1835 B

Scope of supply:
Holder with shank clamping screw





DCONWS mm	BD_1 mm	LB_1 mm	LB_2 mm	OAL mm	DCONMS mm	BD_2 mm	l_1 mm	l_2 mm	THID	TQX Nm	80 642 ...
6	12	40	40	85	12	12	10	10	M6 x 0,5	7	**00600**
6	12	40	100	150	20	20	10	10	M6 x 0,5	7	**10600**
8	15	40	40	88	16	15	10	10	M8 x 0,75	8	**00800**
8	15	40	100	150	20	20	10	10	M8 x 0,75	8	**10800**
10	18	40	40	90	20	18	10	10	M10 x 1	12	**01000**
10	18	40	100	150	20	20	10	10	M10 x 1	12	**11000**
12	21	40	40	90	20	21	10	10	M12 x 1	15	**01200**
12	21	40	100	150	20	21	10	10	M12 x 1	15	**11200**
14	23	40	40	90	20	23	10	10	M12 x 1	15	**01400**
14	23	40	100	150	20	23	10	10	M12 x 1	15	**11400**
16	26	40	50	106	25	26	10	12	M14 x 1	18	**01600**[1)]
16	26	40	100	156	25	26	10	12	M14 x 1	18	**11600**[1)]
18	28	40	50	106	25	28	10	12	M14 x 1	18	**01800**[1)]
18	28	40	100	156	25	28	10	12	M14 x 1	18	**11800**[1)]
20	31	40	50	110	32	31	10	14	M16 x 1	20	**02000**[1)]
20	31	40	100	160	32	31	10	14	M16 x 1	20	**12000**[1)]

1) only pre-balanced design

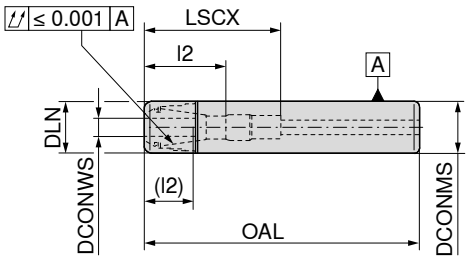
Clamping screw

Spare parts DCONWS		80 950 ...
6	M6X0,5X3	**21700**
8	M8x0,75x4	**21800**
10	M10x1x5	**21900**
12 - 14	M12x1x5	**30000**
16 - 18	M14x1x6,5	**31000**
20	M16x1x6,5	**32000**

Mini ER precision collet chuck – Centro-P

▲ Maximum clamping range covered according to ISO tolerance field H10
▲ Roll key required for clamping

Scope of supply:
Holder **without** nut, **without** backstop



DCONMS mm	DCONWS mm	DLN mm	OAL mm	LSCX mm	l_2 (l_2) mm	for collet	84 456 ...
10	1 - 5	10	80	16		4004E (ER08)	**00400**
10	1 - 5	10	150	16		4004E (ER08)	**005**
10	1 - 5	10	200	16		4004E (ER08)	**006**
12	1 - 5	10	120	16		4004E (ER08)	**11000**
12	1 - 5	10	160	16		4004E (ER08)	**11200**
12	1 - 5	10	200	16		4004E (ER08)	**11400**
16	1 - 7	16	150	68	18 - 36 (12 - 26)	4008E (ER11)	**007**
16	1 - 7	16	200	68	18 - 36 (12 - 26)	4008E (ER11)	**008**
16	1 - 10	22	150	68	28 - 48 (16 - 35)	426E (ER16)	**010**
16	1 - 10	22	200	68	28 - 48 (16 - 35)	426E (ER16)	**12000**
20	1 - 10	22	150	68	28 - 48 (16 - 35)	426E (ER16)	**102**
20	1 - 10	22	200	68	28 - 48 (16 - 35)	426E (ER16)	**104**

LSCX = Clamping depth without back stop screw for shanks
l_2 = with back stop screw 1, dimension in brackets (l_2) = with back stop screw 2
dimension OAL when using tightening nuts with seals 4 mm longer

Spare parts for collet	Mini lock nut IK 84 950 ...	Mini lock nut 84 950 ...	Stop screw 2 83 950 ...		Stop screw 1 83 950 ...	
4004E (ER08)		**040**				
4008E (ER11)		**041**	M8x1 - SW4	**340**	M8x1 - SW4	**336**
426E (ER16)	**035**	**034**	M11x1 - SW6	**341**	M11x1 - SW6	**337**

Accessories

ER collet → 268–276, 279

Device → 285

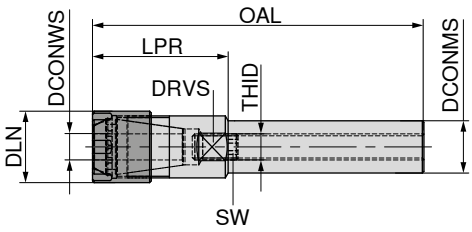
Roll key → 286

Roll key device → 286

The transferable torques can be found on → **Page 313**.

ER collet chuck with mini clamping nut

▲ with cylindrical shank



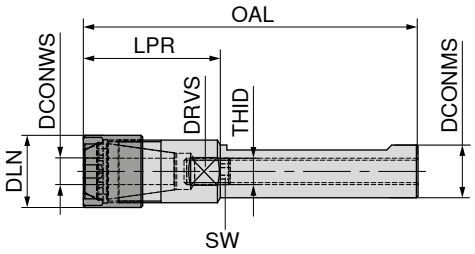
83 453 ...

DCONMS $_{h6}$ mm	DCONWS mm	OAL mm	LPR mm	DLN mm	THID	DRVS mm	SW mm	for collet	
8	1 - 5	81	26	12		9		4004E (ER08)	**081** [1]
12	1 - 5	157	20	12	M5x0,8	10	2,5	4004E (ER08)	**122**
16	1 - 7	185	25	16	M7,5x0,5	14	3,0	4008E (ER11)	**163**
16	1 - 10	117	37	22	M11x1	17	5,0	426E (ER16)	**164**
16	1 - 10	199	39	22	M8x1,25	17	4,0	426E (ER16)	**165**
20	1 - 10	168	28	22	M11x1	17	5,0	426E (ER16)	**204**
25	1 - 13	168	28	28	M14x1	22	5,0	428E (ER20)	**254**
25	1 - 16	189	39	35	M18x1	27	5,0	430E (ER25)	**256**

1) without coolant supply (form A)

ER collet chuck with mini clamping nut

▲ with cylindrical shank and clamping flat



83 454 ...

DCONMS $_{h6}$ mm	DCONWS mm	OAL mm	LPR mm	DLN mm	THID	DRVS mm	SW mm	for collet	
20	1 - 10	168	28	22	M11x1	17	5	426E (ER16)	**204**
20	1 - 13	138	38	28	M11x1	22	5	428E (ER20)	**206**
20	1 - 16	146	46	35	M14x1	27	5	430E (ER25)	**208**
25	1 - 13	168	28	28	M14x1	22	5	428E (ER20)	**254**
25	1 - 16	189	39	35	M18x1	27	5	430E (ER25)	**256**

Spare parts for ER collet chuck with mini lock nut

ER Mini clamping key

83 950 ...

Mini lock nut

62 950 ...

Mini IK

83 950 ...

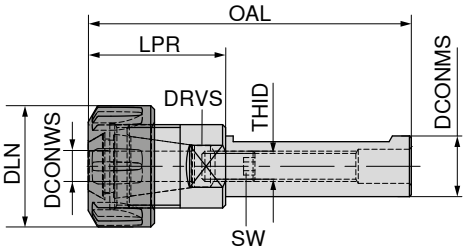
Stop screw IK

83 950 ...

Spare parts for collet								
4004E (ER08)	**099**	M10x0,75	**067**					
4004E (ER08)	**099**	M10x0,75	**067**				M5x0,8 SW 2,5	**003**
4008E (ER11)	**100**	M13x0,75	**065**				M7,5x0,5 SW 3	**004**
426E (ER16)	**101**	M19x1	**066**	M19x1	**058**		M11x1 SW 5	**006**
426E (ER16)	**101**	M19x1	**066**	M19x1	**058**		M8x1,25 SW 4	**005**
428E (ER20)	**102**	M24x1	**068**	M24x1	**059**		M14x1 SW 5	**007**
430E (ER25)	**103**	M30x1	**069**	M30x1	**060**		M18x1 SW 5	**008**

ER Collet Chuck

▲ with cylindrical shank and clamping flat



83 455 ...

DCONMS $_{h6}$ mm	DCONWS mm	OAL mm	LPR mm	DLN mm	THID	DRVS mm	SW mm	for collet	
40	2 - 20	100	35	50	M22x1,5	36	5	470E (ER32)	**401**
40	2 - 20	160	35	50	M22x1,5	36	5	470E (ER32)	**402**
40	3 - 30	139	59	63	M28x1,5	40	6	472E (ER40)	**405**

Y clamping key

83 357 ...

Stop screw IK

83 950 ...

Stop screw

83 950 ...

Spare parts for collet								
470E (ER32)	**132**						M22x1,5x20 SW 5	**095**
472E (ER40)	**140**	M28x1,5x25 SW 6	**096**					

Lock nut IK

83 950 ...

Lock nut

62 950 ...

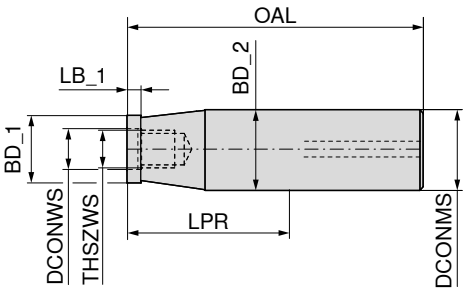
Spare parts for collet								
470E (ER32)				M40x1,5	**056**		M40x1,5	**65600**
472E (ER40)				M50x1,5	**057**		M50x1,5	**65700**

Accessories

ER collet

→ 268–276, 278–279

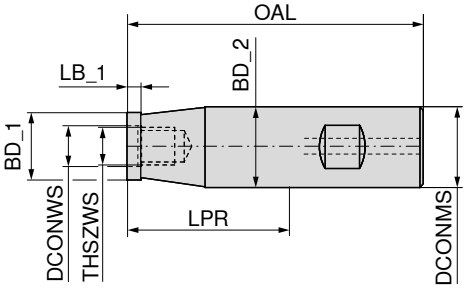
Cylindrical milling bar for cutters with threaded end



56 727 ...

DCONMS h6 mm	THSZWS	DCONWS mm	LPR mm	BD_1 mm	LB_1 mm	BD_2 mm	OAL mm	
12	M5	5,5	20	9,5	7,8	11,5	65	**052**
12	M6	6,5	20	11,5	7,8	11,5	65	**060**
12	M6	6,5	40	11,5	7,8	11,5	85	**062**
16	M8	8,5	20	13,8	7,8	15,8	68	**081**
16	M8	8,5	40	13,8	7,8	15,8	88	**082**
20	M10	10,5	25	18,0	7,8	19,8	75	**101**
20	M10	10,5	45	18,0	7,8	19,8	95	**102**
25	M12	12,5	50	21,0	7,8	24,8	106	**122**
32	M16	17,0	50	29,0	12,0	31,8	110	**162**

Milling bar for cutters with threaded end (Weldon)

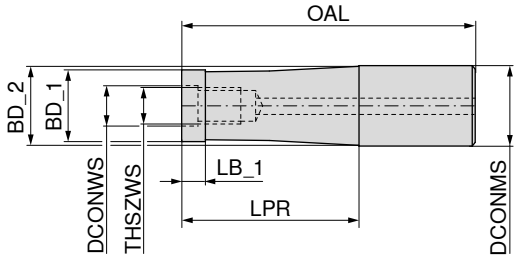


56 729 ...

DCONMS h6 mm	THSZWS	DCONWS mm	LPR mm	BD_1 mm	LB_1 mm	BD_2 mm	OAL mm	
12	M6	6,5	20	11,5	7,8	11,5	65	**060**
12	M6	6,5	40	11,5	7,8	11,5	85	**062**
16	M8	8,5	20	13,8	12,0	15,8	68	**081**
16	M8	8,5	40	13,8	8,0	15,8	88	**082**
20	M10	10,5	25	18,0	8,0	19,8	75	**101**
20	M10	10,5	45	18,0	12,0	19,8	95	**102**
25	M12	12,5	30	21,0	12,0	24,9	86	**121**
25	M12	12,5	50	21,0	8,0	24,9	106	**122**
32	M16	17,0	50	29,0	12,0	31,8	110	**162**

Screw-in adapter with cylindrical shank

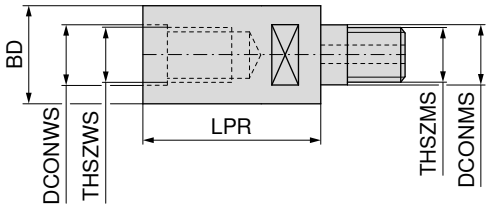
▲ Vibration-damped



DCONMS h6 mm	THSZWS	DCONWS mm	LPR mm	BD_1 mm	LB_1 mm	BD_2 mm	OAL mm	Solid carbide 56 743 ...	Densimet 56 744 ...
12	M5	5,5	40	9,5	9	11,3	85		052
12	M5	5,5	60	9,5	9	11,3	105		053
12	M5	5,5	80	9,5	9	11,3	125		054
12	M6	6,5	20	11,5		11,5	65	060	
12	M6	6,5	40	11,5		11,5	85	062	
12	M6	6,5	60	11,5		11,5	105	063	
12	M6	6,5	80	11,5		11,5	125	064	
12	M6	6,5	100	11,5		11,5	145	065	
16	M8	8,5	40	14,2	9	15,3	88	082	082
16	M8	8,5	60	14,2	9	15,3	108	083	083
16	M8	8,5	80	14,2	9	15,3	128	084	084
16	M8	8,5	100	14,2	9	15,3	148	085	085
16	M8	8,5	120	14,2	9	15,3	168	086	086
16	M8	8,5	150	14,2	9	15,3	198		087
20	M10	10,5	60	18,5	9	19,3	110	103	103
20	M10	10,5	80	18,5	9	19,3	130	104	104
20	M10	10,5	100	18,5	9	19,3	150	105	105
20	M10	10,5	120	18,5	9	19,3	170	106	106
20	M10	10,5	140	18,5	9	19,3	190	107	107
25	M12	12,5	75	23,0	9	24,3	131		124
25	M12	12,5	80	23,0	9	24,3	136	124	
25	M12	12,5	100	23,0	9	24,3	156	125	125
25	M12	12,5	120	23,0	9	24,3	176	126	
25	M12	12,5	125	23,0	9	24,3	181		126
25	M12	12,5	140	23,0	9	24,3	196	127	
25	M12	12,5	150	23,0	9	24,3	206		127
25	M12	12,5	160	23,0	9	24,3	216	128	
25	M12	12,5	175	23,0	9	24,3	231		128
32	M16	17,0	100	29,0	9	31,5	160	165 1)	
32	M16	17,0	150	29,0	9	31,5	210	166 1)	
32	M16	17,0	200	29,0	9	31,5	260	167 1)	
32	M16	17,0	250	29,0	9	31,5	310	168 1)	
32	M16	17,0	300	29,0	9	31,5	360	169 1)	

1) On request

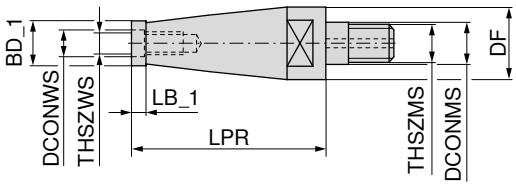
Extensions for milling cutters with threaded end



56 733 ...

THSZWS	THSZMS	DCONWS mm	DCONMS mm	LPR mm	BD mm	
M8	M8	8,5	8,5	40	13,8	**081**
M8	M8	8,5	8,5	60	13,8	**082**
M10	M10	10,5	10,5	40	18,0	**101**
M10	M10	10,5	10,5	60	18,0	**102**
M12	M12	12,5	12,5	40	21,0	**121**
M12	M12	12,5	12,5	60	21,0	**122**
M16	M16	17,0	17,0	40	29,0	**161**
M16	M16	17,0	17,0	60	29,0	**162**

Reductions for milling cutters with threaded end



56 735 ...

THSZWS	THSZMS	DCONMS mm	DCONWS mm	LPR mm	BD_1 mm	DF mm	LB_1 mm	
M6	M8	8,5	6,5	20	9,5	13,8	7,8	**060**
M8	M10	10,5	8,5	40	13,8	18,0	7,8	**081**
M8	M12	12,5	8,5	60	13,8	21,0	7,8	**082**
M10	M12	12,5	10,5	40	18,0	21,0	7,8	**101**
M10	M16	17,0	10,5	60	18,0	29,0	7,8	**102**
M12	M16	17,0	12,5	40	21,0	29,0	7,8	**121**

MultiChange – Programme Overview

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

Exchangeable heads

→ Chapter 2, Solid carbide drilling

Page No. 2|107

Solid Carbide NC Spot Drills

Ø 8, 10, 12, 16, 20 mm
NOF 2

SIG 90°

SIG 120°

SIG 142°

→ Chapter 4, Reaming and countersinking

Page No. 4|18 + 4|19

Replaceable reaming heads

Ø 8,00 – 30,20 mm

Through hole

Ø 12,20 – 30,20 mm

Blind hole

→ Chapter 14, Solid carbide milling cutters

Page No. 14|198 – 14|202

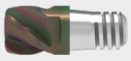
Solid carbide shoulder mills
Ø 8, 10, 12, 16, 20 mm /
ZEFP 3+4

Type PCR-UNI

Type PCR-ALU

Type N

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


Type W

Type N

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

Type NF

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

Type N

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

Type N

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

Type N

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

Type N

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

Type N

Type N

NOF / ZEFP = Number of cutting edges

Tool holder

→ Catalogue – Clamping technology, Chapter 16 Accessories

Page No. 16|259 – 16|261

OAL 60 – 90 mm

Tapered 87° / Steel

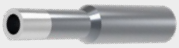
Cylindrical* / Steel

OAL 85 – 120 mm

Tapered 87° / Steel

Cylindrical* / Steel

Tapered 87° / Solid carbide


Cylindrical* / Solid carbide

OAL 110 – 150 mm

Tapered 87° / Solid carbide

Cylindrical* / Solid carbide

OAL 150 – 200 mm

Tapered 87° / Solid carbide

Cylindrical* / Steel

Cylindrical* / Solid carbide

OAL 200 – 250 mm

Cylindrical* / Steel

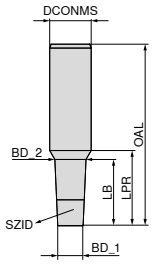
Cylindrical* / Solid carbide

* only conditionally suitable for milling

MultiChange – Holders

▲ Tapered 87°
▲ SZID = Coupling Size

Scope of supply:
Holder without mounting key



							Steel		Steel		Solid carbide		Solid carbide		Solid carbide	
							84 001 ...		84 004 ...		84 005 ...		84 007 ...		84 010 ...	
SZID	BD_1 mm	BD_2 mm	DCONMS mm	OAL mm	LB mm	LPR mm										
06	7,8	9,4	10	60	18	19	**080**									
06	7,8	9,4	10	85	43	44			**080**		**080**					
06	7,8	9,4	10	110	68	69							**080**			
06	7,8	9,4	10	150	108	109									**080**	
08	9,8	12,0	16	70	25	29	**100**									
08	9,8	13,0	16	90	38	41			**100**		**100**					
08	9,8	14,9	16	110	60	61							**100**			
08	9,8	15,4	16	150	100	101									**100**	
10	11,8	14,2	16	70	27	29	**120**									
10	11,8	15,2	16	90	40	41			**120**		**120**					
10	11,8	16,6	20	110	56	59							**120**			
10	11,8	19,5	20	150	98	99									**120**	
12	15,8	18,2	20	80	27	29	**160**									
12	15,8	19,5	20	105	53	54			**160**		**160**					
12	15,8	19,5	20	130	78	79							**160**			
12	15,8	19,5	20	150	98	99									**160**	
16	19,8	23,2	25	90	39	41	**200**									
16	19,8	24,5	25	120	60	61			**200**		**200**					
16	19,8	24,5	25	150	90	91							**200**			
16	19,8	24,5	25	200	140	141									**200**	

Assembly instructions can be found on → **Page 293**

Accessories

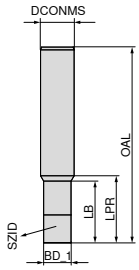
insertion key
→ 293

Adjustable wrench
→ 293

MultiChange – Holders

▲ cylindrical
▲ only conditionally suitable for milling
▲ SZID = Coupling Size

Scope of supply:
Holder without mounting key



						Steel	Steel	Steel	Steel
						84 000 ...	84 002 ...	84 008 ...	84 011 ...
SZID	BD_1 mm	DCONMS mm	OAL mm	LB mm	LPR mm				
06	7,8	10	60	17	19	**080**			
06	7,8	10	85	42	44		**080**		
06	7,8	10	150	107	109			**080**	
08	9,8	12	70	22	24	**100**			
08	9,8	12	90	42	44		**100**		
08	9,8	12	150	102	104			**100**	
10	11,8	16	70	17	21	**120**			
10	11,8	16	90	37	41		**120**		
10	11,8	16	150	97	101			**120**	
12	15,8	16	80	30	31	**160**			
12	15,8	16	105	55	56		**160**		
12	15,8	16	150	100	101			**160**	
12	15,8	16	200	150	151				**160**
16	19,8	25	90	26	31	**200**			
16	19,8	25	120	56	61		**200**		
16	19,8	25	200	136	141			**200**	
16	19,8	25	250	186	191				**200**

Assembly instructions can be found on → **Page 293**

Accessories

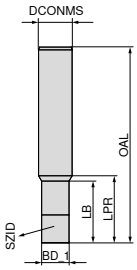
insertion key
→ 293

Adjustable wrench
→ 293

MultiChange – Holders

▲ cylindrical
▲ only conditionally suitable for milling
▲ SZID = Coupling Size

Scope of supply:
Holder without mounting key



Solid carbide

Solid carbide

Solid carbide

Solid carbide

SZID	BD_1 mm	DCONMS mm	OAL mm	LB mm	LPR mm	84 003 ...	84 006 ...	84 009 ...	84 012 ...
06	7,8	10	85	42	44	080			
06	7,8	10	110	67	69		080		
06	7,8	10	150	107	109			080	
08	9,8	12	90	42	44	100			
08	9,8	12	110	62	64		100		
08	9,8	12	150	102	104			100	
10	11,8	16	90	37	41	120			
10	11,8	16	110	57	61		120		
10	11,8	16	150	97	101			120	
12	15,8	16	105	55	56	160			
12	15,8	16	130	80	81		160		
12	15,8	16	150	100	101			160	
12	15,8	16	200	150	151				160
16	19,8	25	120	56	61	200			
16	19,8	25	150	86	91		200		
16	19,8	25	200	136	141			200	
16	19,8	25	250	186	191				200

Assembly instructions can be found on → **Page 293**

Accessories

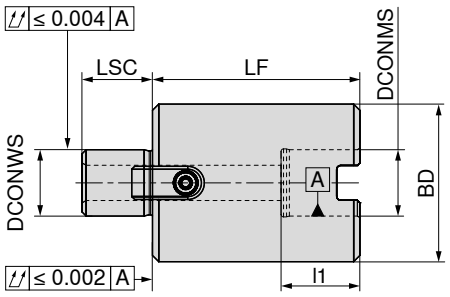
insertion key
→ 293

Adjustable wrench
→ 293

Extension for Shell mill arbors

▲ Variable applications through usage of one or two extensions (max. 2 x 50 mm possible)

Scope of supply:
Holder without clamping screw



DCONWS $_{h5}$ mm	DCONMS $_{H5}$ mm	LF mm	BD mm	LSC mm	l_1 mm	82 648 ...
16	16	50	38	17	19	**050**
16	16	75	38	17	19	**075**
22	22	50	48	19	21	**150**
22	22	75	48	19	21	**175**
27	27	50	58	21	23	**250**
27	27	75	58	21	23	**275**
32	32	50	78	24	26	**350**
32	32	75	78	24	26	**375**
40	40	50	88	27	29	**450**
40	40	75	88	27	29	**475**

Screw for drivers

Driver

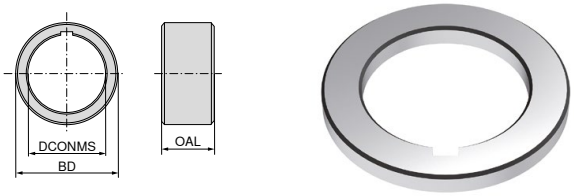
Cross screw

Cross screw

Spare parts for Article no.		83 950 ...		83 950 ...		82 649 ...		82 649 ...	
82 648 050	M3x8	**296**	8x9x17,5	**120**	M8x125	**001**	M8x80	**050**
82 648 075	M3x8	**296**	8x9x17,5	**120**			M8x100	**075**
82 648 150	M4x12	**297**	10x11x20,5	**121**	M10x125	**100**	M10x80	**150**
82 648 175	M4x12	**297**	10x11x20,5	**121**			M10x100	**175**
82 648 250	M5x12	**136**	12x13x24,3	**122**	M12x125	**200**	M12x80	**250**
82 648 275	M5x12	**136**	12x13x24,3	**122**			M12x100	**275**
82 648 350	M5x20	**137**	14x21x21,2	**123**	M16x125	**300**	M16x80	**350**
82 648 375	M5x20	**137**	14x21x21,2	**123**			M16x100	**375**
82 648 450	M6x16	**138**	15,9x16,3x19,5	**295**				
82 648 475	M6x16	**138**	15,9x16,3x19,5	**295**				

When using two extension pieces (max. 2 x 50 mm) please use a tightening bolt with a length of 125 mm.

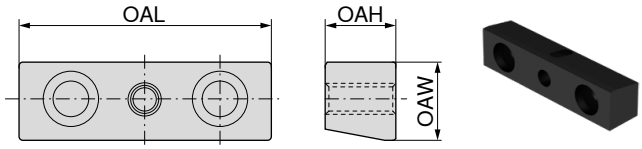
Milling Adapter Rings
DIN 2084 Form B



DCONMS mm	BD mm	OAL mm	83 385 ...
13	22	2	013
	22	3	113
	22	4	213
	22	5	313
	22	6	413
	22	10	513
16	26	2	016
	26	3	116
	26	4	216
	26	5	316
	26	6	416
	26	10	516
	26	20	616
	26	30	716
22	34	2	022
	34	3	122
	34	4	222
	34	5	322
	34	6	422
	34	10	522
	34	20	622
	34	30	722
27	41	2	027
	41	3	127
	41	4	227
	41	5	327
	41	6	427
	41	10	527
	41	20	627
	41	30	727
32	47	2	032
	47	3	132
	47	4	232
	47	5	332
	47	6	432
	47	10	532
	47	20	632
	47	30	732
40	55	2	040
	55	3	140
	55	4	240
	55	5	340
	55	6	440
	55	10	540
	55	20	640
	55	30	740

Spare parts for VDI holders with DirectCooling

Clamping rail

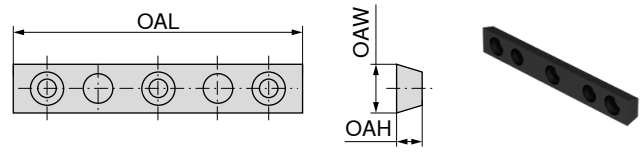


OAL mm	OAW mm	OAH mm	82 250 ...
53,0	12,7	11,5	05300
54,0	16,0	15,0	05400
67,5	16,0	15,0	06750
68,0	21,0	19,0	06800
83,0	20,5	19,0	08300
90,0	20,5	19,0	09000

Screw for ball-shaped spray nozzle

THOD	82 950 ...
M3x10	31000
M4x10	31300
M5x12	31100
M6x12	31200

Clamping wedge

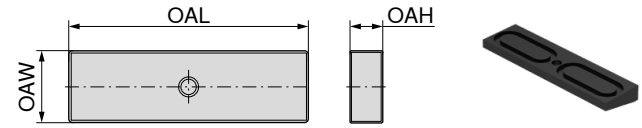


OAL mm	OAW mm	OAH mm	82 250 ...
70	14	7,3	07000
85	14	7,3	08500
100	14	7,3	10000

Ball-shaped spray nozzle

THID	BD mm	82 950 ...
M5	8	30600
M6	10	30900
M6	12	30700
M6	14	30800

Levelling plates



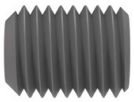
OAL mm	OAW mm	OAH mm	82 250 ...
53,0	14	6,1	15300
67,5	18	6,3	16750
83,0	22	7,5	18300
90,0	22	7,5	19000

Spare parts for VDI holders with DirectCooling

O ring for clamping wedge

Size	82 950 ...
Ø13 x Ø2	32600
Ø18 x Ø2	32700
Ø22 x Ø2	32800

Screw plug for ball-shaped spray nozzle



THOD	OAL mm	82 950 ...
M5	6	32900
M6	6	33000

O ring for ball-shaped spray nozzle

Size	82 950 ...
Ø10 x Ø2	31600
Ø5 x Ø1,5	31400
Ø7 x Ø1,5	31700
Ø7 x Ø2,5	31500

Screw for clamping wedge

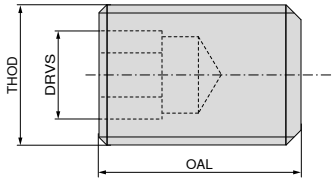
THOD	82 950 ...
M5x12	31800
M6x16	32200
M6x20	31900
M8x20	32300
M8x25	32100

Quad ring

Size	82 950 ...
Ø21,95 x Ø1,78	32400
Ø28,3 x Ø1,78	32500

16

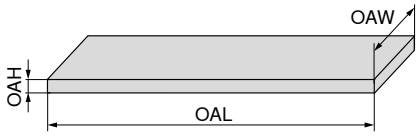
Screw
for cylindrical adapters E2



THOD	OAL mm	DRVS mm	83 950 ...
M6	12	3	461
M6	16	3	462
M6	25	3	463
M8	10	4	464
M8	12	4	465
M8	16	4	466
M8	20	4	467
M8	25	4	468
M8	30	4	469
M10	16	5	470
M10	20	5	471
M10	25	5	472
M10	30	5	473
M12	12	6	474
M12	16	6	475
M12	20	6	476
M12	25	6	477

Levelling plates

▲ For axial and radial tool holders
▲ Without mounting thread



OAH mm	OAL mm	OAW mm	83 950 ...
4	38	14	210
4	48	14	211
4	54	14	212
4	55	12	213
4	69	16	214
4	72	14	215
4	75	12	216
4	99	16	217
5	84	20	218
5	117	20	219
7	99	25	220
7	120	25	221
7	129	25	222
7	143	25	223

Clamping screw
for cylindrical adapters E1

THOD	83 950 ...
M10x1x10	180
M12x1x12	181
M16x1x13	182

Lock nut with external thread form ER for sealing rings with internal cooling

for collet	THOD	DRVS mm	83 950 ...
ER 16	M24x1	19	45600
ER 20	M28x1,5	22	45700
ER 25	M32x1,5	24	45800
ER 32	M40x1,5	32	45900

Ball-shaped spray nozzle

	83 950 ...
Ø 8 - M 5	200
Ø 10 - M 6	201
Ø 14 - M 8	202

O-Ring

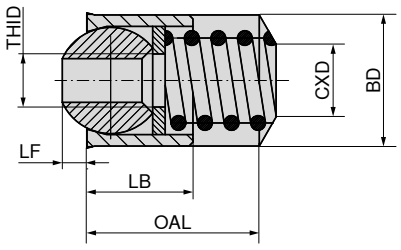
Adapter	Size	83 950 ...
VDI 16	15 x 1,5	205
VDI 20	18,77 x 1,78	206
VDI 30	28,3 x 1,78	207
VDI 40	37,77 x 2,62	208
VDI 50	47,29 x 2,62	209

Pipe joints

▲ steel pipe

THOD	CXD mm	Type	83 950 ...
M8x1	5	A	372
M10x1	6	A	373
M10x1	8	A	374
M8x1	5	B	375
M10x1	6	B	376
M10x1	8	B	377

Spray nozzle element



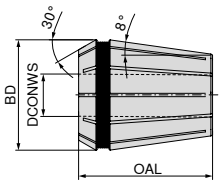
BD mm	THID	OAL mm	LB mm	LF mm	CXD mm	83 950 ...
9,88	M4	13	8	2,2	5,5	247
11,88	M6	15	10	3,0	6,8	248
13,88	M6	17	12	4,0	6,8	249

16

Precision ER collet for precision collet chuck – Centro-P

- ▲ DIN ISO 15488-B (old DIN 6499-B)
- ▲ 12 times slotted
- ▲ Double taper collet
- ▲ Coloured ring as identification of precision collet
- ▲ ER08: 5 µm runout and repeatability
- ▲ Coated precision collet

ER-B
2 µm



	BD = 8,5 OAL = 13,6 4004 E / ER08	BD = 11,5 OAL = 18 4008 E / ER11	BD = 17 OAL = 27,5 426 E / ER16	BD = 26 OAL = 34 430 E / ER25	BD = 33 OAL = 40 470 E / ER32	BD = 41 OAL = 46 472 E / ER40
	84 577 ...	**84 585 ...**	**84 596 ...**	**84 597 ...**	**84 598 ...**	**84 599 ...**
DCONWS mm						
1,0	010	010	010			
1,1			011			
1,2			012			
1,4			014			
1,5	015	015	015			
1,6			016			
1,8			018			
2,0	020	020	020	020	020	
2,2			022			
2,4			024			
2,5	025	025	025	025		
2,6			026			
2,8			028			
3,0	030	030	030 [1]	030	030	030
3,2			032			
3,4			034			
3,5	035	035	035	035		
3,6			036			
3,8			038			
4,0	040	040	040 [1]	040	040 [1]	040
4,5	045	045	045	045		
5,0	050	050	050 [1]	050	050	050
5,5		055	055	055		
5,6			056			
6,0		060	060 [1]	060 [1]	060 [1]	060
6,3			063			
6,5		065	065	065		
7,0		070	070	070	070	070
7,1			071			
7,5			075	075		
8,0			080 [1]	080 [1]	080 [1]	080
8,5			085	085		
9,0			090	090	090	090
9,5			095	095		
10,0			100 [1]	100 [1]	100 [1]	100
10,5				105		
11,0				110	110	110
11,5				115		
12,0				120 [1]	120 [1]	120
12,5				125		
13,0				130	130	130
13,5				135		
14,0				140 [1]	140 [1]	140
14,5				145		
15,0				150	150	150
15,5				155		
16,0				160 [1]	160 [1]	160
17,0					170	170
18,0					180	180
19,0					190	190
20,0					200 [1]	200
21,0						210
22,0						220
23,0						230
24,0						240
25,0						250
26,0						260
Set in wooden box			999	999	999	

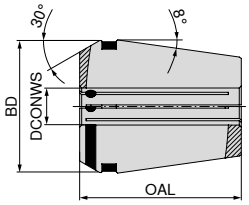
1) Included in the set

Clamping range covered: H10 corresponding to shank Ø DCONWS

ER precision collet, sealed, for precision collet chuck – Centro-P

- ▲ Similar to DIN ISO 15488-A
- ▲ 8 times slotted
- ▲ Coloured ring as identification of precision collet
- ▲ $p_{max.}$ = 60 bar
- ▲ Coated precision collet

ER-B
2 µm

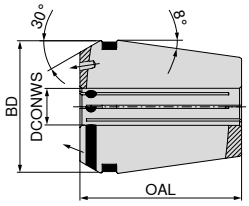


DCONWS mm	BD = 11,3 OAL = 18 425 E / ER11	BD = 16,7 OAL = 27,5 425 E / ER16	BD = 25,7 OAL = 34 429 E / ER25	BD = 32,7 OAL = 40 469 E / ER32	BD = 40,7 OAL = 46 471 E / ER40
	84 536 ...	**84 537 ...**	**84 538 ...**	**84 539 ...**	**84 540 ...**
3	030	030	030	030	
4	040	040	040	040	
5	050	050	050	050	
6	060	060	060	060	060
7		070	070	070	
8		080	080	080	080
9		090	090	090	
10		100	100	100	100
11			110	110	
12			120	120	120
13			130	130	
14			140	140	140
15			150	150	
16			160	160	160
17				170	
18				180	180
19				190	
20				200	200
22					220
25					250

ER precision collet, sealed with coolant channels, for precision collet chuck – Centro-P

- ▲ Similar to DIN ISO 15488-A
- ▲ 8 times slotted
- ▲ Coloured ring as identification of precision collet
- ▲ Coated precision collet

ER-A
2 µm

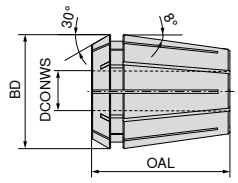


DCONWS mm	BD = 11,3 OAL = 18 4012 E / ER11	BD = 16,7 OAL = 27,5 425 E / ER16	BD = 25,7 OAL = 34 429 E / ER25	BD = 32,7 OAL = 40 469 E / ER32	BD = 40,7 OAL = 46 471 E / ER40
	84 547 ...	**84 548 ...**	**84 549 ...**	**84 550 ...**	**84 551 ...**
3	03000	03000			
4	04000	040	040	040	
6	06000	060	060	060	06000
8		080	080	080	08000
10		10000	100	100	100
12			120	120	120
14			140	140	
16			16000	160	160
18				180	
20				200	200
25					250

ER precision collet

- ▲ DIN ISO 15488-B (old DIN 6499-B)
- ▲ 12 times slotted
- ▲ Double taper collet
- ▲ Coated collet

ER-B
5 µm



DCONWS mm	BD = 11,5 OAL = 18 4008 E / ER11	BD = 17 OAL = 27,5 426 E / ER16	BD = 21 OAL = 31,5 428 E / ER20	BD = 26 OAL = 34 430 E / ER25	BD = 33 OAL = 40 470 E / ER32	BD = 41 OAL = 46 472 E / ER40
	84 576 ...	**84 578 ...**	**84 579 ...**	**84 580 ...**	**84 581 ...**	**84 582 ...**
1,0	010	010	010 [1]	010 [1]		
1,5	015	015 [1]	015 [1]	015 [1]		
2,0	020	020	020	020	020 [1]	
2,5	025	025 [1]	025 [1]	025 [1]	025 [1]	
3,0	030	030	030	030	030	030 [1]
3,5	035					
4,0	040	040	040	040	040	040
4,5	045					
5,0	050	050	050	050	050	050
5,5	055					
6,0	060	060	060	060	060	060
6,5	065					
7,0	070	070	070	070	070	070
8,0		080	080	080	080	080
9,0		090	090	090	090	090
10,0		100	100	100	100	100
11,0			110	110	110	110
12,0			120	120	120	120
13,0			130	130	130	130
14,0				140	140	140
15,0				150	150	150
16,0				160	160	160
17,0					170	170
18,0					180	180
19,0					190	190
20,0					200	200
21,0						210
22,0						220
23,0						230
24,0						240
25,0						250
26,0						260
Set in wooden box	999	999	999	999	999	999

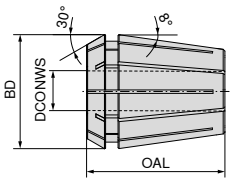
1) not included in the set

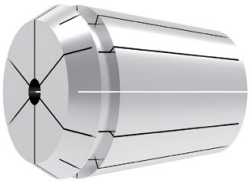
Clamping range covered: up to Ø 2 mm = 0.5 mm, from Ø 2.5 mm = 1 mm

ER collet

- ▲ DIN ISO 15488-B (alt DIN 6499-B)
- ▲ 16 times slotted
- ▲ Double taper clamping

ER-B
10 µm





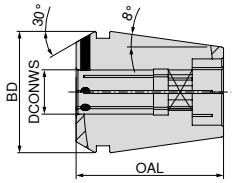
	NEW	NEW	NEW	NEW
	BD = 8,5 OAL = 13,6 4004 E / ER08	BD = 17 OAL = 27,5 426 E / ER16	BD = 26 OAL = 34 430 E / ER25	BD = 33 OAL = 40 470 E / ER32
	82 683 ...	**82 684 ...**	**82 685 ...**	**82 686 ...**
DCONWS mm				
1,0	**01000**	**01000**		
1,5	**01500**			
2,0	**02000**	**02000**	**02000**	
2,5	**02500**			
3,0	**03000**	**03000**	**03000**	**03000**
3,5	**03500**			
4,0	**04000**	**04000**	**04000**	**04000**
4,5	**04500**			
5,0	**05000**	**05000**	**05000**	**05000**
6,0		**06000**	**06000**	**06000**
7,0		**07000**	**07000**	**07000**
8,0		**08000**	**08000**	**08000**
9,0		**09000**	**09000**	**09000**
10,0		**10000**	**10000**	**10000**
11,0			**11000**	**11000**
12,0			**12000**	**12000**
13,0			**13000**	**13000**
14,0			**14000**	**14000**
15,0			**15000**	**15000**
16,0			**16000**	**16000**
17,0				**17000**
18,0				**18000**
19,0				**19000**
20,0				**20000**
Set in plastic case	**99900**	**99900**	**99900**	**99900**

Clamping range covered: up to Ø 3 mm = 0.5 mm, from Ø 4 mm = 1 mm

ER precision tap collet

- ▲ Similar to DIN ISO 15488-A
- ▲ 8 times slotted
- ▲ For Centro-P and standard chucks
- ▲ $p_{max.}$ = 60 bar
- ▲ Coated collet

ER-A
10 µm



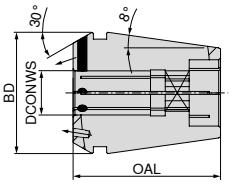
DCONWS mm	BD = 16,7 OAL = 27,5 4031 E / ER16 **84 531 ...**	BD = 25,7 OAL = 34 4282 E / ER25 **84 533 ...**	BD = 32,7 OAL = 40 4537 E / ER32 **84 534 ...**
2,8	028		
3,5	035	035	
4,0	040	040	040
4,5	045	045	045
6,0	060	060	060
7,0	070	070	070
8,0	080	080	080
9,0	090	090	090
10,0		100	100
11,0		110	110
12,0		120	120
14,0		140	140
16,0		160	160
18,0			180
20,0			200

16

ER precision collet, sealed with coolant channels

- ▲ Similar to DIN ISO 15488-A
- ▲ 8 times slotted
- ▲ For Centro-P and standard chucks
- ▲ Coated collet

ER-A
10 µm

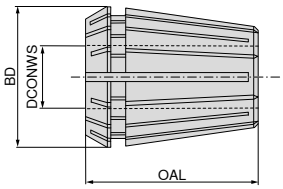


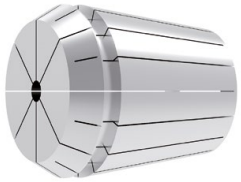
	BD = 16,7 OAL = 27,5 4537 E / ER16	BD = 25,7 OAL = 34 4537 E / ER25	BD = 32,7 OAL = 40 4537 E / ER32
	84 567 ...	**84 568 ...**	**84 569 ...**
DCONWS mm			
3,5	035		
4,5	045	045	045
6,0	060	060	060
7,0	070	070	070
8,0	080	080	080
9,0	09000	090	090
10,0		100	100
11,0		110	110
12,0		120	120
14,0		140	140
16,0		16000	160
18,0			180
20,0			200

ER precision collet

- ▲ DIN ISO 15488-B (old DIN 6499-B)
- ▲ Double taper collet
- ▲ 16 times slotted

ER-B
20 µm





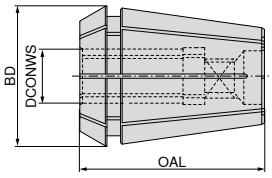
	NEW	NEW	NEW	NEW	NEW
	BD = 17 OAL = 27,5 426 E / ER16	BD = 21 OAL = 31,5 428 E / ER20	BD = 26 OAL = 34 430 E / ER25	BD = 33 OAL = 40 470 E / ER32	BD = 41 OAL = 46 472 E / ER40
	82 687 ...	**82 688 ...**	**82 689 ...**	**82 690 ...**	**82 691 ...**
DCONWS mm					
1	**01000**	**01000**			
2	**02000**	**02000**	**02000**		
3	**03000**	**03000**	**03000**	**03000**	**03000**
4	**04000**	**04000**	**04000**	**04000**	**04000**
5	**05000**	**05000**	**05000**	**05000**	**05000**
6	**06000**	**06000**	**06000**	**06000**	**06000**
7	**07000**	**07000**	**07000**	**07000**	**07000**
8	**08000**	**08000**	**08000**	**08000**	**08000**
9	**09000**	**09000**	**09000**	**09000**	**09000**
10	**10000**	**10000**	**10000**	**10000**	**10000**
11		**11000**	**11000**	**11000**	**11000**
12		**12000**	**12000**	**12000**	**12000**
13		**13000**	**13000**	**13000**	**13000**
14			**14000**	**14000**	**14000**
15			**15000**	**15000**	**15000**
16			**16000**	**16000**	**16000**
17				**17000**	**17000**
18				**18000**	**18000**
19				**19000**	**19000**
20				**20000**	**20000**
21					**21000**
22					**22000**
23					**23000**
24					**24000**
25					**25000**
26					**26000**
Set in plastic case	**99900**	**99900**	**99900**	**99900**	**99900**

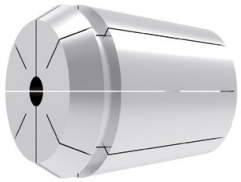
Clamping range covered: up to Ø 2 mm = 0.5 mm, from Ø 2.5 mm = 1 mm

ER collet with internal square

- ▲ Similar DIN ISO 15488-A (old DIN 6499-A)
- ▲ 8 times slotted
- ▲ Double taper collets for holding taps on synchronised spindle machines, without compensating lengths

ER-A
15 µm





	NEW	NEW	NEW	NEW
	BD = 16,7 OAL = 27,5 426 E / ER16	BD = 25,7 OAL = 34 430 E / ER25	BD = 32,7 OAL = 40 470 E / ER32	BD = 40,7 OAL = 46 472 E / ER40
	82 695 ...	**82 692 ...**	**82 693 ...**	**82 694 ...**
DCONWS mm				
2,8	**02800**			
3,5	**03500**			
4,0	**04000**			
4,5	**04500**	**04500**	**04500**	
5,0	**05000**			
5,5	**05500**	**05500**	**05500**	
6,0	**06000**	**06000**	**06000**	
7,0	**07000**	**07000**	**07000**	**07000**
8,0	**08000**	**08000**	**08000**	**08000**
9,0	**09000**	**09000**	**09000**	**09000**
10,0		**10000**	**10000**	**10000**
11,0		**11000**	**11000**	**11000**
12,0		**12000**	**12000**	**12000**
14,0			**14000**	**14000**
16,0			**16000**	**16000**
18,0				**18000**
20,0				**20000**

Wooden boxes for collets

▲ For collets form A+B

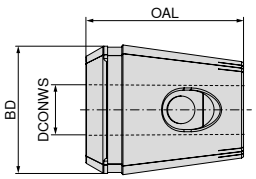
Scope of supply:
empty wooden box

for collet	capacity	83 689 ...
4004E (ER08)	9	008
426E (ER16)	10	116
428E (ER20)	11	020
4008E (ER11)	13	011
430E (ER25)	14	025
470E (ER32)	18	032
472E (ER40)	24	040

ER wedge collet with pull out protection, for precision collet chucks – Centro-P – HDC

▲ Similar to DIN ISO 15488-A
▲ Slotted
▲ Double taper collet

ER
5 µm



BD = 32,7
OAL = 40
ER 32

83 629 ...

DCONWS mm	
12	120
16	160

Conical spring

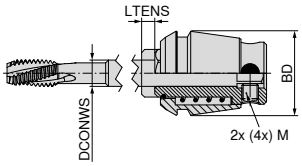
83 950 ...

Spare parts DCONWS		
12	CP 32	455
16	CP 32	455

Tapping Collet Form ET (ER) with length compensation

- ▲ DIN ISO 15488 (old DIN 6499)
- ▲ With pull out length compensation (LTENS)
- ▲ The spring force is adapted to the thread size
- ▲ Anti-rotation by 2 and/or 4 clamping screws on the shank square drive

ER
10 µm

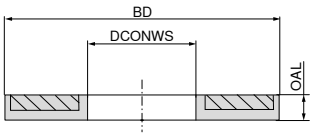


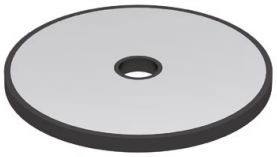
DCONWS mm	BD = 17 LTENS = 7 426 E / ER16 **80 661 ...**	BD = 21 LTENS = 7 428 E / ER20 **80 662 ...**	BD = 26 LTENS = 8 430 E / ER25 **80 663 ...**	BD = 33 LTENS = 10 470 E / ER32 **80 664 ...**	BD = 41 LTENS = 13 472 E / ER40 **80 665 ...**
2,2	022	022			
2,5	025	025	025		
2,8	028	028	028		
3,0	030	030	030		
3,5	035	035	035		
4,0	040	040	040		
4,5	045	045	045	045	
5,0				050	
5,5	055	055	055	055	
6,0	060	060	060	060	060
7,0		070	070	070	070
8,0			080	080	080
9,0			090	090	090
10,0			100	100	100
11,0				110	110
12,0				120	120
14,0					140
16,0					160

When using CNC machines apply canned cycles with a feed rate or pitch of only 95 % with small threads and up to 99 % with large threads. In this way when reversing the rotation of the spindle an optimum length compensation in both directions is guaranteed.

Sealing discs for precision collet chucks – Centro-P, ER-Standard and ER-Mini with thro' coolant

- ▲ For sealing when using tools with internal cooling
- ▲ Sealing range: nominal diameter –0,1 mm / +0,4 mm
- ▲ Can be applied up to 80 bar

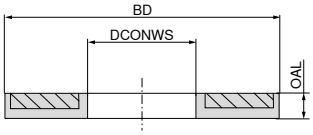




DCONWS mm	BD = 12,6 OAL = 2 426E (ER16) 83 690 ...	BD = 15,8 OAL = 2 428E (ER20) 83 694 ...	BD = 20,2 OAL = 2 430E (ER25) 83 691 ...	BD = 26,2 OAL = 2 444E / OZ (ER32) 83 692 ...	BD = 34,2 OAL = 2 472E (ER40) 83 693 ...
1,0	010				
1,5	015				
2,0	020	020	020	020	
2,5	025	025	025	025	
3,0	030	030	030	030	030
3,5	035	035	035	035	035
4,0	040	040	040	040	040
4,5	045	045	045	045	045
5,0	050	050	050	050	050
5,5	055	055	055	055	055
6,0	060	060	060	060	060
6,5	065	065	065	065	065
7,0	070	070	070	070	070
7,5	075	075	075	075	075
8,0	080	080	080	080	080
8,5	085	085	085	085	085
9,0	090	090	090	090	090
9,5	095	095	095	095	095
10,0	100	100	100	100	100
10,5		105	105	105	105
11,0		110	110	110	110
11,5		115	115	115	115
12,0		120	120	120	120
12,5		125	125	125	125
13,0		130	130	130	130
13,5			135	135	135
14,0			140	140	140
14,5			145	145	145
15,0			150	150	150
15,5			155	155	155
16,0			160	160	160
16,5				165	165
17,0				170	170
17,5				175	175
18,0				180	180
18,5				185	185
19,0				190	190
19,5				195	195
20,0				200	200
20,5					205
21,0					210
21,5					215
22,0					220
22,5					225
23,0					230
23,5					235
24,0					240
24,5					245
25,0					250
25,5					255
26,0					260

Sealing rings for precision collet chucks – PCC

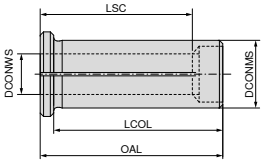
▲ For sealing when using tools with internal cooling
▲ Sealing range: nominal diameter –0,1 mm / +0,4 mm
▲ Can be applied up to 100 bar



DCONWS mm	BD = 13 OAL = 4 426E (ER16) 82 630 ...	BD = 21 OAL = 4 430E (ER25) 82 631 ...	BD = 27 OAL = 4 470E (ER32) 82 632 ...
3,0	03000	03000	03000
3,5	03500	03500	03500
4,0	04000	04000	04000
4,5	04500	04500	04500
5,0	05000	05000	05000
5,5	05500	05500	05500
6,0	06000	06000	06000
6,5	06500	06500	06500
7,0	07000	07000	07000
7,5	07500	07500	07500
8,0	08000	08000	08000
8,5	08500	08500	08500
9,0	09000	09000	09000
9,5	09500	09500	09500
10,0	10000	10000	10000
10,5		10500	10500
11,0		11000	11000
11,5		11500	11500
12,0		12000	12000
12,5		12500	12500
13,0		13000	13000
13,5		13500	13500
14,0		14000	14000
14,5		14500	14500
15,0		15000	15000
15,5		15500	15500
16,0		16000	16000
16,5			16500
17,0			17000
17,5			17500
18,0			18000
18,5			18500
19,0			19000
19,5			19500
20,0			20000

Reducing sleeves for hydraulic and high pressure chucks

▲ Thro' coolant to 80 bar

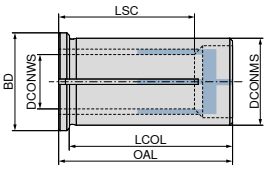


83 609 ...

DCONMS mm	DCONWS mm	OAL mm	LCOL mm	LSC mm	
12	3	40	36	29	103
12	4	40	36	29	104
12	5	40	36	29	105
12	6	40	36	36	106
12	8	40	36	37	108
20	3	54	50	28	203
20	4	54	50	28	204
20	5	54	50	28	205
20	6	54	50	36	206
20	8	54	50	37	208
20	10	54	50	40	210
20	12	54	50	45	212
20	14	54	50	45	214
20	16	54	50	48	216
25	6	60	56	37	256
25	8	60	56	37	258
25	10	60	56	40	260
25	12	60	56	46	262
25	14	60	56	47	264
25	16	60	56	48	266
25	18	60	56	48	268
25	20	60	56	50	270
32	6	64	60	36	306
32	8	64	60	36	308
32	10	64	60	40	310
32	12	64	60	45	312
32	14	64	60	46	314
32	16	64	60	48	316
32	18	64	60	49	318
32	20	64	60	50	320
32	25	64	60	56	325

Reduction sleeves with coolant hole for hydraulic and high pressure chucks

▲ with coolant holes, for flexible diameter application



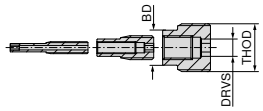
83 611 ...

DCONMS mm	DCONWS mm	BD mm	OAL mm	LCOL mm	LSC mm	
12	3	16	44	40	29	10300
12	4	16	44	40	29	10400
12	5	16	44	40	29	10500
12	6	16	44	40	36	10600
12	8	16	44	40	37	10800
20	3	25	54	50	28	20300
20	4	25	54	50	28	20400
20	5	25	54	50	28	20500
20	6	25	54	50	36	20600
20	8	25	54	50	37	20800
20	10	25	54	50	40	21000
20	12	25	54	50	45	21200
20	14	25	54	50	45	21400
20	16	25	54	50	48	21600
32	6	36	64	60	36	30600
32	8	36	64	60	36	30800
32	10	36	64	60	40	31000
32	12	36	64	60	45	31200
32	14	36	64	60	46	31400
32	16	36	64	60	48	31600
32	18	36	64	60	49	31800
32	20	36	64	60	50	32000
32	25	36	64	60	56	32500

Adaptation for the use of stop screws for reducing sleeves

DCONMS in mm			
12		83 950 425	83 950 426
20	83 950 425	83 950 428	83 950 427
25	83 950 425	83 950 428	83 950 427
32		83 950 428	83 950 427

Stop screw for use with reducing sleeves in hydraulic chuck

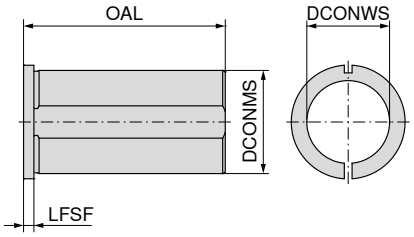


83 950 ...

THOD	BD mm	DRVS mm	
M4x0,5x26	2,8	2	425
M8x1x19	5,8	2,5	428
M10x1x16	5,8	3	426
M16x1x16	11,7	5	427

Slotted reduction sleeves

▲ For cylindrical and other tool holders
▲ For tools with cylindrical shank

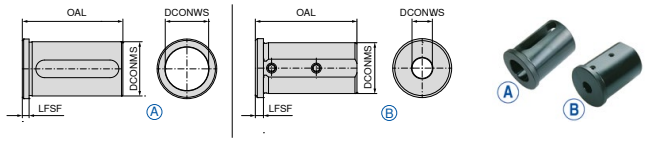


83 271 ...

DCONMS mm	DCONWS mm	OAL mm	LFSF mm	
20	6	30	4	**206**
20	8	30	4	**208**
20	10	30	4	**210**
20	12	30	4	**212**
20	15	30	4	**215**
20	16	30	4	**216**
25	6	40	4	**256**
25	8	40	4	**258**
25	10	40	4	**260**
25	12	40	4	**262**
25	15	40	4	**265**
25	16	40	4	**266**
25	20	40	4	**270**
32	6	50	4	**326**
32	8	50	4	**328**
32	10	50	4	**330**
32	12	50	4	**332**
32	15	50	4	**335**
32	16	50	4	**336**
32	20	50	4	**340**
40	10	78	4	**410**
40	12	78	4	**412**
40	15	78	4	**415**
40	16	78	4	**416**
40	20	78	4	**420**
40	25	78	4	**425**
40	32	78	4	**432**
50	20	88	4	**520**
50	25	88	4	**525**
50	32	88	4	**532**
50	40	88	4	**540**

Reduction sleeves for direct clamping

▲ For tools with cylindrical shank



83 272 ...

DCONMS mm	DCONWS mm	OAL mm	LFSF mm	Fig.	
25	6	50	4	B	**256**
25	8	50	4	B	**258**
25	10	50	4	B	**260**
25	12	50	4	B	**262**
25	14	50	4	A	**264**
25	16	50	4	A	**266**
25	20	50	4	A	**270**
32	6	58	5	B	**326**
32	8	58	5	B	**328**
32	10	58	5	B	**330**
32	12	58	5	B	**332**
32	16	58	5	A	**336**
32	20	58	5	A	**340**
32	25	58	5	A	**345**
40	8	58	5	B	**408**
40	10	58	5	B	**410**
40	12	58	5	B	**412**
40	16	58	5	A	**416**
40	20	58	5	A	**420**
40	25	58	5	A	**425**
40	32	58	5	A	**432**
50	12	75	5	B	**512**
50	16	75	5	A	**516**
50	20	75	5	A	**520**
50	25	75	5	A	**525**
50	32	75	5	A	**532**
50	40	75	5	A	**540**

Taper wiper

▲ Version made from hard wood with felt inserts

Adapter	83 715 ...
MK 1	001
MK 2	002
MK 3	003
MK 4	004
MK 5	005
HSK 32	320
HSK 40	400
HSK 50	500
HSK 63	630
HSK 80	800
HSK 100	100
SK 30	130
SK 40	140
SK 50	150

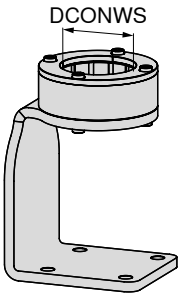
Assembly device for ISO adapters

▲ Aluminium

Adapter	80 720 ...
SK 30	030
SK 40	040
SK 50	050

Assembly fixture for tool holders

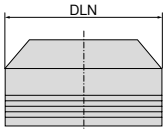
▲ gripping by roller
▲ secure clamping
▲ quick assembly, no additional clamping necessary



Holder Type	DCONWS mm	80 722 ...
HSK 32, PSC 32	32,0	032
HSK 40, PSC 40	40,0	040
MAS-BT 30	46,0	046
ISO 7388-1 / DIN 2080 - SK 30, HSK 50, PSC 50	50,0	050
ISO 7388-1 / DIN 2080 - SK 40, HSK 63, PSC 63, MAS-BT 40, ANSI-CAT 40	63,0	063
ISO 7388-1 - SK 50	97,5	097
HSK 100, MAS-BT 50, ANSI-CAT 50	100,0	100

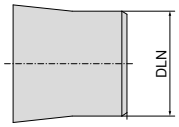
Safety Note: The clamping devices must be free of oil and grease to avoid slipping!

ER Standard lock nut for precision collet chuck – Centro-P



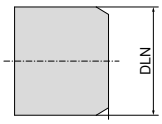
for collet	DCONWS mm	DLN mm	TQX Nm	84 950 ...	for seals 84 950 ...
426E (ER16)	1 - 10	30	80	001	011
430E (ER25)	2 - 16	40	90	003	013
470E (ER32)	2 - 20	50	180	005	015
472E (ER40)	3 - 26	63	200	007	017

Tapered lock nut for precision collet chuck – Centro-P



for collet	DCONWS mm	DLN mm	TQX Nm	84 950 ...	for seals 84 950 ...
426E (ER16)	1 - 10	24	80	031	033

Mini lock nut for precision collet chuck – Centro-P



for collet	DCONWS mm	DLN mm	TQX Nm	84 950 ...	for seals 84 950 ...
4004E (ER08)	1 - 5	10	5 - 8	040	
4008E (ER11)	1 - 7	16	10	041	
4008E (ER11)	Ø 3,0	16	10	042 [1]	
4008E (ER11)	Ø 4,0	16	10	043 [1]	
4008E (ER11)	Ø 5,0	16	10	044 [1]	
4008E (ER11)	Ø 6,0	16	10	045 [1]	
4008E (ER11)	Ø 7,0	16	10	046 [1]	
426E (ER16)	1 - 10	22	30	034	
426E (ER16)	1 - 10	22	28		035

1) directly sealed

Collet removal aid for Mini lock nut for precision collet chuck – Centro-P

for collet	84 950 ...
4004E (ER08)	070
4008E (ER11)	072

Roll key

▲ Version CP = for Centro-P lock nuts
▲ Version STD = for standard lock nuts
▲ Version HDC = for HDC lock nuts

for lock nut	DLN mm	84 950 ...
4004E / ER08 CP mini	10	050 1)
4008E / ER 11 CP mini	16	080 1)
426E / ER 16 CP / ER 16 mini	22	026 1)
426E / ER 16 CP Conical	24	082 2)
426E / ER 16 CP	30	027
426E / ER 16 STD	32	028
430E / ER 25 CP	40	054
470E / ER 32 CP + STD	50	056
470E / ER 32 HDC	53	30200
472E / ER 40 CP + STD	63	057

1) Special key for mini lock nuts
2) Key for tapered lock nuts

Torque key

TQX Nm	Square mm	84 435 ...
5 - 30	9 x 12	030
10 - 80	9 x 12	080
20 - 200	14 x 18	200

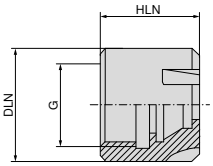
Additional roll key device for torque key

▲ Version CP = for Centro-P lock nuts
▲ Version STD = for standard lock nuts
▲ Version HDC = for HDC lock nuts

for lock nut	DLN mm	TQX Nm	Square mm	84 950 ...
4008E / ER 11 CP mini	16	5 - 30	9 x 12	060 1)
426E / ER 16 CP / ER 16 mini	22	5 - 30	9 x 12	170 1)
426E / ER 16 CP Conical	24	10 - 80	9 x 12	061 2)
426E / ER 16 CP	30	20 - 200	14 x 18	171
426E / ER 16 STD	32	20 - 200	14 x 18	172
430E / ER 25 CP	40	20 - 200	14 x 18	065
470E / ER 32 CP + STD	50	20 - 200	14 x 18	067
470E / ER 32 HDC	53	20 - 200	14 x 18	30300
472E / ER 40 CP + STD	63	20 - 200	14 x 18	068

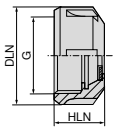
1) For mini lock nuts
2) For tapered lock nuts

Mini ER lock nut



for collet	THSZMS	DLN mm	HLN mm	TQX Nm	62 950 ...
4004E (ER08)	M10x0,75	12	11,0	8	067
4008E (ER11)	M13x0,75	16	12,0	18	065
426E (ER16)	M19x1	22	18,0	28	066
428E (ER20)	M24x1	28	19,5	35	068
430E (ER25)	M30x1	35	21,0	40	069

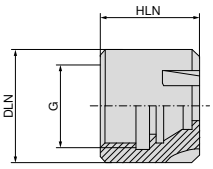
ER Lock nut



for seals

for collet	THSZMS	DLN mm	HLN mm	62 950 ...	83 950 ...
426E (ER16)	M22x1,5	32	17,0	054	
426E (ER16)	M22x1,5	32	22,0		054
428E (ER20)	M25x1,5	35	23,2		053
430E (ER25)	M32x1,5	42	20,0	055	
430E (ER25)	M32x1,5	42	24,7		055
470E (ER32)	M40x1,5	50	22,3	65600	
470E (ER32)	M40x1,5	50	27,0		056
472E (ER40)	M50x1,5	63	25,3	65700	
472E (ER40)	M50x1,5	63	30,7		057

Mini ER lock nut for sealing rings



for seals

for collet	THSZMS	DLN mm	HLN mm	TQX Nm	83 950 ...
426E (ER16-DS)	M19x1	22	22,0	28	058
428E (ER20-DS)	M24x1	28	23,2	35	059
430E (ER25-DS)	M30x1	35	24,7	40	060

ER Mini clamping key

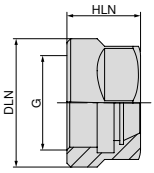
for collet	83 950 ...
4004E (ER08)	099
4008E (ER11)	100
426E (ER16)	101
428E (ER20)	102
430E (ER25)	103

Y clamping key

for lock nut	83 357 ...
ER 16	116
ER 20	12000
ER 25	125
ER 32	132
ER 40	140

ER Lock nut

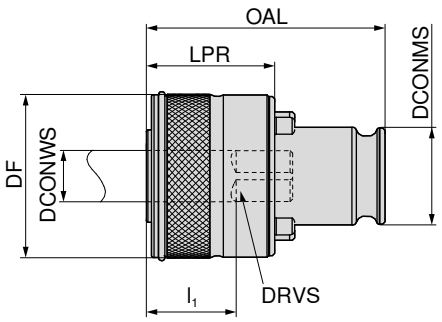
▲ DRVS = Drive size



for collet	THSZMS	DRVS mm	DLN mm	HLN mm	62 950 ...
426E (ER16)	M22x1,5	25	28	18,0	044
428E (ER20)	M25x1,5	30	34	19,5	045

Quick change tap adapter with overload clutch

▲ Adapter with adjustable overload clutch
▲ for use with taps

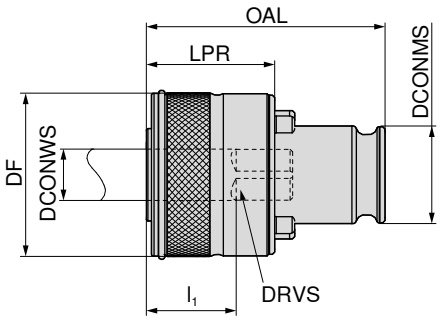


83 612 ...

SZID	DCONWS mm	DRVS mm	DIN 371	DIN 374 / 376	DF mm	DCONMS mm	OAL mm	l_1 mm	LPR mm	
01	2,8	2,1	M2		33	19	46,5	17	25	**100**
01	2,8	2,1	M2,5		33	19	46,5	17	25	**101**
01	3,5	2,7	M3		33	19	46,5	17	25	**102**
01	4,0	3,0	M3,5		33	19	46,5	17	25	**103**
01	4,5	3,4	M4		33	19	46,5	17	25	**104**
01	6,0	4,9	M4,5		33	19	46,5	17	25	**105**
01	6,0	4,9	M5		33	19	46,5	17	25	**106**
01	4,5	3,4		M6	33	19	46,5	17	25	**107**
01	6,0	4,9	M6		33	19	46,5	17	25	**108**
01	5,5	4,3		M7	33	19	46,5	17	25	**109**
01	7,0	5,5	M7		33	19	46,5	17	25	**110**
01	6,0	4,9		M8	33	19	46,5	17	25	**111**
01	8,0	6,2	M8		33	19	46,5	17	25	**112**
01	9,0	7,0	M9		33	19	46,5	17	25	**113**
01	7,0	5,5		M10	33	19	46,5	17	25	**114**
01	10,0	8,0	M10		33	19	46,5	17	25	**115**
01	8,0	6,2		M11	33	19	46,5	17	25	**116**
01	9,0	7,0		M12	33	19	46,5	17	25	**117**
02	6,0	4,9	M4,5 - M6		50	31	69,0	30	34	**200**
02	6,0	4,9	M7 (DIN 352)		50	31	69,0	30	34	**201**
02	7,0	5,5	M7		50	31	69,0	30	34	**202**
02	6,0	4,9		M8	50	31	69,0	30	34	**203**
02	8,0	6,2	M8		50	31	69,0	30	34	**204**
02	9,0	7,0	M9		50	31	69,0	30	34	**205**
02	7,0	5,5		M10	50	31	69,0	30	34	**206**
02	10,0	8,0	M10		50	31	69,0	30	34	**207**
02	8,0	6,2		M11	50	31	69,0	30	34	**208**
02	9,0	7,0		M12	50	31	69,0	30	34	**209**
02	11,0	9,0		M14	50	31	69,0	30	34	**210**
02	12,0	9,0		M16	50	31	69,0	30	34	**211**
02	14,0	11,0		M18	50	31	69,0	30	34	**212**
02	16,0	12,0		M20	50	31	69,0	30	34	**213**

Quick change tap adapter with overload clutch, with through coolant

▲ Adapter with adjustable overload clutch
▲ for use with taps

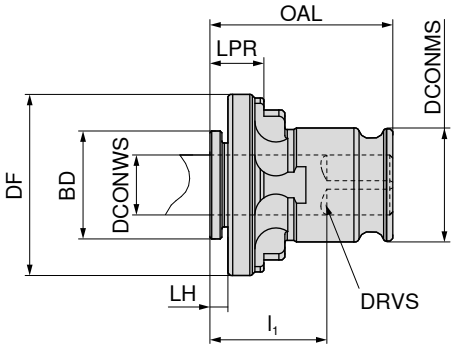


83 616 ...

SZID	DCONWS mm	DRVS mm	DIN 371	DIN 374 / 376	DF mm	DCONMS mm	OAL mm	l_1 mm	LPR mm	
01	3,5	2,7	M3	M4,5 - M5	33	19	46,5	17	25	**100**
01	4,5	3,4	M4	M6	33	19	46,5	17	25	**102**
01	5,5	4,3		M7	33	19	46,5	17	25	**104**
01	6,0	4,9	M4,5 - M6	M8	33	19	46,5	17	25	**106**
01	7,0	5,5	M7	M10	33	19	46,5	17	25	**108**
01	8,0	6,2	M8	M11	33	19	46,5	17	25	**110**
01	9,0	7,0	M9	M12	33	19	46,5	17	25	**112**
01	10,0	8,0	M10		33	19	46,5	17	25	**114**
01	11,0	9,0		M14	33	19	46,5	17	25	**116**
02	6,0	4,9	M4,5 - M6	M8	50	31	69,0	30	34	**200**
02	7,0	5,5	M7	M10	50	31	69,0	30	34	**202**
02	8,0	6,2	M8	M11	50	31	69,0	30	34	**204**
02	9,0	7,0	M9	M12	50	31	69,0	30	34	**206**
02	10,0	8,0	M10		50	31	69,0	30	34	**208**
02	11,0	9,0		M14	50	31	69,0	30	34	**210**
02	12,0	9,0	M12	M16	50	31	69,0	30	34	**212**
02	14,0	11,0		M18	50	31	69,0	30	34	**214**
02	16,0	12,0		M20	50	31	69,0	30	34	**216**

Quick change tap adapter

▲ Normal version without overload clutch
▲ For mounting taps
▲ For right-hand and left-hand threads

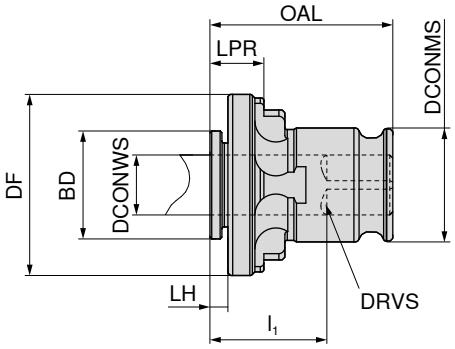


83 610 ...

SZID	DCONWS mm	BD mm	DRVS mm	DIN 371	DIN 374 / 376	DF mm	DCONMS mm	OAL mm	LH mm	l_1 mm	LPR mm	
01	3,5	18	2,7	M3		30,2	19	31	3,5	17	9,5	**100**
01	4,5	18	3,4	M4		30,2	19	31	3,5	17	9,5	**101**
01	4,0	18	3,0	M3,5		30,2	19	31	3,5	17	9,5	**102**
01	2,8	18	2,1	M2 - M2,6		30,2	19	31	3,5	17	9,5	**103**
01	5,5	18	4,3		M7	30,2	19	31	3,5	17	9,5	**104**
01	6,0	18	4,9	M4,5 - M6	M8	30,2	19	31	3,5	17	9,5	**105**
01	7,0	18	5,5	M7	M10	30,2	19	31	3,5	17	9,5	**106**
01	8,0	18	6,2	M8	M11	30,2	19	31	3,5	17	9,5	**107**
01	9,0	18	7,0	M9	M12	30,2	19	31	3,5	17	9,5	**108**
01	10,0	18	8,0	M10		30,2	19	31	3,5	17	9,5	**109**
01	11,0	18	9,0		M14	30,2	19	31	3,5	17	9,5	**110**
02	6,0	26	4,9	M4,5 - M6		46,3	31	46	2,5	30	11,0	**200**
02	7,0	26	5,5	M7		46,3	31	46	2,5	30	11,0	**201**
02	8,0	26	6,2	M8		46,3	31	46	2,5	30	11,0	**202**
02	9,0	26	7,0	M9		46,3	31	46	2,5	30	11,0	**203**
02	10,0	26	8,0	M10		46,3	31	46	2,5	30	11,0	**204**
02	11,0	26	9,0		M14	46,3	31	46	2,5	30	11,0	**205**
02	12,0	26	9,0		M16	46,3	31	46	2,5	30	11,0	**206**
02	14,0	26	11,0		M18	46,3	31	46	2,5	30	11,0	**207**
02	16,0	26	12,0		M20	46,3	31	46	2,5	30	11,0	**208**
02	18,0	26	14,5		M22 - M24	46,3	31	46	2,5	30	11,0	**209**

Quick change tap adapter, with through coolant

▲ Normal version without overload clutch
▲ For mounting taps
▲ For right-hand and left-hand threads

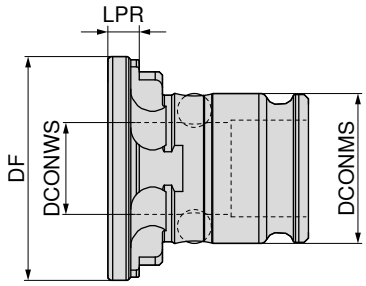


83 614 ...

SZID	DCONWS mm	BD mm	DRVS mm	DIN 371	DIN 374 / 376	DF mm	DCONMS mm	OAL mm	LH mm	l_1 mm	LPR mm	
01	3,5	18	2,7		M4,5 - M5	30,2	19	31	3,5	17	9,5	**100**
01	4,5	18	3,4	M4	M6	30,2	19	31	3,5	17	9,5	**102**
01	5,5	18	4,3		M7	30,2	19	31	3,5	17	9,5	**104**
01	6,0	18	4,9	M4,5 - M6	M8	30,2	19	31	3,5	17	9,5	**106**
01	7,0	18	5,5	M7	M10	30,2	19	31	3,5	17	9,5	**108**
01	8,0	18	6,2	M8	M11	30,2	19	31	3,5	17	9,5	**110**
01	9,0	18	7,0	M9	M12	30,2	19	31	3,5	17	9,5	**112**
01	10,0	18	8,0	M10		30,2	19	31	3,5	17	9,5	**114**
02	6,0	26	4,9	M4,5 - M6	M8	46,3	31	46	2,5	30	11,0	**200**
02	7,0	26	5,5	M7	M10	46,3	31	46	2,5	30	11,0	**202**
02	8,0	26	6,2	M8	M11	46,3	31	46	2,5	30	11,0	**204**
02	9,0	26	7,0	M9	M12	46,3	31	46	2,5	30	11,0	**206**
02	10,0	26	8,0	M10		46,3	31	46	2,5	30	11,0	**208**
02	11,0	26	9,0		M14	46,3	31	46	2,5	30	11,0	**210**
02	12,0	26	9,0	M12	M16	46,3	31	46	2,5	30	11,0	**212**
02	14,0	26	11,0		M18	46,3	31	46	2,5	30	11,0	**214**
02	16,0	26	12,0		M20	46,3	31	46	2,5	30	11,0	**216**

Reducing adapter for quick change adapters

▲ Reducing adapter for reducing size 02 to 01. In this way the clamping ranges can be extended to smaller sizes.



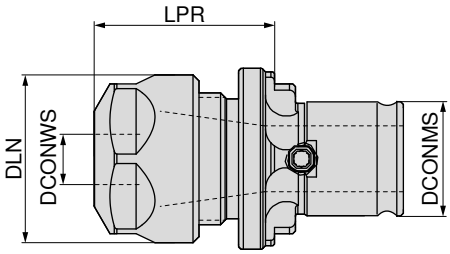
83 624 ...

SZID	DF mm	DCONMS mm	DCONWS mm	LPR mm	
02	46	31	19	8,5	**200**

16

Quick change tap adapters

▲ Adapters for collets ER 16 / ER 25

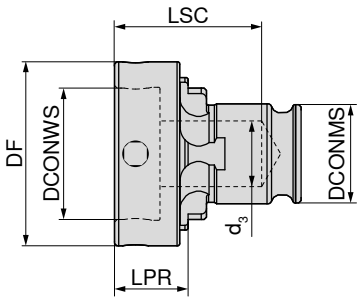


SZID	DCONWS mm	DLN mm	DCONMS mm	LPR mm	for collet	83 618 ...
01	1 - 10	28	19	29,5	ER 16	010 1)
02	2 - 16	42	31	38,5	ER 25	016

1) with 6 position lock nut

Quick change adapter for dies

▲ For mounting dies according to DIN 223



SZID	for size	DF mm	DCONMS mm	DCONWS mm	LPR mm	d_3 mm	LSC mm	83 622 ...
01	16 x 5	25	19	16	9	12,5	23	116
01	20 x 5	30	19	20	9	12,5	23	120
01	20 x 7	30	19	20	11	12,5	25	121
01	25 x 9	35	19	25	14	12,5	28	125
01	38 x 10	48	19	38	15	14,2	29	138
01	30 x 11	40	19	30	16	12,5	30	130
01	38 x 14	48	19	38	19	14,2	33	139
02	20 x 5	30	31	20	22	15,0	57	220
02	20 x 7	30	31	20	22	15,0	57	221
02	25 x 9	35	31	35	22	15,0	57	225
02	38 x 10	48	31	38	22	22,0	57	238
02	30 x 11	40	31	30	22	22,0	57	230
02	38 x 14	48	31	38	25	22,0	60	239
02	45 x 14	57	31	45	29	22,0	64	245
02	45 x 18	57	31	45	29	22,0	64	246

MultiChange – Spanner

DRVS mm	TQX Nm	84 357 ...
6	5	006
8	12,5	008
10	15	010
13	20	013
16	25	016
19	25	019 1)
21	25	021 1)
24	25	024 1)

1) only for MultiChange reamers

MultiChange – Spanner Head

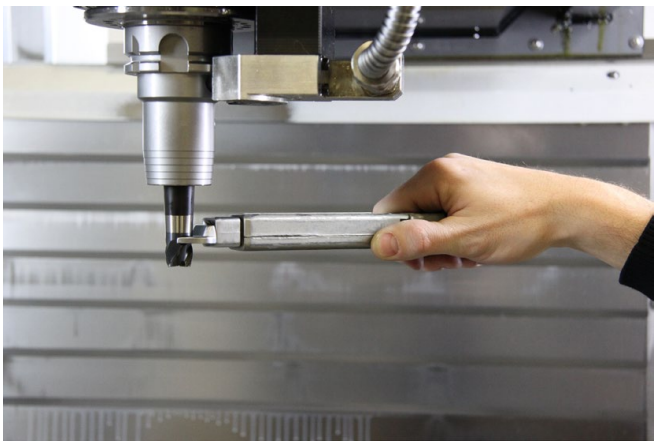
DRVS mm	TQX Nm	Square mm	84 358 ...
6	5	9 x 12	006
8	12,5	9 x 12	008
10	15	9 x 12	010
13	20	9 x 12	013
16	25	9 x 12	016
19	25	9 x 12	190
19	25	14 x 18	019 1)
21	25	9 x 12	210
21	25	14 x 18	021 1)
24	25	9 x 12	240
24	25	14 x 18	024 1)

1) only for MultiChange reamers

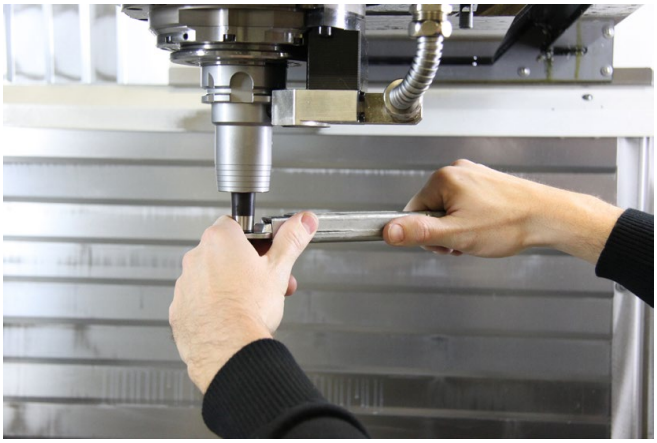
Suitable torque keys can be found on → **Page 286**.

Assembly instructions for MultiChange head

- ▲ Cleaning of cone, thread and face of the milling head
- ▲ Cleaning of cone and thread face of the holder
- ▲ Cleaning of cone, thread and face of the holders
- ▲ Cutter head screwed clockwise by hand into the holder (be careful if using gloves)
- ▲ Clamp the exchange milling head with the torque wrench and the correct spanner to the specified tightening torque (according to table).
- ▲ The gap between the head and holder must be closed (force and positive connection)



Torque wrench must be horizontally aligned to key area, take care not to tilt in the key area



Important for the sensitive tuning is an additional placing of the hand on the exchange milling head. This means the torque can be better maintained.

TORX® Screwdriver

Size	LB mm	TQX Nm	80 950 ...
T05	35	0,5	082
T06	35	0,9	083
T07	35	1,7	084
T08	40	2,6	085
T09	40	3,4	086
T10	40	4,5	087
T15	45	7,7	088
T20	45	12,7	089

TORX® Screwdriver sets

Size	80 950 ...
T06, T07, T08, T09, T10, T15, T20	090

TORX PLUS® Screwdriver

Size	LB mm	TQX Nm	80 950 ...
T05-IP	35	0,5	057
T06-IP	35	0,9	058
T07-IP	35	1,7	059
T08-IP	40	2,6	060
T09-IP	40	3,4	061
T10-IP	40	4,5	062
T15-IP	45	7,7	063
T20-IP	45	12,7	064

TORX PLUS® Screwdriver sets

Size	80 950 ...
T06IP, T07IP, T08IP, T09IP, T10IP, T15IP, T20IP	091

Clamping key

DRVS mm	TQX Nm	80 397 ...
2	1,9	020
2,5	3,8	025
3	6,6	030
4	16	040
5	30	050
6	52	060
8	120	080
10	220	100

Allen keys with cross handle – set

▲ 7-piece Allen key set in workbench stand

Size	80 397 ...
SW2, SW2,5, SW3, SW4, SW5, SW6, SW8	99900

TORX® Screwdriver

Size	LB mm	80 950 ...
T06	60	100
T07	60	101
T08	60	102
T09	60	103
T10	80	104
T15	80	105
T20	100	106
T25	100	107
T30	115	092

TORX PLUS® Screwdriver

Size	LB mm	80 950 ...
T06-IP	60	116
T07-IP	60	117
T08-IP	60	039
T09-IP	60	118
T10-IP	80	119
T15-IP	80	120
T20-IP	100	121
T25-IP	100	122

TORX® MagicSpring®

Size	LB mm	80 950 ...
MS T06	60	108
MS T07	60	109
MS T08	60	110
MS T09	60	111
MS T10	80	112
MS T15	80	113
MS T20	100	114
MS T25	100	115
MS T30	100	131

TORX PLUS® MagicSpring®

Size	LB mm	80 950 ...
MS T06-IP	60	123
MS T07-IP	60	124
MS T08-IP	60	125
MS T09-IP	60	126
MS T10-IP	80	127
MS T15-IP	80	128
MS T20-IP	100	129

A stainless steel spring holds MagicSpring® Torx® and Torx Plus® screws in place.

TorqueFix® Handle

- ▲ with fixed torque moment
- ▲ Standard: EN ISO 6798, BS EN 26789, ASME B107.14M
- ▲ Accuracy: ± 6 %, based on national standards
- ▲ Bits to be clamped in the universal holder only

TQX Nm	80 021 ...
0,4	00400
0,5	00500
0,6	006
0,7	007
0,8	008
0,9	00900
1	010
1,1	01100
1,2	012
1,5	01500
1,6	016
2	020
2,5	02500
3	030
3,2	032
3,8	03800
4	040
5	050
5,5	055
6	060
7,2	07200

easyTorque® Handle

- ▲ with a fixed torque
- ▲ Accuracy: ± 10%
- ▲ Bits can only be clamped in the universal holder

NEW

TQX Nm	DRVS mm	BD mm	OAL mm	WT kg	80 024 ...
0,5	4	34	130	0,950	00500
0,6	4	34	130	0,950	00600
0,9	4	34	130	0,940	00900
1,1	4	34	130	0,101	01100
1,2	4	34	130	0,990	01200
1,4	4	34	130	0,101	01400
2,0	4	34	130	0,101	02000
2,5	4	34	130	0,106	02500
3,0	4	34	130	0,104	03000
3,8	4	34	130	0,105	03800
4,0	4	34	130	0,105	04000
4,5	4	34	130	0,105	04500
5,0	4	34	130	0,105	05000

TorqueVario®-S

- ▲ Patented handle

Scope of supply:
incl. Torque-Setter setting tool

TQX Nm	80 950 ...
0,4 - 1,0	046
0,5 - 2,0	191
0,8 - 5,0	192
2,0 - 7,0	193

TorqueFix® key

- ▲ With fixed torque
- ▲ Ergonomic key handle, extremely easy to use thanks to compact design
- ▲ Specially designed for difficult to access screws and constricted openings
- ▲ Click signal when the set torque value is reached
- ▲ Standards: DIN EN ISO 6789
- ▲ Accuracy: ± 6%, traceable to national standards

Scope of supply:
incl. Plastic box and inspection report

TQX Nm	DRVS mm	80 392 ...
0,5	4	00500
0,6	4	00600
0,9	4	00900
1,1	4	01100
1,2	4	01200
1,4	4	01400
2,0	4	02000
2,5	4	02500
3,0	4	03000
3,8	4	03800
4,0	4	04000

Universal holder for Bits

- ▲ 162 mm long

for	80 950 ...
DIN3126-C/E 6,3-1/4"	014

Interchangeable blade for hex drive

Size	TQX Nm	short 75 mm 80 393 ...	long 175 mm 80 950 ...
SW1,5	0,9	01500	151
SW2	1,8	02000	152
SW2,5	3,8	02500	153
SW3	5,5	03000	154
SW4	8,0	04000	155

Replaceable Blade for TORX®

Size	TQX Nm	short 75 mm 80 394 ...	long 175 mm 80 950 ...
T05	0,4		048
T06	0,6	00600	031
T07	0,9	00700	032
T08	1,3	00800	033
T09	2,5	00900	034
T10	3,8	01000	035
T15	5,5	01500	036
T20	8,0	02000	037
T25	8,0	02500	038

Replaceable Blade for TORX PLUS®

Size	TQX Nm	long 175 mm 80 950 ...
T05-IP	0,5	049
T06-IP	0,8	050
T07-IP	1,3	051
T08-IP	2,0	043
T09-IP	3,0	052
T10-IP	4,5	053
T15-IP	6,6	054
T20-IP	8,0	055
T25-IP	8,0	056

Interchangeable blade, short 75 mm, suitable for TorqueFix® Key article number 80 392 ...→ **Page 296**.

Interchangeable blade, long 175 mm, suitable for TorqueFix® Grip article number 80 021 ... and TorqueVario®-S article number 80 950 ... → **Page 296**.

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TORX® Bits short (25 mm)

▲ DIN3126-C 6,3 – 1/4"

Size	TQX Nm	80 950 ...
T06	0,9	015
T07	1,7	016
T08	2,6	017
T09	3,4	018
T10	4,5	019
T15	7,7	020
T20	12,7	021
T25	19	022
T30	37,4	093

TORX® Bits long (50 mm)

▲ DIN3126-E 6,3 – 1/4"

Size	TQX Nm	80 950 ...
T06	0,9	023
T07	1,7	024
T08	2,6	025
T09	3,4	026
T10	4,5	027
T15	7,7	028
T20	12,7	029
T25	19	030
T30	37,4	094

TORX PLUS® Bits short (25 mm)

▲ DIN3126-C 6,3 – 1/4"

Size	TQX Nm	80 950 ...
T08-IP	2,6	068
T09-IP	3,4	069
T10-IP	4,5	070
T15-IP	7,7	071
T20-IP	12,7	072
T25-IP	19	073

TORX PLUS® Bits long (50 mm)

▲ DIN3126-E 6,3 - 1/4"

Size	TQX Nm	80 950 ...
T08-IP	2,6	040
T09-IP	3,4	077
T10-IP	4,5	078
T15-IP	7,7	079
T20-IP	12,7	080
T25-IP	19	081

Bit – hexagonal (50 mm)

▲ DIN3126-E 6,3 - 1/4"

Size	80 398 ...
SW1,5	01500
SW2	02000
SW2,5	02500
SW3	03000
SW3,5	03500
SW4	04000
SW4,5	04500
SW5	05000
SW6	06000
SW8	08000

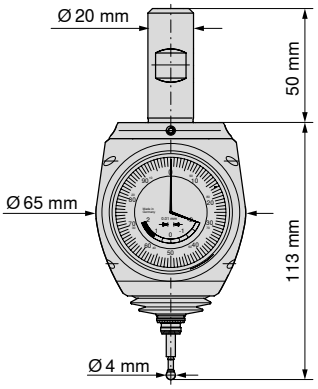
TORX PLUS® Allen key

Size	OAL mm	80 951 ...
T07-IP	44	00700
T08-IP	47	00800
T09-IP	51	00900
T10-IP	54	01000
T15-IP	58	01500
T20-IP	62	02000
T25-IP	67	02500
T27-IP	73	02700
T30-IP	79	03000
T40-IP	88	04000

Universal 3D-tester

- ▲ Quick and accurate positioning
- ▲ For locating and/or setting the zero point of the workpiece
- ▲ with adjustable concentricity
- ▲ Usable in all 3 axes (x, y, z)
- ▲ For all CNC and erosion machines (insulation between stylus and case)
- ▲ Reading of actual dimensions is independent of direction
- ▲ Reading precision 0.01 mm

Scope of supply:
3D tester including tracer insert and Allen key

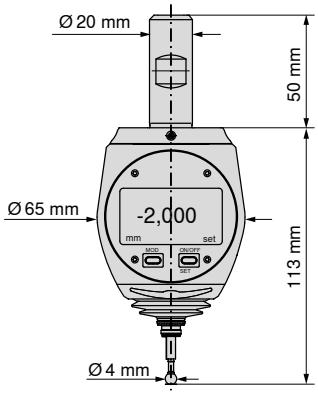


85 290 ...	
Universal-3D-Tester	100

Digital 3D tester

- ▲ Quick and accurate positioning
- ▲ For locating and/or setting the zero point of the workpiece
- ▲ with adjustable concentricity
- ▲ Usable in all 3 axes (x, y, z)
- ▲ For all CNC and erosion machines (insulation between stylus and case)
- ▲ Reading of actual dimensions is independent of direction
- ▲ Reading precision 0.001 mm

Scope of supply:
3D tester including tracer insert and Allen key



85 291 ...	
Digital 3D Tester	100

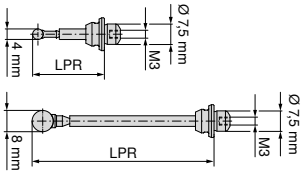
Zero height setting gauge

- ▲ to determine the point of reference and/or for adjusting tools „to zero“
- ▲ Plate Ø 10 mm
- ▲ Plate is hardened, non magnetic

85 900 ...	
OAH mm	
100	018

Stylus for 3D-tester

- ▲ With movement of 2 mm beyond the zero point a break-off ceramic insert prevents damage to the unit
- ▲ If the stylus is broken remove and insert a new stylus
- ▲ Check concentricity and adjust if necessary



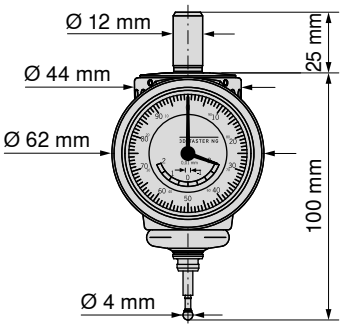
85 290 ...	
LPR mm	
25	102
65	104

Universal 3D-Tester HQ

- ▲ fast and accurate positioning at reference edges
- ▲ Development of the existing universal 3D-Testers
- ▲ improved mechanics
- ▲ compact size
- ▲ characterised by over travel safety
- ▲ Functionality as with 85 290 100
- ▲ Accuracy 0,01 mm

Scope of supply:

3D tester including tracer insert and Allen key



85 292 ...

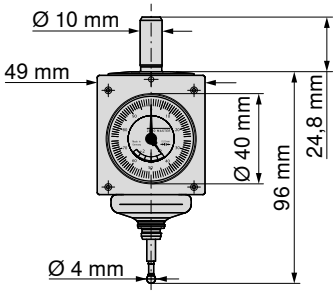
Universal 3D-Tester HQ	**100**

Universal 3D-Tester Mini

- ▲ fast and accurate positioning at reference edges
- ▲ very small universal 3D-Tester
- ▲ particularly suitable for machines with small spindle taper e.g. SK 30 or HSK 32
- ▲ low overhang length thanks to short housing
- ▲ characterised by over travel safety
- ▲ Functionality as with 85 290 100
- ▲ Accuracy 0,01 mm

Scope of supply:

3D tester including tracer insert and Allen key



85 295 ...

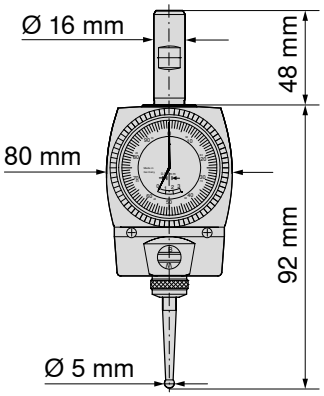
Universal 3D-Tester Mini	**100**

Centre finder

- ▲ Centralise holes and features quickly and accurately
- ▲ simple operation
- ▲ Dial gauge remains in the operators vision during process
- ▲ Centring accuracy 0,003 mm

Scope of supply:

3D-Tester incl. straight stylus and telescopic stop

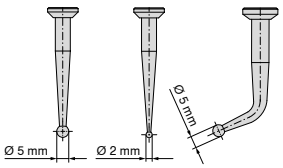


85 299 ...

Centre finder	**100**

Range with probe tip Ø 5 mm holes
Ø 6–125 mm, shaft Ø 0–125 mm

Stylii for Centre Finder



85 299 ...

Straight stylus / Ball-Ø 2 mm	**102**
Straight stylus / Ball-Ø 5 mm	**104**
Curved stylus / Ball Ø 5 mm	**106**

Telescopic rod for Centre Finder

85 299 ...

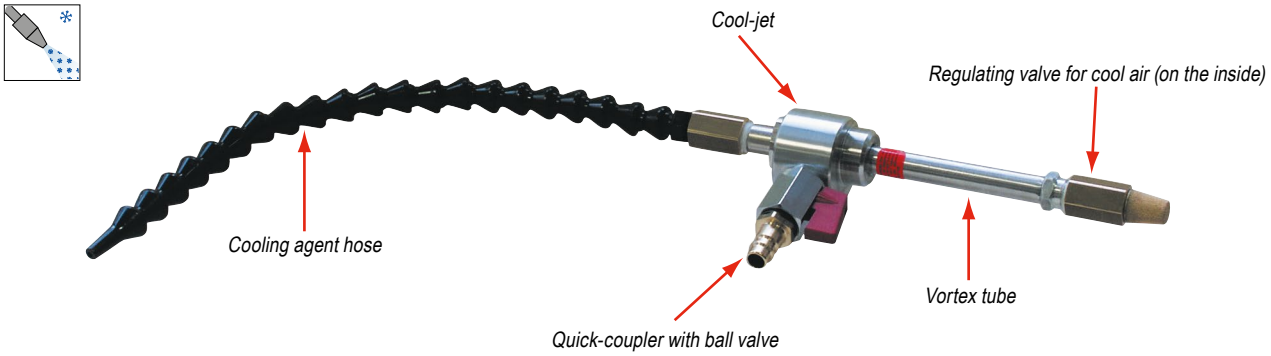
DCONMS mm	OAL mm	
6	478	**111**

Advantages with the use of the cool air nozzle

The main advantages are that cooling agent disposal is not required and tool life increases up to 100 % when dry machining

In order to improve the service life when dry machining, we recommend the use of our cooling nozzle, which is applicable with a normal compressed air connection from a pressure of 6 bar.

Not only for**cooling the tool and workpiece** it is primarily**for chip removal** to preventchip **jamming**.



Cool-jet	81 900 ...
3–7 bar air pressure, at -46 °C	100

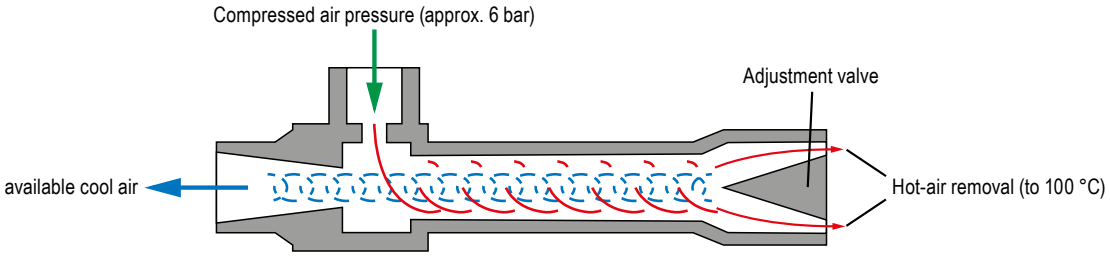
Accessories	81 900 ...
Magnetic plate Ø 80 mm without clamping arm	101
Spare tube, length 300 mm	104
Jet silencer (air filter)	105
Clamping arm, length 75 mm	106
Complete set (with magnetic set and clamping arm), weight 0,4 kg	107

Technical description – operating instruction

The principle of the cold-air nozzle is based on the use of vortex tubes. Ordinary air is divided into cold and hot air streams.

Without additional power supply or moving parts the cool air nozzle can produce**cooling performance of up to 733 W** or **Temperatures of approx. -42 °C** are produced and requires only operating pressure air of approx. 6 bar.

A water trap or service unit should be mounted. A regulating valve in the hot-air outlet regulates the temperatures and currents



Utilizable air temperature measured at the effective discharge of the vortex tube (not the nozzle end)

Air consumption at an inlet temperature of +21 °C and an inlet pressure of 6.9 bar: 7,08 l / sec. (25.5 m³ / h)

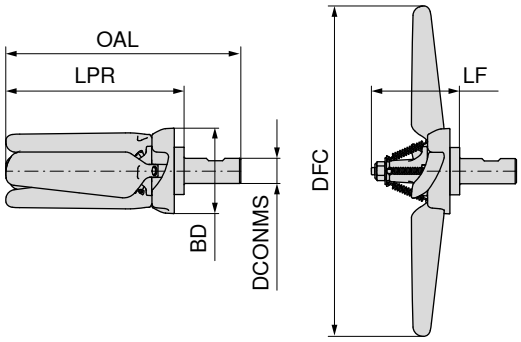
Entrance pressure				
	3 bar	-31 °C	up to	-6 °C
	4 bar	-35 °C	up to	-8 °C
	5 bar	-39 °C	up to	-10 °C
	6 bar	-42 °C	up to	-11 °C
	7 bar	-46 °C	up to	-13 °C

In order to operate the regulating valve, the silencer must be unscrewed – there is a burn danger! The valve of the hot air side can reach up to 100 °C: Before contact, allow cooling!

16

Cleaning propeller

▲ Chip and emulsion removal or drying processes via the tool spindle
▲ Simple replacement of the rotor blades



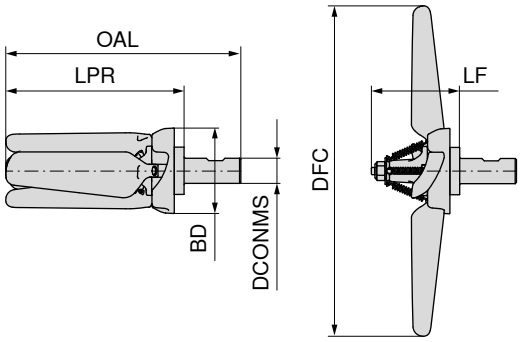
IK central

80 399 ...

DCONMS mm	OAL mm	LPR mm	LF mm	DFC mm	BD mm	RPMX 1/min.	
20	186,3	141,3	69,75	254	67,68	5000 - 8000	**02000**

Cleaning propeller

▲ Chip and emulsion removal or drying processes via the tool spindle
▲ Simple replacement of the rotor blades



IK central

80 399 ...

DCONMS mm	OAL mm	LPR mm	LF mm	DFC mm	BD mm	RPMX 1/min.	
20	135	90	70	160	68	6000 - 12000	**16000**

Rotor blade kit

1 rotary blade and 1 tension spring

4 rotary blades and 4 tension springs

Size	80 399 ...	80 399 ...
Large	**30100**	**30200**
Small	**36000**	**46000**

Driven Tools

CERATIZIT offers a comprehensive portfolio of driven tool holders for the turrets or machines of leading manufacturers. There is almost no limit to the range of types available. You will find a small selection of our holders here.

Examples from our driven tooling range

Axial drilling and milling head

Radial drilling and milling head

Rear offset radial drilling and milling head

Double radial drilling and milling head

Double axial drilling and milling head

Offset axial drilling and milling head

Swivel head

Modular milling

Summary of machine turret manufacturers and interfaces for which CERATIZIT can supply driven tools

- ▲ Sauter
- ▲ Baruffaldi
- ▲ Duplomatic
- ▲ DIN1809
- ▲ DIN5480
- ▲ DIN5482
- ▲ Baruffaldi Toem
- ▲ Bevel gear milling
- ▲ Spline / tooth
- milling
- ▲ BMT (bolt on)

Technical Advice

Are you interested in our driven tools ? If so please contact your technical sales engineer who will be glad to assist you. Alternatively, you can contact our office based internal technical sales engineers who can be reached on our freephone number.

Enquiry Form

Should you have questions about driven tools you can find a detailed questionnaire on our website in the download area. Carefully complete the form and send it via e-mail or printed fax
→ **cutting.tools/en/download**

16

Modular quick-change system for driven tools

You want to optimize your setup time? CERATIZIT offers you several options! With each axial and radial driven tool you are prepared through the exchange of different modules for different machining demands.

Varia VX

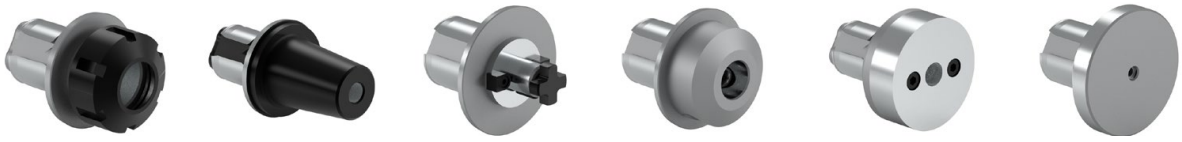
The new quick change system for heavy duty machining

The face & taper contact interface ensures maximum concentricity.
The torque is transmitted via a form-fitting polygon, which can transmit up to 200 Nm.

Clamping and releasing takes place via a segmented gear wheel equipped with 3 multifunctional cams. When tightened with a radially mounted clamping screw, the 3-point clamping pulls the tool evenly into its operating position. When releasing the tool force is applied mechanically via a sliding cam and the tool is released for removal from the adapter.

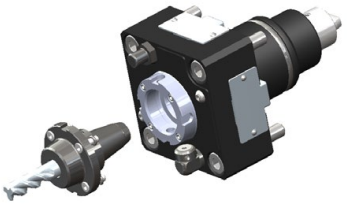
The advantages at a glance

- ▲ Cutting tools are preset off the machine
- ▲ Quick change thanks to only one clamping point
- ▲ No risk of injury when changing tools
- ▲ Transverse force-free clamping of the tools
- ▲ Safe torque transmission
- ▲ No loose parts



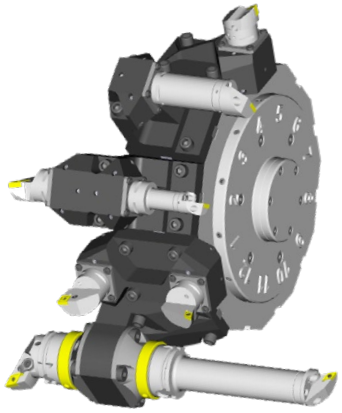
System Preci-Flex® – The stable solution for long tool life and high surface quality

The internal cone of the driven tool is suitable for any commercial type ER collets. Through taper & face contact ≤ 0.01 mm system concentricity and ≤ 0.005 mm repeatability is achieved and four plane-side clamp screws achieve maximum system stability and rigidity.



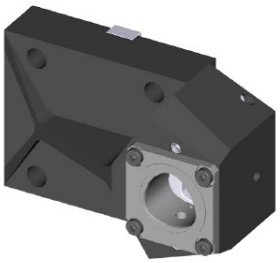
The program includes base holders for the collet sizes ER20, ER25, ER32, ER40 and ER50 and collet holders with male or female nut, adapters Weldon, Whistle Notch, shrink, boring bars, Shell mill arbors, hydraulic chucks, Test arbors and blanks. Also available for static VDI holders and rotating SK and HSK holders.

Quick-Change

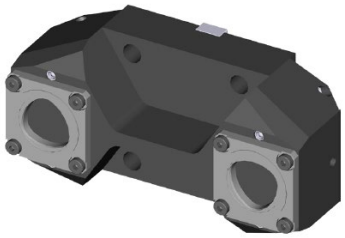


The tool holder range comprises both innovative and technologically proven solutions for all common CNC turning centres. We offer solutions that are perfectly tailored to the make of machine, regardless of whether the machine has a BMT, VDI or other connection type.

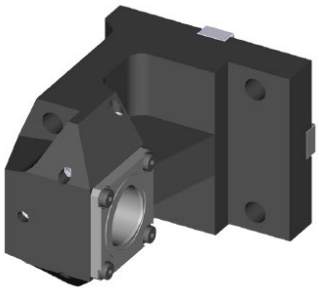
Every quick-change system has a standardised interface to DIN/ISO requirements and is available for HSK-T 40/63/100 and PSC 40/50/63 sizes. The tool change itself is carried out quickly and easily, minimising idle times and thus boosting productivity.



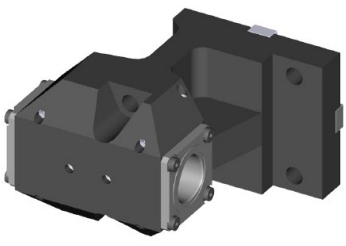
Tool holder single and straight



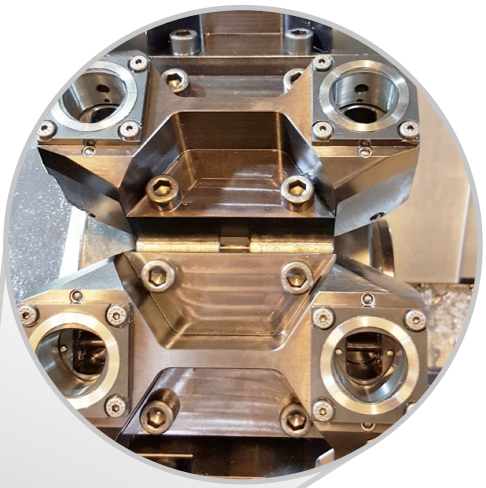
Tool holder double and straight

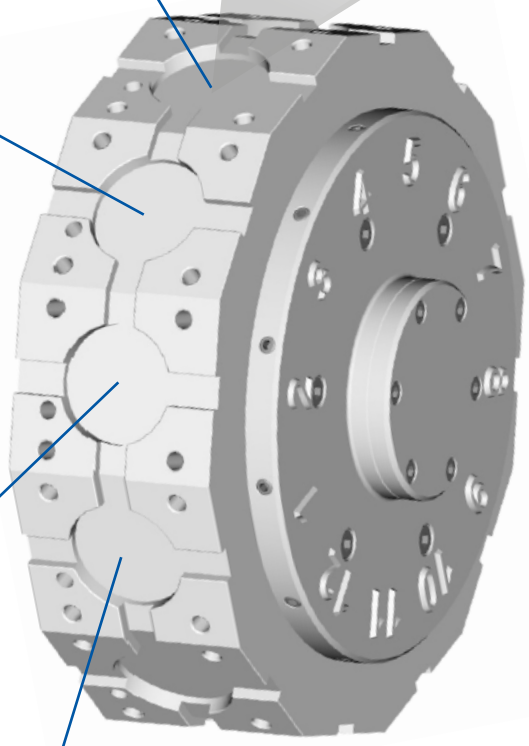


Single angle tool holder



Double angle tool holder





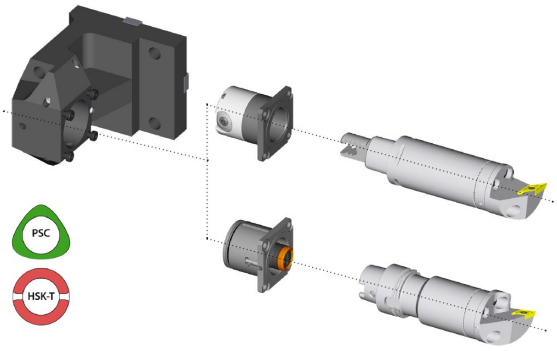
Revolverdisk BMT/VDI/...

16

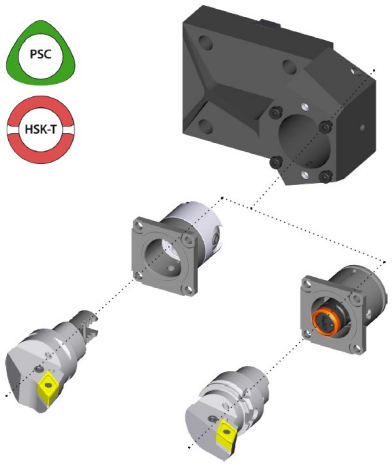
HSK/PSC clamping units

The tool holders are fitted with either an HSK or PSC clamping unit.

Clamping units are available in sizes HSK 40/63/100 and PSC 40/50/63.

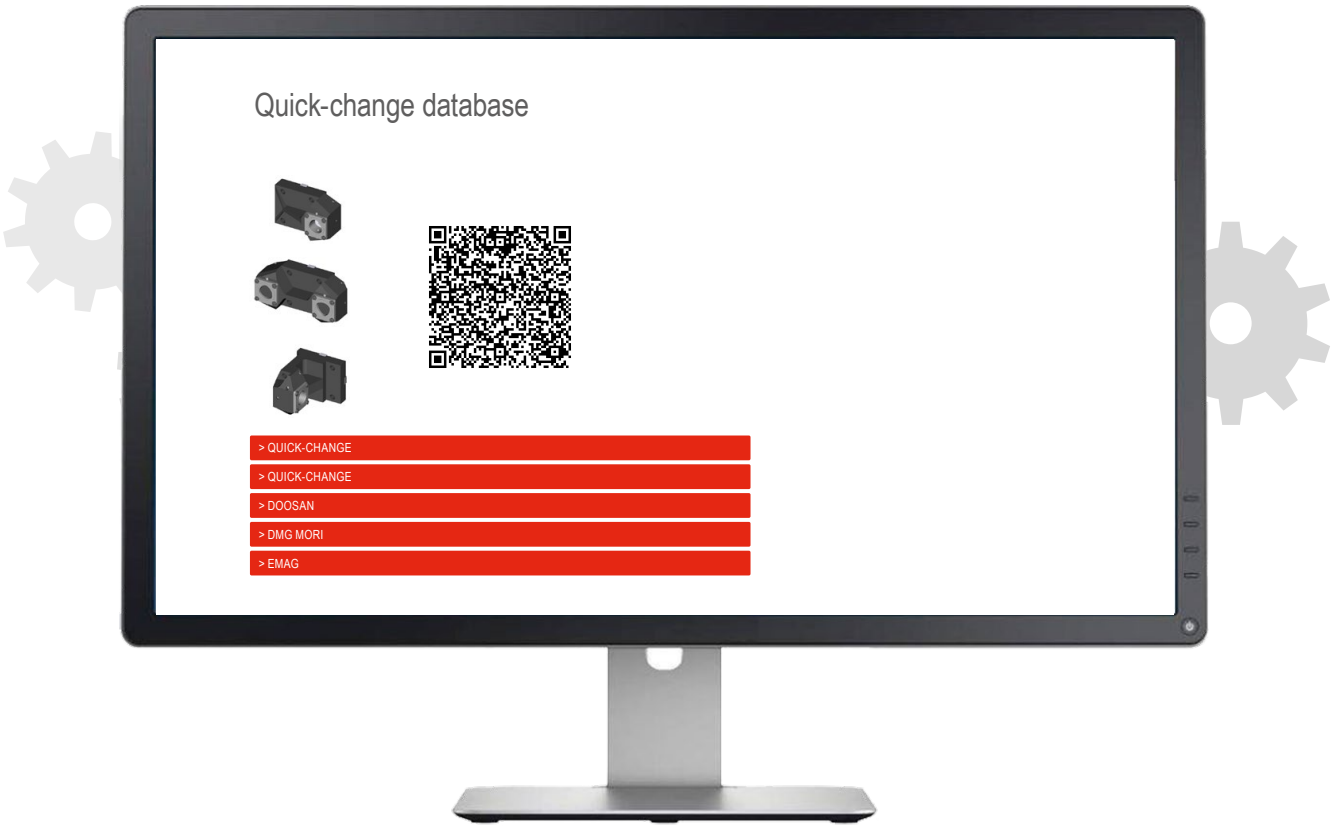


The toolholders permit the flexibility to be adapted to the customer's requirements.



Online database

Our quick-change tool holders are individually adapted to turning machines to ensure the greatest-possible levels of flexibility and efficiency. Using the online database, systems of previously specified machine types can be evaluated in order to obtain an initial overview.



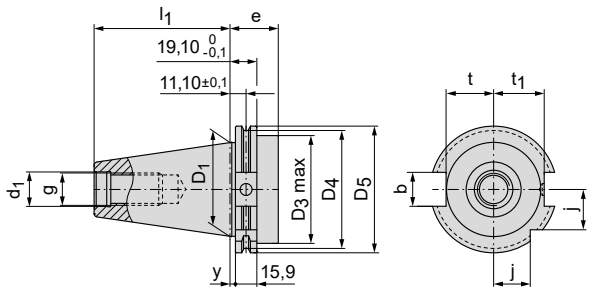
Information on enquiry process

To make the enquiry process as easy as possible, please use our enquiry form to enter the most important machine data and information on the machining process.
Please fill in this form carefully and send it to us by email or fax. → **cutting.tools/en/download-quickchange**

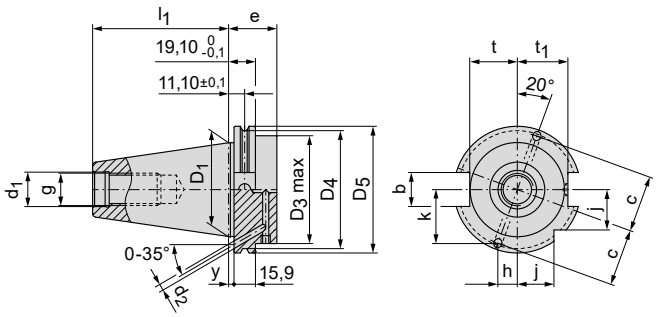
If you have any questions regarding the ordering process or the form itself, your CERATIZIT Technical Sales Engineer will be happy to help.

Technical data for steep taper tools

ISO 7388-1 – Form A

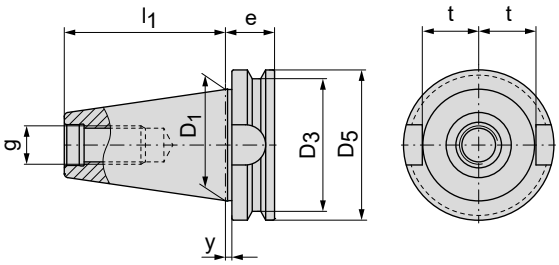


ISO 7388-1 – 871 Form B



	D_1 mm	$D_{3\,max}$ mm	D_4 mm	D_5 mm	l_1 $^{+0,2}_{0}$ mm	g	d_1 ^{H7} mm	e mm	y $^{\pm0,1}$ mm	t mm	t_1 mm	j mm	d_2 mm	h mm	k mm	c mm	b mm
SK 30	31,75	45	44,30	50	47,8	M 12	13	35	3,2	16,4	19	15					16,1
SK 40	44,45	50	56,25	63,55	68,4	M 16	17	35	3,2	22,8	25	18,5	4	9,2	25,4	27	16,1
SK 50	69,85	80	91,25	97,5	101,75	M 24	25	35	3,2	35,5	37,7	30	6	14,4	39,5	42	25,7

ISO 7388-2

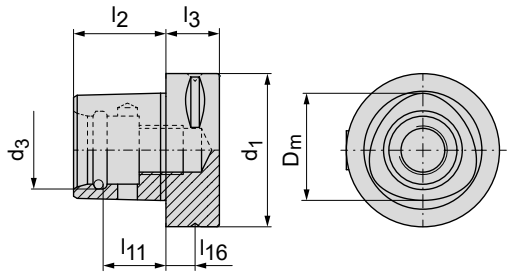


Maximum recommended rpm
for steep taper toolholders:
SK / BT 30 to 20,000 $^{1}/_{min.}$
SK / BT 40 to 20,000 $^{1}/_{min.}$
SK / BT 50 to 16,000 $^{1}/_{min.}$

	D_1 mm	D_3 mm	D_5 mm	l_1 mm	g	e mm	t mm	y mm	b mm
BT 30	31,75	38	46	48,4	M 12	22	16,3	2	16,1
BT 40	44,45	53	63	65,4	M 16	27	22,5	2	16,1
BT 50	69,85	85	100	101,8	M 24	38	35,3	3,2	25,7

Technical Data for Polygon shank adapters

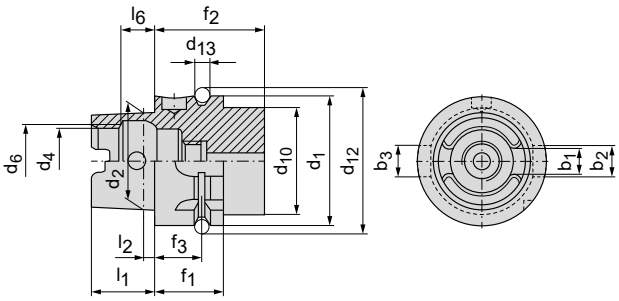
ISO 26623-1



Shank size	d_1 mm	d_3 $^{\pm0,05}$ mm	l_2 $^{\pm0,1}$ mm	l_3 mm	l_{11} $^{\pm0,1}$ mm	l_{16} mm	D_m mm
32	32	16,5	19	15	13,5	9	22
40	40	20	24	20	17,5	12	28
50	50	24	30	20	22	12	35
63	63	32	38	22	26	12	44
80	80	38	48	30	34	12	55

Technical Data for HSK Adapters

ISO 12164 – HSK-A / HSK-C



Maximum rpm recommended for HSK adapters:

HSK-A 32 to 50.000 $^{1}/_{min.}$
HSK-A 40 to 42.000 $^{1}/_{min.}$
HSK-A 50 to 30.000 $^{1}/_{min.}$
HSK-A 63 to 25.000 $^{1}/_{min.}$
HSK-A 100 to 16.000 $^{1}/_{min.}$

	b_1 mm	b_2 mm	b_3 mm	d_1 mm	d_2 mm	d_4 mm	d_6 mm	d_{10} mm	d_{12} mm	d_{13} mm	f_1 mm	f_2 mm	f_3 mm	l_1 mm	l_2 mm	l_6 mm
HSK 32	7,05	7	9	32	24	17	19	26	37	4	20	35	16	16	3,2	8,92
HSK 40	8,05	9	11	40	30	21	23	34	45	4	20	35	16	20	4	11,42
HSK 50	10,54	12	14	50	38	26	29	42	59,3	7	26	42	18	25	5	14,13
HSK 63	12,54	16	18	63	48	34	37	53	72,3	7	26	42	18	32	6,3	18,13
HSK 100	20,02	20	22	100	75	53	58	88	109,75	7	29	45	20	50	10	28,56

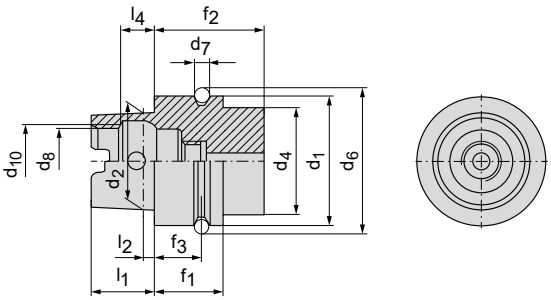
ISO 12164 – HSK-A

- Applied for machining centres, milling and special machines with automatic tool change
- **Central axial coolant supply via the coolant pipe**
- Torque transmission via 2 driving grooves at the taper end
- 2 grooves on the flange for the tool magazine, positioning notch, bore for data storage medium DIN 69873 in the flange

ISO 12164 – HSK-C

- Applied for machine spindles without automatic tool change as well as tool extensions and reducers
- **Central axial coolant supply via the coolant pipe**
- Torque transmission via 2 driving grooves at the taper end

ISO 12164 – HSK-E



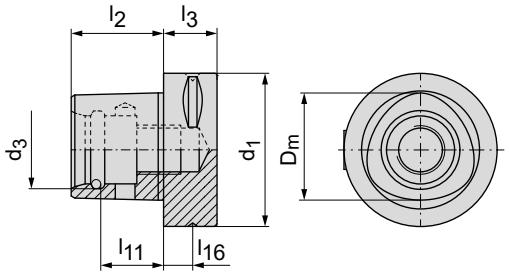
	d_1 mm	d_2 mm	d_4 mm	d_6 mm	d_7 mm	d_8 mm	d_{10} mm	f_1 mm	f_2 mm	f_3 mm	l_1 mm	l_2 mm	l_4 mm
HSK 40	40	30	34	45	4	21	23	20	35	16	20	4	11,42
HSK 50	50	38	42	59,3	7	26	29	26	42	18	25	5	14,13
HSK 63	63	48	53	72,3	7	34	37	26	42	18	32	6,3	18,13

ISO 12164 – HSK-E

- Applied for high rpm (HSC) for high speed spindles with automatic tool change
- Rotation symmetrical, without driving grooves
- Torque transmission through friction
- **Possibility of central coolant supply via coolant pipe**

Technical Information for Polygon Shank Adapters

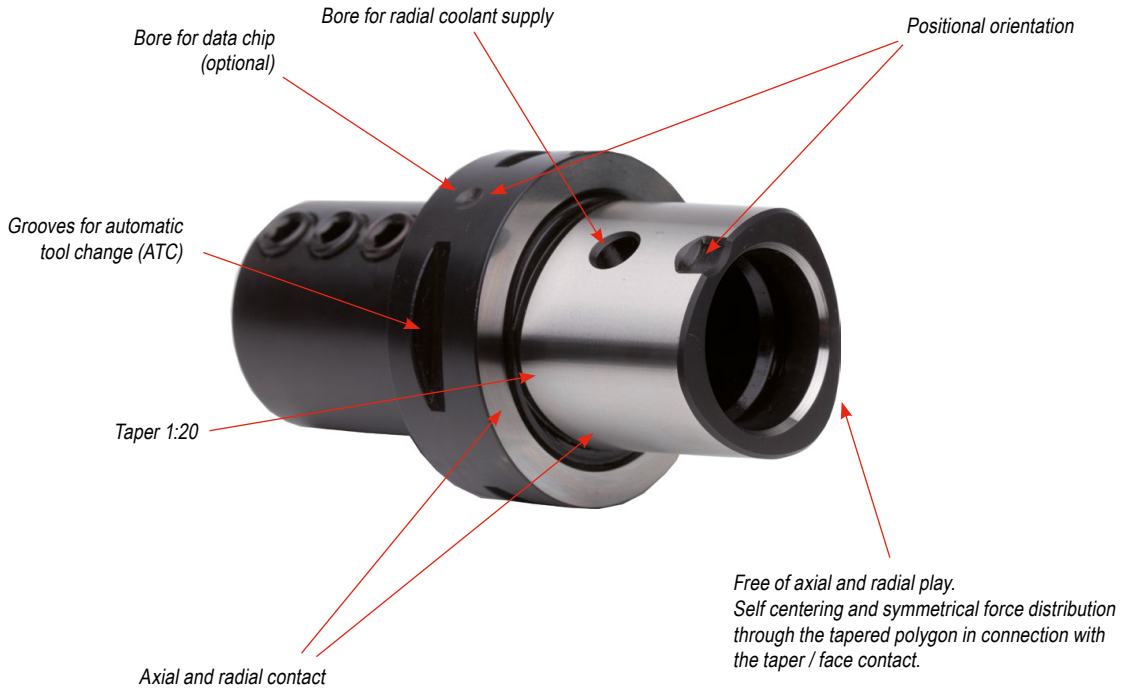
ISO 26623-1



Shank size	d_1	d_3 ± 0,05	l_2 ± 0,1	l_3	l_{11} ± 0,1	l_{16}	D_m
32	32	16,5	19	15	13,5	9	22
40	40	20	24	20	17,5	12	28
50	50	24	30	20	22	12	35
63	63	32	38	22	26	12	44
80	80	38	48	30	34	12	55

Advantages of the PSC interface

The repeatability of the PSC shank is ± 2 microns



The tapered polygon in conjunction with the tight tolerance provides backlash-free centering also acts as pull back. The PSC cone has very high rigidity and bending strength. The main advantages of this interface are the transmittable torque stability, the resistance against radial forces acting on the tool and the exact center height. This means high feed rates can be achieved on large material cross sections. The PSC interface is ideally suited for all machining operations such as drilling, turning and milling.

HyPower / HyTens

The right hydraulic chuck for so many different machining scenarios!

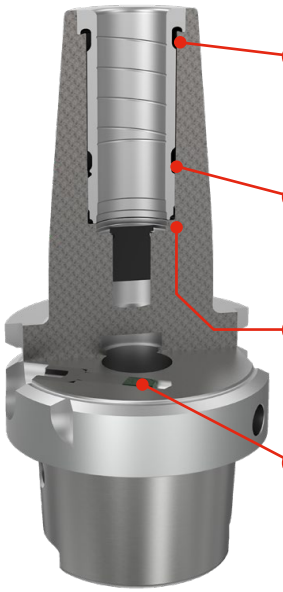
Are you looking for higher cutting speeds to enhance productivity and facilitate handling? The entire range of **HyPower** high pressure chucks and the range of **HyTens** hydraulic chucks from CERATIZIT guarantee easy, process-secure tool clamping for every application.

HyPower –	High pressure chuck	Application range
Rough	Milling with strong forces > roughing	▽▽▽ ▽▽ ▽
Complus	All-rounder	▽▽▽ ▽▽ ▽
Access 3°	Optimum accessibility	▽▽▽
Access 4.5°	Optimum accessibility thanks to same interference contour as heat shrink adapter, latest technology	▽▽▽ ▽▽

HyTens –	Hydraulic chuck	Application range
Fit	All-rounder	▽▽▽ ▽▽
Turn	Perfect for turning operations	▽▽▽ ▽▽
Compact	affordable all-round alternative	▽▽▽ ▽▽

Main Application	▽▽▽	▽▽	▽
Extended application	▽▽	▽	
	Finishing	Roughing - Finishing	Roughing

Maximum performance and productivity



New chamber design makes it possible to reverse the force at critical solder joints (from tensile to compression load), enabling significantly higher radial loads during machining.

New chamber design significantly reduces the technology's susceptibility to temperature (up to 80°C even during milling operations lasting up to 240 minutes)

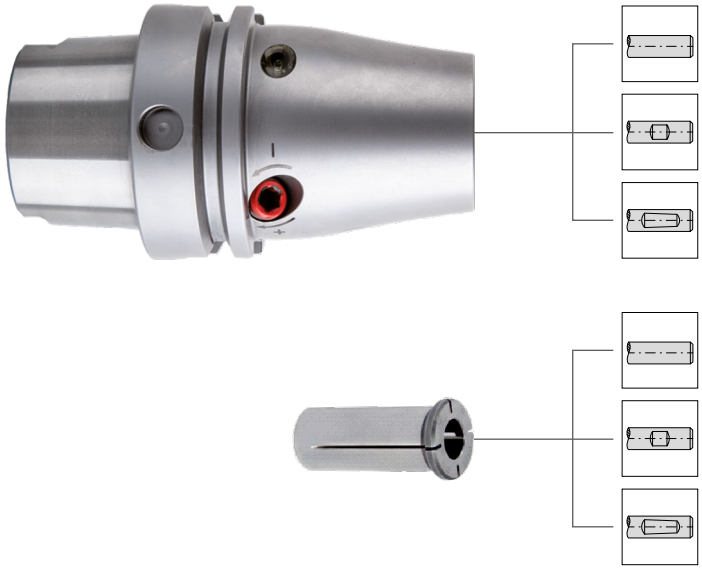
If there are multiple instances of unintended shrinking, the soldering system includes an emergency outlet to prevent potential injuries.

Double-lip sealing system dramatically increases the service life of the hydraulic chuck (over 10,000 clamping cycles under laboratory conditions)

HyPower / HyTens

Clamping of shanks with flats possible with or without reduction sleeve

HSS shank DIN1835 and
Solid Carbide shank DIN6535



The main applications for Milling Chuck

- ▲ HPC Milling
- ▲ HSC Milling
- ▲ Hard Machining
- ▲ Drilling
- ▲ Reaming

Clamping Force Comparison with Different Systems

This comparison shows the higher retention forces of the Milling Chuck **(HyPower)**. Especially with larger diameters high holding force is important when HPC machining so that the tool is not pulled out of the holder. **HyPower** now offers this process reliability.

Key Benefits

- ▲ Increased Process Security
- ▲ Longer Tool Life
- ▲ Improved Surface Quality
- ▲ Extended spindle life

Shank type & size	16	18	20	25	32	mm
	Maximum transmissible torque with shank tolerance h6					
HyTens – Hydraulic chuck	170	240	330	400	650	Nm
HyPower – High pressure chuck	350	430	520	650–750	800–890	Nm
Heat Shrink Adapter	200	290	450	530	700	Nm

Symbol explanation

Plain cylindrical shank

Cylindrical shank with lateral driving face „Weldon“

Cylindrical shank with angled clamping flat „Whistle Notch“

Clamping Torque Values (Md) and minimum shank clamping depths for hydraulic- and high pressure chucks

Minimum shank clamping depths

	Shank type & size	6	8	10	12	14	16	18	20	25	32	mm
HyTens	Minimum clamping depth	27	27	31	36	36	39	39	41	47	51	mm
HyPower	Minimum clamping depth						39	39	41	47	51	mm

Clamping Torque Values (Md) for direct clamping

	Clamping diameter (d1 h6)	6	8	10	12	14	16	18	20	25	32	mm
HyTens	Md with shank at minimum size	20	30	47	80	100	160	200	330	400	650	Nm
HyTens	Md with shank at maximum size	30	45	85	140	160	230	270	400	470	730	Nm
HyPower	Md with shank at minimum size						280	360	550	650	800	Nm
HyPower	Md with shank at maximum size						380	450	650	750	890	Nm

Clamping Torque Values (Md) for clamping with reduction sleeve Ø 32 mm

	Clamping diameter (d1 h6)	6	8	10	12	14	16	18	20	25	mm
HyTens	Md with shank at minimum size	30	45	60	120	120	180	220	250	330	Nm
HyTens	Md with shank at maximum size	45	65	110	170	170	230	300	320	440	Nm

Clamping Torque Values (Md) for clamping with reduction sleeve Ø 20 mm

	Clamping diameter (d1 h6)	3	4	5	6	8	10	12	14	16	mm
HyTens	Md with shank at minimum size	6	9	16	30	55	90	120	135	190	Nm
HyTens	Md with shank at maximum size	10	12	22	40	75	120	150	170	260	Nm

Clamping Torque Values (Md) for clamping with reduction sleeve Ø 12 mm

	Clamping diameter (d1 h6)	3	4	5	6	8	mm
HyTens	Md with shank at minimum size	3	4	7	12	18	Nm
HyTens	Md with shank at maximum size	4	8	12	20	26	Nm

For Shrink Fit Adapter

Shank type & size	3	4	5	6	8	10	12	14	16	18	20	25	32	mm
Minimum clamping depth	12	16	20	26	26	31	37	37	40	40	42	48	52	mm
permissible torque moment	4	11	17	24	45	82	145	190	200	290	450	530	700	Nm

Static clamping moments

Static clamping moments of the Centro-P and HDC ER precision collet chucks with different tightening torques measured at the lock nut.

Centro-P

Clamping diameter (d1 h6)	2	3	3,5	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	mm
ER 16 torque moment 30 Nm	2	3,5	5																						Nm
ER 16 torque moment 50 Nm				12	20	30	45	60	72	80															Nm
ER 25 torque moment 40 Nm				10	20	40																			Nm
ER 25 torque moment 75 Nm							62	75	85	95															Nm
ER 25 torque moment 90 Nm											122	145	160	175	190	200									Nm
ER 32 torque moment 60 Nm				20	30	40																			Nm
ER 32 torque moment 120 Nm							75	90	110	120	135	150	160	180	190										Nm
ER 32 torque moment 140 Nm																220	240	260	280	300					Nm
ER 40 torque moment 70 Nm				60	75	90	100																		Nm
ER 40 torque moment 110 Nm								110	125	140	150														Nm
ER 40 torque moment 150 Nm												200	220	240	260	300	350								Nm
ER 40 torque moment 200 Nm																			420	440	460	480	515	530	Nm

HDC – Heavy Duty Chuck

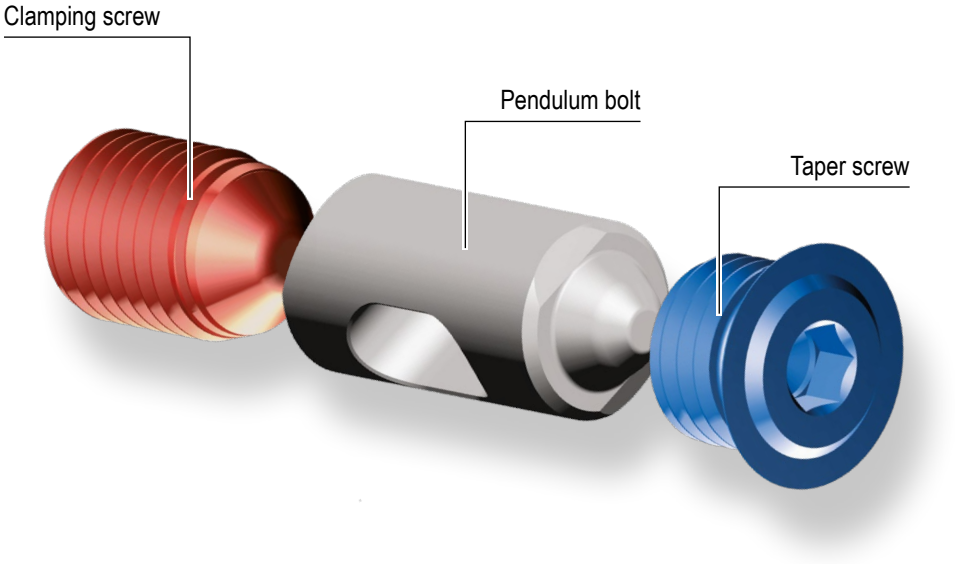
Clamping diameter (d1 h6)	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	mm
ER 32 tightening torque 40 Nm			25	37	50															Nm
ER 32 torque moment 120 Nm						93	112	137	150	168	187	200	225	237						Nm
ER 32 torque moment 140 Nm															275	300	325	350		Nm
ER 32 tightening torque 180 Nm																			375	Nm

Measurement of the specified clamping forces was performed exclusively statically. The actual clamping forces that arise during machining may deviate due to various influences (vibrations, oscillations, machining situation).

Technical information – ABS

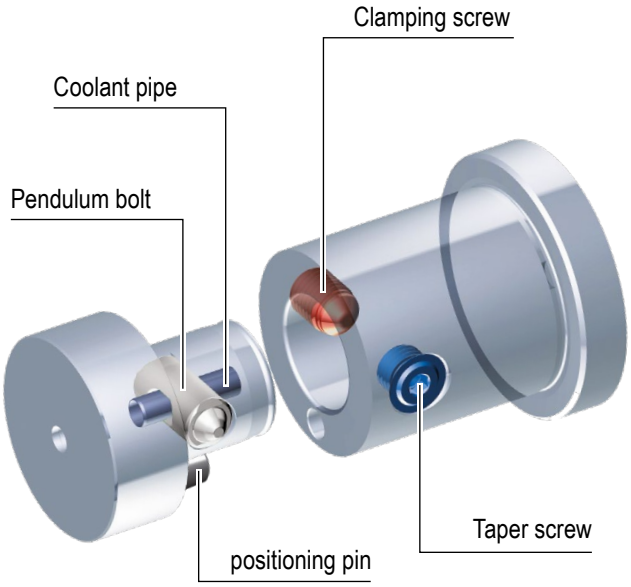
Even better connected

The extension of the proven ABS system complements the existing portfolio and continues to meet the high demands on accuracy. The adapter is an important element in tooling systems between the cutting tool and the machine. It must be able to reliably transmit the cutting forces that are produced. Adapters also have a considerable impact on the quality of the machining result. They also contribute to the cost-effectiveness of the machining process.



Advantages

- ▲ Improved force transmission
- ▲ Optimum machining result
- ▲ Higher cutting values possible
- ▲ Less noise pollution in production
- ▲ System fully compatible upwards and downwards
- ▲ Suitable for ABS, ABS N and ABS T



Spare parts ABS	Taper screw	Pendulum bolt	Clamping screw	Range 1	Coolant pipe	positioning pin	Range 2	Sealing ring
25	84 950 27000	84 950 26000	84 950 26800	84 950 99700	84 950 24400	84 950 23600	84 950 98900	84 950 30400
32	84 950 27100	84 950 26100	62 950 13989	84 950 99600	84 950 24500	84 950 23700	84 950 98800	84 950 30500
40	84 950 27200	84 950 26200	84 950 26900	84 950 99500	84 950 24600	84 950 23800	84 950 98700	84 950 30600
50	84 950 20400	84 950 20000	84 950 20300	84 950 99800	84 950 20100	84 950 20200	84 950 99900	84 950 30700
63	84 950 27300	84 950 26300	84 950 25500	84 950 99400	84 950 24700	84 950 23900	84 950 98600	84 950 30800
80	84 950 25100	84 950 26400	84 950 25600	84 950 99300	84 950 24800	84 950 24000	84 950 98500	84 950 30900
100	84 950 25200	84 950 26500	84 950 25700	84 950 99200	84 950 24900	84 950 24100	84 950 98400	84 950 31000
125	84 950 25300	84 950 26600	84 950 25800	84 950 99100	84 950 25000	84 950 24200	84 950 98300	
160	84 950 25400	84 950 26700	84 950 25900		84 950 23500	84 950 24300		

DAH compensation holders

- ▲ Compensation systems for µ-precision run-out
- ▲ Simple correction of run-out and axis errors
- ▲ Optimised for high rpm
- ▲ Designed for internal coolant supply
- ▲ Rotary tools provide long tool life

84 327 ...

DAH adapter for tools
with ABS adapter

DAH hydraulic expansion adapter
for tools with cylindrical shank

84 329 ...

With HSK interface
ISO 12164

With ABS interface

84 329 ...

SK steep taper per
ISO 7388-1

BT steep taper per
ISO 7388-2

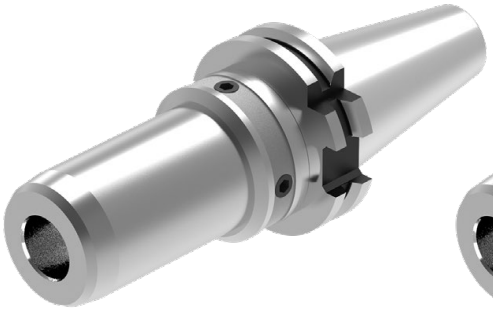
DAH 50 HS compensation holder for high-speed machining

- ▲ Tried and tested hydraulic expansion clamping technology
- ▲ Maximum run-out and repeatability precision < 1 µ ensures consistent cutting action
- ▲ Very simple run-out adjustment
- ▲ Compact design
- ▲ Unbeatable vibration damping, meaning outstanding surface quality
- ▲ Flexible clamping range with reduction sleeves
- ▲ Speeds of up to 25,000 rpm
- ▲ Suitable for minimum quantity lubrication (MMS)

84 326 ...

With HSK interface
ISO 12164

SK steep taper per
ISO 7388-1



BT steep taper per
ISO 7388-2

A detailed operating manual is available for download in the online shop next to the product.

ZSG mini
CERATIZIT GROUP
MNG mini

New products for clamping technology

NEW Mechanical Zero-point Clamping System – MNG mini

149–151

MNG mini Weight-optimized consoles, pyramids and clamping towers integrated zero point clamping system for small clamping devices.

NEW CentriClamp – ZSG mini

92–100

ZSG mini The ZSG mini is ideal for clamping small workpieces.

NEW PolyClamp – Verso

111–124

Verso The new flexible multiple vice with quick jaw change system for many small and large workpieces.

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

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

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

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

Clamping technology
16 Adaptors and Accessories
17 Workpiece clamping
18 Material examples and article no. Index

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General top jaws overview	164–173
Workpiece supports overview	174–177
Accessories General Overview	178+179
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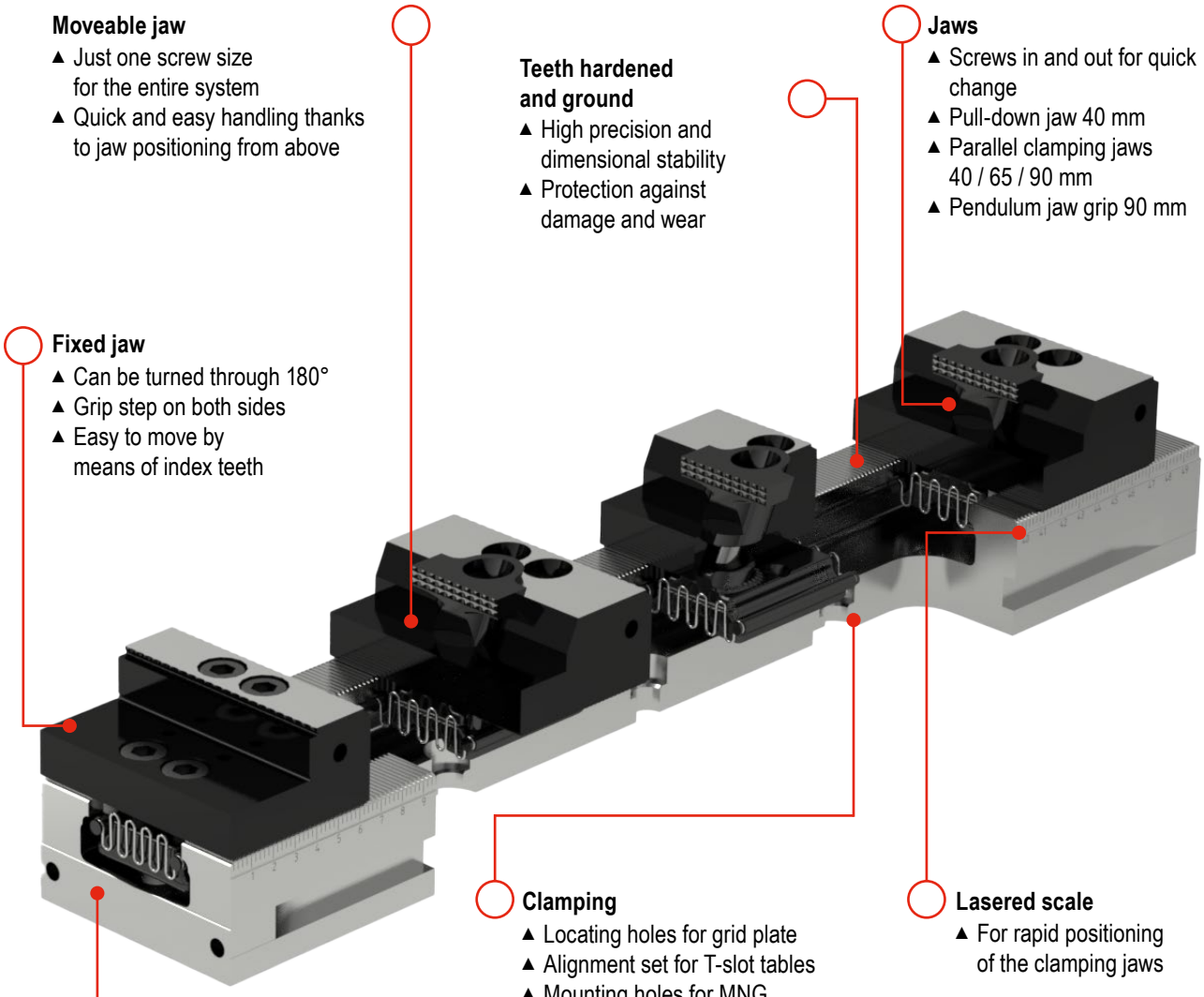
Screws Overview	182+183

WNT \ Performance

Premium quality tools for high performance.

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

PolyClamp – Verso



Clamping systems overview

SoloClamp – Single clamping vice

- Power-assisted systems NCG, HDG 2 and H5G
- Fixed jaws as reference
- High repeatability
- Very good angular accuracy

High precision and force amplification

CentriClamp – Centric vice

- symmetrical clamping
- very good accessibility for 5-sided machining
- part datum always centered
- high repeatability

High process security with encapsulated system

PolyClamp – Multiple vice

- Faster set up times
- multifunctional use
- optimum utilization of the machine table
- high repeatability

Increased machine uptime

Stationary three-jaw chuck – SBF 3

- Suitable for 3/5-axis machining of round components
- Compatible with PNG and MNG zero point clamping systems
- Wedge bar drive
- Hardened and stiff base body
- Optimised lubrication system

Ø 200 mm

Ø 315 mm

The perfect clamping situation for round components

Clamping variants

- Zero point clamping systems
- Zero point clamping system grid plates
- MNG – Mechanical zero point clamping system
- PNG – Pneumatic zero point clamping system

Reduction in setup times

Clamping Towers

- Double sided clamping tower
- Triangular clamping tower
- Cruciform clamping tower
- Cube clamping tower

A variety of clamping towers can be found in our online shop at cuttingtools.ceratizit.com

Automation made easy

Toolfinder clamping systems

	Type		Description	3 axis	4 axis	5 axis
SoloClamp – Single clamping vice	NCG		▲ 160° quick clamping ▲ rapid installation and removal of the spindle assembly ▲ quick span adjustment	✓	✓	
	NCG 5A		▲ 160° quick clamping ▲ for 5 axis machining ▲ quick span adjustment	✓		✓
	H5G		▲ fast handle clamping ▲ 5 axis high power vice ▲ 100% encapsulated	✓		✓
	H5G -Z		▲ Fast handle clamping ▲ 5-axis high power vice ▲ 100% encapsulated ▲ With movable fixed jaw	✓		✓
	X5G -Z		▲ 100 % encapsulated ▲ Optimum accessibility ▲ 5- and 6-sided machining possible ▲ Fast jaw changeover without tools	✓		✓
	ESG 4		▲ 100 % encapsulated ▲ Precision base body ▲ High clamping force ▲ Large clamping range	✓	✓	✓
	ESG 5		▲ New version of the sealed centric vice ZSG 4 as single vice ▲ Identical dimensions and function as the ZSG 4	✓	✓	✓
	HDG 2		▲ mechanical power transmission ▲ clamping force with only one turn of the handle ▲ infinitely variable clamping force setting	✓		
CentriClamp – Centric vice	ZSG 4		▲ ball bearing, backlash free spindle ▲ high precision, clamping force and process security ▲ repeatability ±0.01 mm	✓	✓	✓
	ZSG mini		▲ Fast jaw changeover without tools ▲ compact and precise ▲ optimum accessibility from all sides ▲ stainless, hardened base body	✓	✓	✓

Jaw width in mm	Body length in mm	max. clamping range in mm	cubic workpieces	assymetrical workpieces	round workpieces	max. clamping force in kN	Page No.
100 125 160	305 390 530	245 343 506	✓	✓	✓	30 40 40	10–21
100 125	305 390	199 269	✓		✓	18 24	13–21
125	300	249	✓	✓	✓	40	22–36
125	330 430 500 630	396 466 578	✓	✓	✓	40	26–36
125	330 430 500 630 800	80-210 80-310 80-380 80-510 80-688	✓	✓	✓	40	37
80 125 160	214 362 480	192 308 434	✓	✓	✓	25 40 50	49–58
80 125 160	130+190 160+235+300 280+480	63-171 84-281 125-448	✓	✓	✓	35 35 50	59–66
100 125 160	342 400 544	278 338 470	✓		✓	30 40 60	68–71
80 125 160	130+190 160+235+300 280+480	121–185 163–303 134–462	✓	✓	✓	25 40 50	72–90
45 70	80 100	7–77	✓	✓	✓	16	92–100

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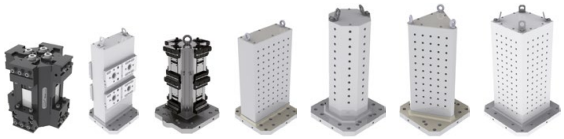
Toolfinder clamping systems

	Type		Description	3 axis	4 axis	5 axis
PolyClamp – Multiple vice	DSG 4		▲ Quick assembly and disassembly ▲ Flexible clamping system ▲ Can be converted into single vice	✓	✓	✓
	Verso		▲ Variable clamping system ▲ Clamp several small and large components ▲ Innovative multiple vice system	✓	✓	✓
Stationary three-jaw chuck	SBF 3		▲ Suitable for 3/5-axis machining of round components ▲ Compatible with PNG and MNG zero point clamping systems	✓		✓
			▲ Suitable for 3/5-axis machining of round components ▲ Compatible with PNG and MNG zero point clamping systems	✓		✓

		Type		Description
Zero point clamping systems	mechanical	MNG		▲ All round plate for all machine tables
		MNG mini		▲ For workpiece clamping in the smaller dimension range
	pneumatic	PNG		▲ Process security thanks to self-locking mechanism
Clamping Towers				▲ Increased machine uptime

Manual machine vice

Drilling machine vice	HSG		▲ fast jaw adjustment, compact and precise

Jaw width in mm	Body length in mm	max. clamping range in mm	cubic workpieces	assymetrical workpieces	round workpieces	max. clamping force in kN	Page No.
80 125	300 320+390+460 530+600+670+740	102 114+149+184 219+254+289+324	✓	✓	✓	25 40	101–110
40 65 90	260 -650	524	✓	✓	✓	30	111–124
	Ø 200	SB-H jaws 6–180			✓	100	125–130
	Ø 315	SB-H jaws 12–420			✓	180	

mechanical	pneumatic	Comments	Page No.
✓			134–148
✓			149–151
	✓		152–163
✓		This article can be found in our online shop at cuttingtools.ceratizit.com	
✓			131–133

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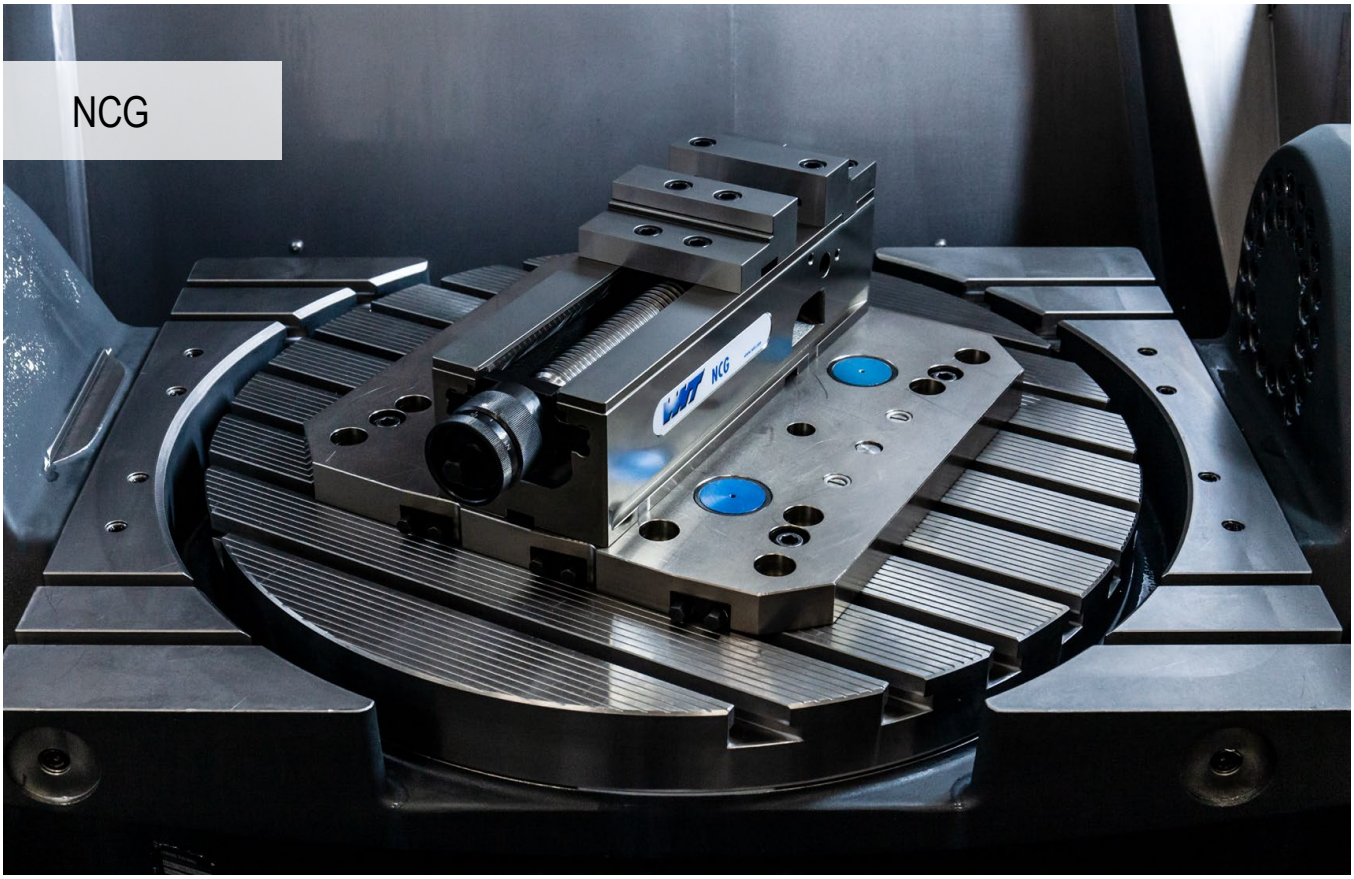


Systematic clamping

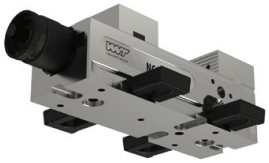
Modular machine vice as system with clamping under tension.
Unique, patented fast handle clamping with mechanical power assist and minimum setup times.

Your benefits:

- ▲ Quick adjustment using a crank handle
- ▲ Quick positioning with MNG on the machine table without an intermediate pallet
- ▲ Clamping force can be continuously adjusted 4 – 40 kN
- ▲ 160° quick clamping
- ▲ Quick and easy jaw change with 4 screws
- ▲ Easy cleaning thanks to rapid disassembly of the entire spindle unit
- ▲ Extensive modular jaw range

Clamping/aligning:

Clamping with two dowel screws dia. 12_{f7} / M12 (NCG 100) **Article no. 80 890 313** or dia. 16_{g5} / M16 (NCG 125 / 160) **Article no. 80 890 314**



Alignment through 20^{H7} precision slot nuts in the base body and clamping with clamping claws

Alignment and clamping with MNG zero point clamping system (2-3 mounting bolts)

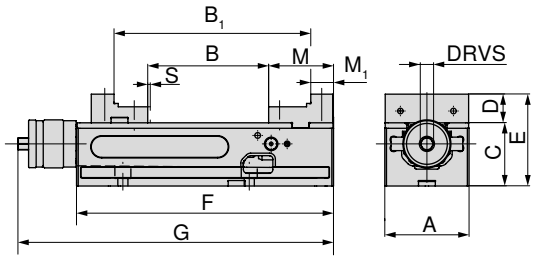
SoloClamp – NCG

▲ NC-quick clamping vice with combi reversible jaw plus
▲ thanks to additional threads, top jaws with heights of 18 mm and 40 mm can be used

Scope of supply:

NC-quick vice, including 4 clamping claws, 2 combi reversible jaw plus, clamping lever

NCG | **MNG**



80 890 ...

A mm	B mm	B_1 mm	C -0.02 mm	D mm	E mm	F mm	G mm	M mm	M_1 mm	S mm	DRVS mm	MXC kN	WT kg	
125	0 - 212	96 - 307	100	39	139	390	457	89	39	3	14	4 - 40	34	**12500**

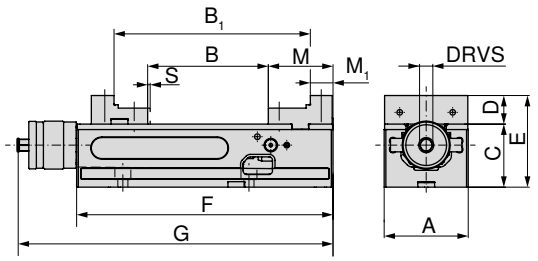
SoloClamp – NCG

▲ NC-quick clamping vice with combination jaw
▲ Fast 160° handle clamping
▲ Rapid installation and removal of the spindle assembly
▲ S = powerstroke

Scope of supply:

NC-quick vice, including 4 clamping claws, 2 combi reversible jaws (one side stepped, one side smooth), clamping lever

NCG | **MNG**



80 890 ...

A mm	B mm	B_1 mm	C -0.02 mm	D mm	E mm	F mm	G mm	M mm	M_1 mm	S mm	DRVS mm	MXC kN	WT kg	
100	0 - 155	91 - 245	75	34	109	305	374	77	27	2,5	14	4 - 30	19	**602**
125	0 - 212	96 - 307	100	39	139	390	457	89	39	3	14	4 - 40	34	**627**
160	0 - 314	113 - 426	115	49	164	530	600	108	52	3	14	4 - 40	68	**662**

Vice guide

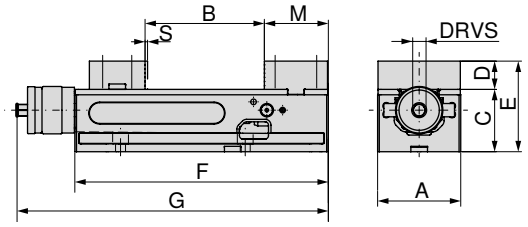
Underside Dimensions	14	System accessories	16–21
MNG-/PNG zero point clamping system	134–163	General accessories	164–183

SoloClamp – NCG

▲ NC-quick clamping vice with standard jaw
▲ Fast 160° handle clamping
▲ Rapid installation and removal of the spindle assembly
▲ S = powerstroke

Scope of supply:
NC-quick vice, including 4 clamping claws, 2 standard reversible jaws (one side smooth, one side serrated), clamping lever

NCG **MNG**



80 890 ...

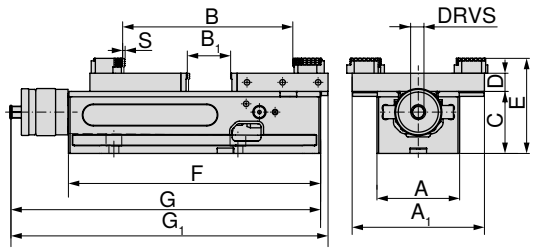
A mm	B mm	C -0.02 mm	D mm	E mm	F mm	G mm	M mm	S mm	DRVS mm	MXC kN	WT kg	
100	0 - 155	75	34	109	305	374	77	2,5	14	4 - 30	19,5	**600**
125	0 - 212	100	39	139	390	457	89	3	14	4 - 40	35,0	**625**
160	0 - 314	115	49	164	530	600	108	3	14	4 - 40	70,0	**660**

SoloClamp – NCG

▲ NC-quick clamping vice with adapter and pendulum jaws
▲ fast 160° lever clamping
▲ rapid installation and removal of the spindle assembly
▲ S = powerstroke
▲ simple raw part clamping
▲ free positioning of the 6-face reversible jaw which can be found in the accessories

Scope of supply:
NC-quick vice (type NCG base body) with 1 fixed adapter plate and 1 pendulum jaw, clamping lever, 4 clamping claws, without 6-face indexable jaws

NCG **MNG**



80 890 ...

A mm	A_1 mm	B mm	B_1 mm	C -0.02 mm	D mm	E mm	F mm	G mm	G_1 mm	S mm	DRVS mm	MXC kN	WT kg	
100	160	10 - 230	0 - 77	75	22	115	305	374	383	2,5	14	4 - 30	19	**636**
125	192	16 - 343	0 - 152	100	22	140	390	457	478	3	14	4 - 40	34	**637**
160	256	15 - 506	0 - 237	115	22	155	530	600	631	3	14	4 - 40	68	**638**

Vice guide

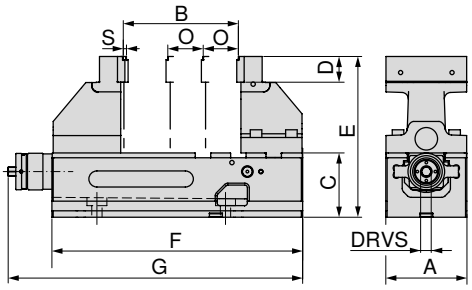
Underside Dimensions	14	System accessories	16–21
MNG-/PNG zero point clamping system	134–163	General accessories	164–183

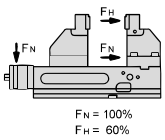
SoloClamp – NCG 5A

- ▲ NC quick vice 5A with high support jaws
- ▲ Fast 160° handle clamping
- ▲ Rapid installation and removal of the spindle assembly
- ▲ S = powerstroke
- ▲ Ideally suited to 5-axis machining due to optimum accessibility
- ▲ Reversible jaws for clamping range extension
- ▲ 100 mm base body has 2 slots for moving the fixed jaw
- ▲ 125 mm base body has 3 slots for moving the fixed jaw

Scope of supply:
NC quick clamping vice incl. 2 high base jaws, 2 ‘grip‘ stepped jaws 5 mm, 1 clamping lever, 4 clamping claws

NCG 5A | **MNG**





80 890 ...

A	B	C	D	E	F	G	O	S	DRVS	MXC	WT	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kN	kg	
100	6 - 127	75	35	200	305	374	50	2,5	14	4 - 18 (30)	21,5	**605**
125	6 - 179	100	40	250	390	457	55	3	14	4 - 24 (40)	42,0	**635**

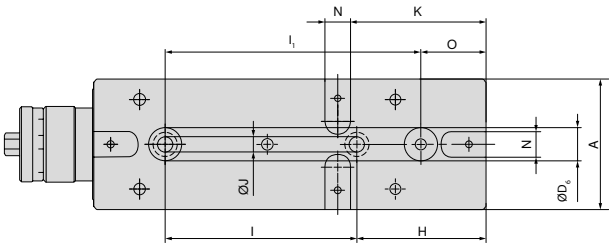
Vice guide

Underside Dimensions	14	Structural dimension tables for the different jaws	15
System accessories	16–21	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

17

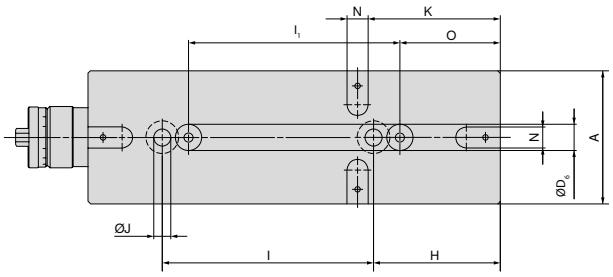
NCG underside dimensions

Base width 100 mm



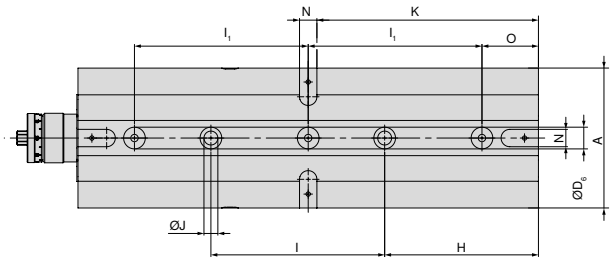
A mm	H mm	$l_{\pm 0,015}$ mm	J_{F7} mm	K mm	N_{H7} mm	O mm	$l_{1\ \pm 0,015}$ mm	$D_{6\ H7}$ mm
100	100	150	12	105	20	50	200	25

Base width 125 mm



A mm	H mm	$l_{\pm 0,015}$ mm	J_{F7} mm	K mm	N_{H7} mm	O mm	$l_{1\ \pm 0,015}$ mm	$D_{6\ H7}$ mm
125	120	200	16	125	20	95	200	25

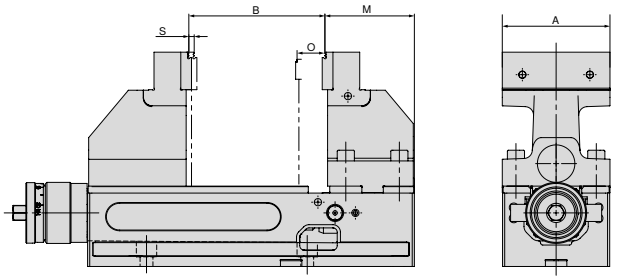
Base width 160 mm



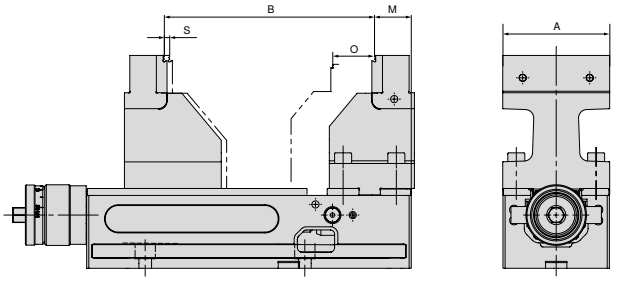
A mm	H mm	$l_{\pm 0,015}$ mm	J_{F7} mm	K mm	N_{H7} mm	O mm	$l_{1\ \pm 0,015}$ mm	$D_{6\ H7}$ mm
160	177	200	16	255	20	65	200	25

NCG 5A structural dimension table for different jaw positions

NCG 5A 100 mm

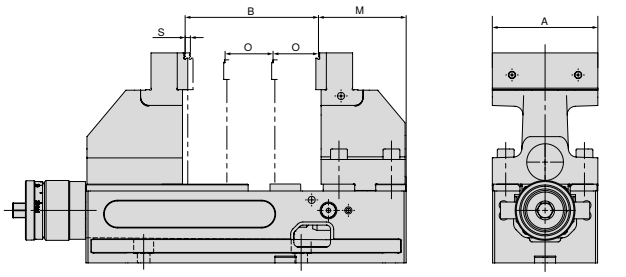


A mm	B mm	M mm	O mm	S mm
100	6 - 127	84,5	50	2,5

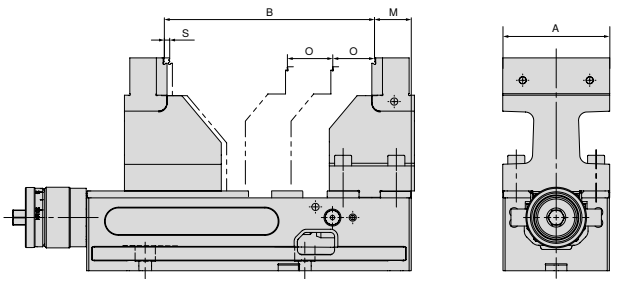


A mm	B mm	M mm	O mm	S mm
100	97 - 199	34,5	50	2,5

NCG 5A 125 mm



A mm	B mm	M mm	O mm	S mm
125	6 - 182	91	55	3

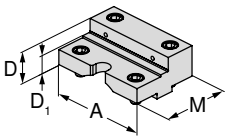


A mm	B mm	M mm	O mm	S mm
125	117 - 269	36	55	3

System jaws overview

Combi reversible jaw plus, fixed

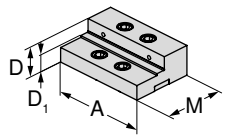
- For the extension of the clamping range
- Jaws hardened
- includes fixing bolts
- price per piece

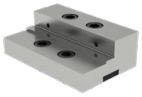


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		39,8	22			88			**80 890 35100**	●										

Combi reversible jaw plus, movable

- For the extension of the clamping range
- Jaws hardened
- includes fixing bolts
- price per piece

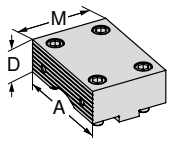




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		39,8	22			82			**80 890 35200**	●										

Standard reversible jaw, fixed

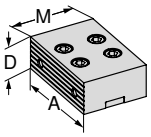
- 1 side smooth, 1 side grooved
- includes fixing bolts
- price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100		34				76			**80 890 323**	●										
125	125		39				88			**80 890 324**	●										
160	160		49				108			**80 890 325**	●										

Standard reversible jaw, movable

- 1 side smooth, 1 side grooved
- includes fixing bolts
- price per piece

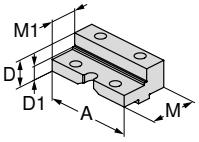


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100		34				67			**80 890 327**	●										
125	125		39				82			**80 890 328**	●										
160	160		49				108			**80 890 329**	●										

System jaws overview

Combi reversible jaw, fixed

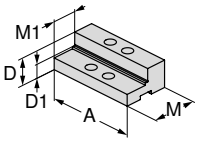
- For the extension of the clamping range
- Jaws hardened
- includes fixing bolts
- price per piece

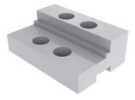


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100		34	23			76	50		**80 890 343**	●										
125	125		39	25			88	50		**80 890 344**	●										
160	160		49	28			108	56		**80 890 342**	●										

Combi reversible jaw, movable

- For the extension of the clamping range
- Jaws hardened
- includes fixing bolts
- price per piece

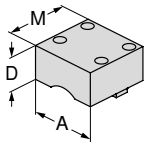




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100		34	23			67	40		**80 890 347**	●										
125	125		39	25			82	45		**80 890 348**	●										
160	160		49	28			108	56		**80 890 346**	●										

Soft jaw, steel, fixed

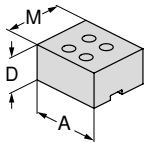
- Material: 16MnCr5
- For producing shaped jaws (hardenable)
- Without fixing screws
- Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100		50				95			**80 890 763**	●										
125	125		50				110			**80 890 764**	●										

Soft jaw, steel, movable

- Material: 16MnCr5
- For producing shaped jaws (hardenable)
- Without fixing screws
- Price per piece

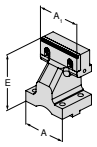


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100		50				85			**80 890 767**	●										
125	125		50				100			**80 890 768**	●										

System jaws overview

5A carrier jaw, fixed

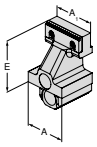
▲ Price per piece
▲ With stepped grip jaw, 5 mm



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100	100				125				**80 890 364**	●										
125	125	125				150				**80 890 366**	●										

5A carrier jaw, movable

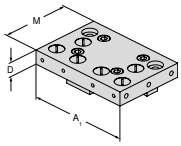
▲ Price per piece
▲ With stepped grip jaw, 5 mm



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100	100				125				**80 890 365**	●										
125	125	125				150				**80 890 367**	●										

Fixed adaptor jaw

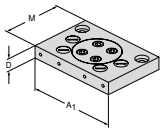
▲ for holding 6-way reversible jaws
▲ price per piece
▲ incl. 6 cover screws



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100	160	22				110			**80 890 321**	●										
125	125	192	22				130			**80 890 337**	●										
160	160	256	22				170			**80 890 339**	●										

Pendulum jaw, movable

▲ for holding 6-way reversible jaws
▲ price per piece
▲ incl. 6 cover screws (with A = 100 mm, 4 pieces)

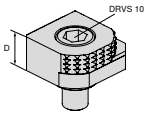


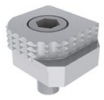
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100	160	22				110			**80 890 322**	●										
125	125	192	22				130			**80 890 338**	●										
160	160	256	22				170			**80 890 340**	●										

System jaws overview

6 function indexable jaw

- ▲ 1 = Smooth, carbide coated
- ▲ 2 = Grip with 3 mm step
- ▲ 3 = Grip with 8 mm step
- ▲ 4 = Grip with 18 mm step
- ▲ 5 = Rough grip with 8 mm step
- ▲ 6 = Round grip
- ▲ M_{max} = 60 Nm
- ▲ Including fixation screws

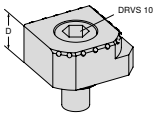


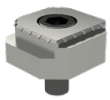


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							80 892 246	●	●	●	●			●		●	●	

6x indexable jaw, carbide grip

- ▲ 1 = Smooth
- ▲ 2 = Carbide grip
- ▲ 3 = Carbide grip with 3 mm step
- ▲ 4 = Carbide grip with 8 mm step
- ▲ 5 = Round carbide grip with 8 mm step
- ▲ 6 = Round carbide grip
- ▲ Incl. fixing screws





For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							80 890 35300	●	●	●	●			●		●	●	

System accessories overview

Spindle body

▲ For the conversion of the NCG 5AC into an NCG vice

NCG | NCG 5A

for width mm	80 890 ...
100	385
125	387
160	389

Carrying handle

▲ for simple and safe transporting

Scope of supply:
1 piece Hand grip including fixing bolts

NCG | NCG 5AC

for width mm	80 890 ...
100/125	685

Drawbar extension

▲ For connecting 2 NCG vices

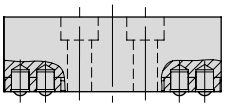
NCG | NCG 5A

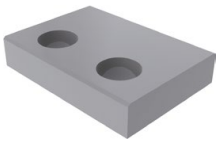
for width mm	B mm	80 890 ...
100	305 - 460	460
125	390 - 602	470

Protection plate

▲ For standard moving and combi reversible jaw

NCG

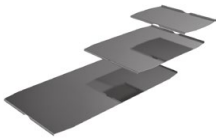




for width mm	80 890 ...
100	010
125	012
160	013

Cover plate set

NCG | NCG 5AC



for width mm	80 890 ...
100	442
125	443
160	444

Spring Loaded Locator

NCG

for width mm	80 890 ...
100/125	008
160	014

System accessories overview

Clamping lever

▲ including control accessories

NCG | NCG 5A | H5G

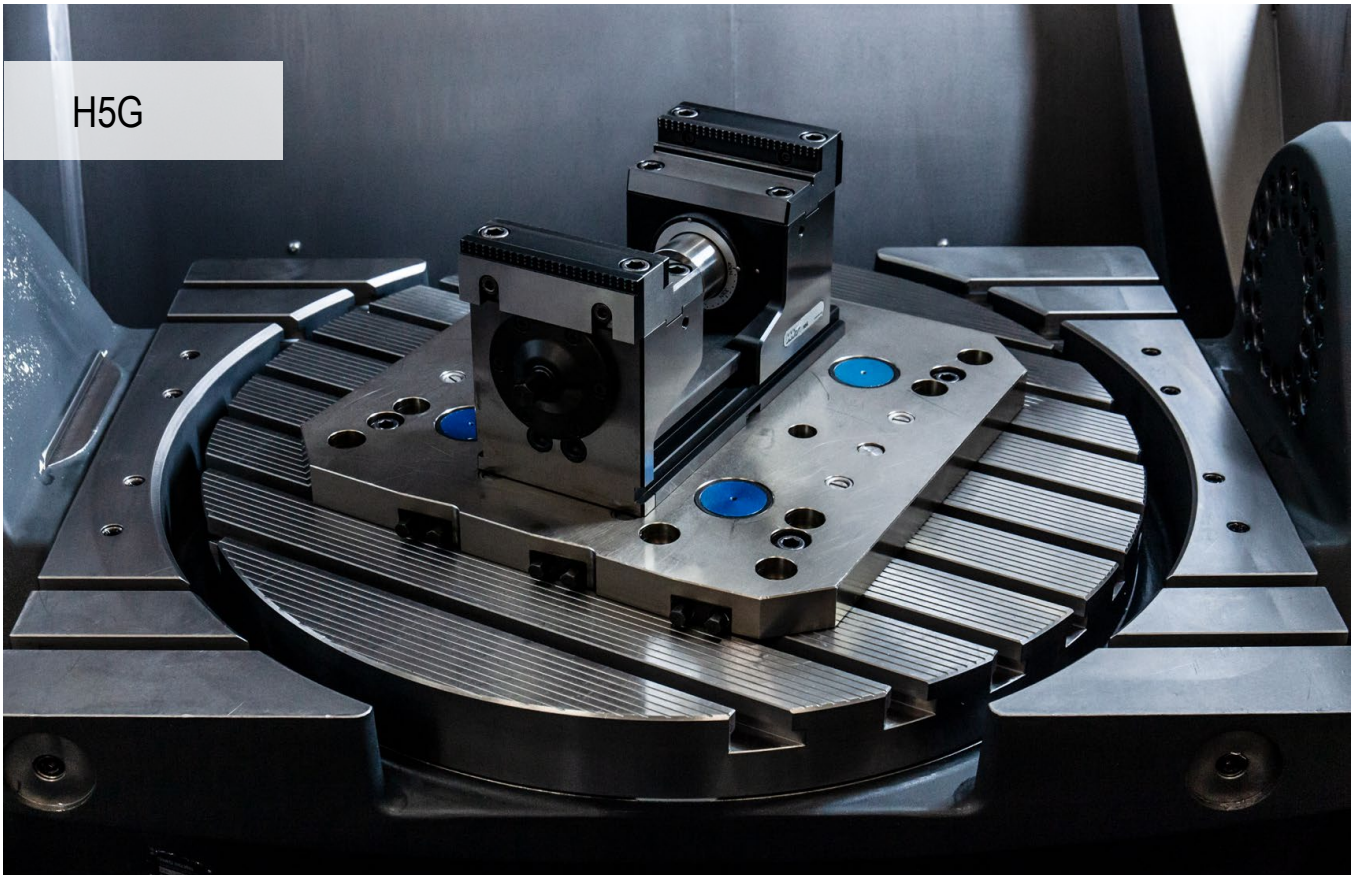
for width mm	DRVS mm	80 890 ...
100/125/160	14	501

High-speed operation device

▲ For faster span adjustment with removable grip

NCG | NCG 5AC

for width mm	80 890 ...
100	550
125/160	551



5-axis-optimised clamping system

The power-assisted clamping system for ‘real’ 5-axis complete and simultaneous machining.
1 and 2-sided machining with clamping under tension and 40 kN directly on the workpiece.

Your benefits:

- ▲ Quick conversion – adjustment of entire clamping range in just a few seconds
- ▲ Quick positioning with MNG on the machine table without an intermediate plate
- ▲ Clamping force can be continuously adjusted 4 – 40 kN
- ▲ 160° quick clamping
- ▲ Rotate jaws – quick and easy jaw change with 4 screws
- ▲ Easy cleaning, spindle fully protected
- ▲ Extensive modular jaw range

Clamping/aligning:

Clamping with two dowel screws dia. 12_{f7} / M12
Article no. 80 895 019

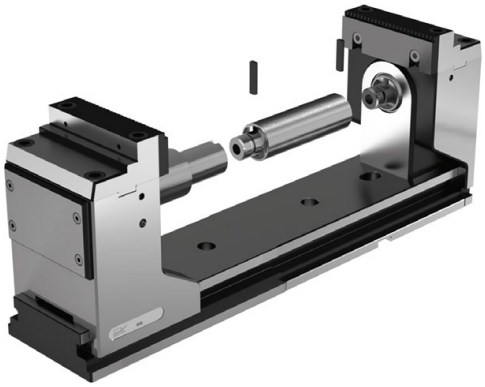
Alignment through 20^{H7} precision slot nuts in the base body (H5G) and alignment sets 14 / 16 / 18 in the machine table's T-slot. Clamping with clamping claws.

Alignment and clamping with MNG zero point clamping system (2-3 mounting bolts).
Optional: Positioning and fixing holes at the customer's request.

Alignment of extension base body:

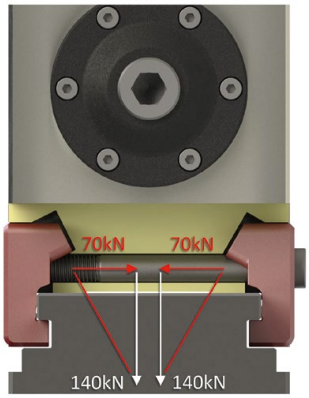
- ▲ Loosely mount the extension base body
- ▲ Distance to basic base body 0.2 – 10 mm
- ▲ Slide movable supporting jaw overlapping onto both base bodies
- ▲ Align the extension base body so it is parallel with the basic base body
- ▲ Secure the extension base body

Fitting the drawbar extension:



- ▲ Fit the extension base body (see alignment above)
- ▲ Screw the drawbar extension onto the spindle
- ▲ Insert the first anti-twist protection
- ▲ Slide the movable supporting jaw onto the extension base body
- ▲ Connect the extended drawbar to the fixed supporting jaw
- ▲ Insert the second anti-twist protection

Movable fixed jaw functional principle:



Double-acting screw = double the force
angled surfaces = double the force

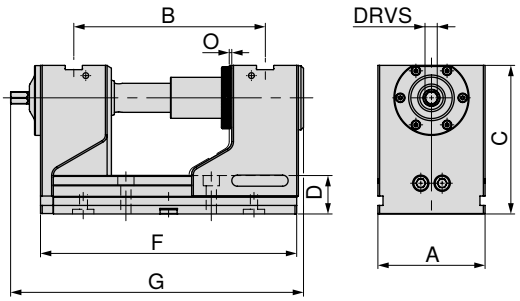
In the case of the H5G-Z and H5G-Z-S, both supporting jaws can be moved as desired. The movable fixed jaw can be clamped on any position on the base body via 1 or 2 screws (1 = H5G-Z / 2 = H5G-Z-S) (tighten screw with 90 Nm). The clamping force of the fixed jaw is almost identical to that of the H5G which is secured with four screws.

SoloClamp – H5G

▲ 5-axis vice with quick adjustment, 174 mm height
▲ Crank handle quick clamping
▲ Vice with quick span adjustment
▲ 100 % encapsulated
▲ Vice with longitudinal and transverse grooves 20 H7 and alignment holes Ø 12 F7

Scope of supply:
Vice incl. 4 clamping claws, hand crank and clamping wrench

H5G **MNG**



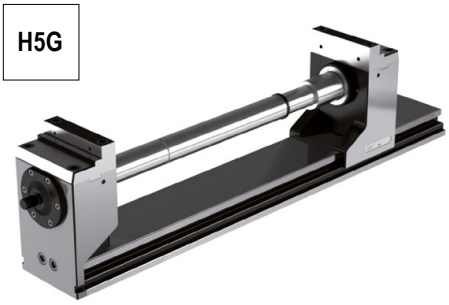
80 898 ...

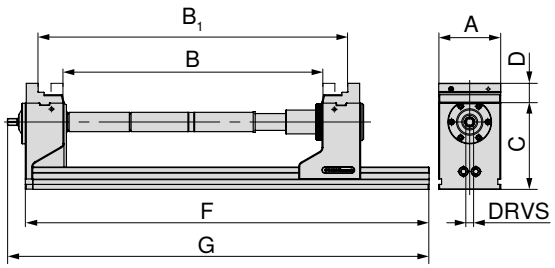
A mm	B mm	C mm	D mm	F mm	G mm	O mm	DRVS mm	MXC kN	WT kg	
125	97 - 223	174	45	300	336,5	1	14	40	30,2	**125**

SoloClamp – H5G

▲ 5 axis high power vice, long version, 174 mm height

H5G





A mm	C mm	D mm	F mm	G mm	DRVS mm	Clamping force kN
125	174	40	815	851	14	40

B	B1	Article no.
0 – 126	123 – 251	**80 898 125**
125 – 252	248 – 374	**80 898 125** + **80 898 826** + **80 898 725**
250 – 376	372 – 499	**80 898 125** + **80 898 827** + **80 898 725**
375 – 501	498 – 624	**80 898 125** + **80 898 826** + **80 898 827** + **80 898 725**
500 – 626	622 – 749	**80 898 125** + 2 x **80 898 827** + **80 898 725**

The H5G 125 mm can be extended by a maximum of 250 mm with 2 extensions. The extension results in approximately 10% loss of clamping force.
Base plate available in long version with the desired hole pattern **on request**.

Vice guide

Underside Dimensions	27	Structural dimension tables for the different jaws	28–32
System accessories	33–36	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

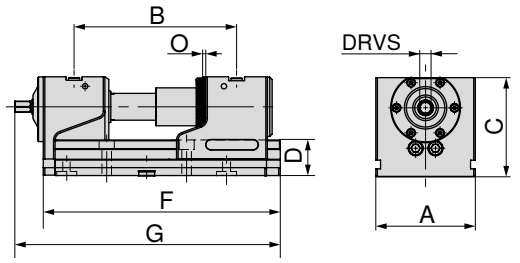
SoloClamp – H5G-S

- ▲ 5-Axis vice with quick adjustment, 125 mm height
- ▲ Crank handle quick clamping
- ▲ Vice with quick span adjustment
- ▲ 100 % encapsulated
- ▲ Length F = 300 mm with Ø 25 H7 centering
- ▲ Length F = 265 mm with Ø 32 H6
- ▲ Vice with longitudinal and transverse grooves 20 H7 and alignment holes Ø 12 F7

Scope of supply:

Vice incl. 4 clamping claws, hand crank and clamping wrench

H5G -S | **MNG**



80 898 ...

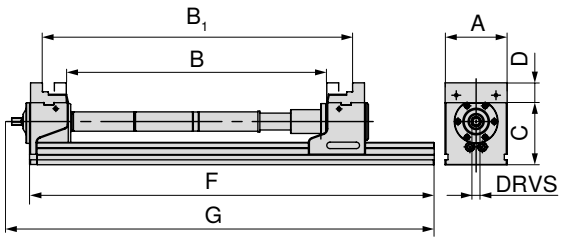
A mm	B mm	C mm	D mm	F mm	G mm	O mm	DRVS mm	MXC kN	WT kg	
125	97 - 186	125	45	265	301,5	1	14	40	21,0	**123** [1]
125	97 - 223	125	45	300	336,5	1	14	40	22,6	**124**

1) not standardised

SoloClamp – H5G-S

- ▲ 5 axis high power vice, long version, 125 mm height

H5G -S



A mm	C mm	D mm	F mm	G mm	DRVS mm	Clamping force kN
125	125	40	815	851	14	40

B	B_1	Article no.
0 – 126	123 – 250	**80 898 124**
125 – 251	248 – 374	**80 898 124** + **80 898 826** + **80 898 725**
250 – 376	372 – 499	**80 898 124** + **80 898 827** + **80 898 725**
375 – 501	498 – 624	**80 898 124** + **80 898 826** + **80 898 827** + **80 898 725**
500 – 626	622 – 749	**80 898 124** + 2 x **80 898 827** + **80 898 725**

The H5G-S 125 mm can be extended by a maximum of 250 mm with 2 extensions. The extension results in approximately 10% loss of clamping force.
Base plate available in long version with the desired hole pattern **on request**.

Vice guide

Underside Dimensions	27	Structural dimension tables for the different jaws	28–32
System accessories	33–36	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

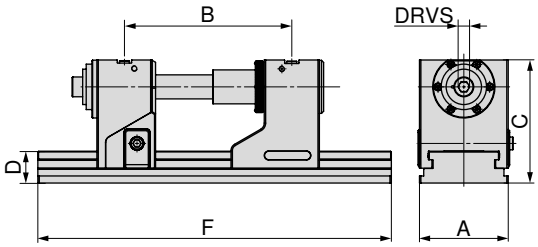
SoloClamp – H5G-Z

- ▲ 5-Axis vice with movable fixed jaw, 174 mm height
- ▲ Crank handle quick clamping
- ▲ Vice with quick span adjustment
- ▲ 100 % encapsulated
- ▲ Clamping on the machine table is possible with MNG/PNG, or directly through the base body

Scope of supply:

Incl. clamping key with hexagonal pin insert

H5G -Z	MNG



80 907 ...

A mm	B ±0,015 mm	C mm	D mm	F mm	DRVS mm	MXC kN	WT kg	
125	131 - 246	174	45	330	14	40	32,5	**12800**
125	131 - 352	174	45	430	14	40	36,0	**125**
125	131 - 422	174	45	500	14	40	38,5	**126**
125	131 - 552	174	45	630	14	40	43,0	**127**

→ **Page 36**
Here you will find the additional drawbar extensions that must be used to reach the maximum clamping ranges.

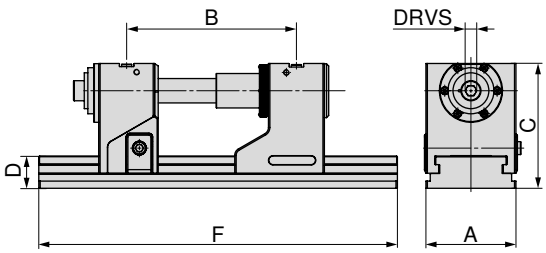
SoloClamp – H5G-Z-S

- ▲ 5-Axis vice with movable fixed jaw, 125 mm height
- ▲ Crank handle quick clamping
- ▲ Vice with quick span adjustment
- ▲ 100 % encapsulated
- ▲ Clamping on the machine table is possible with MNG/PNG, or directly through the base body

Scope of supply:

Incl. clamping key with hexagonal pin insert

H5G -Z-S	MNG

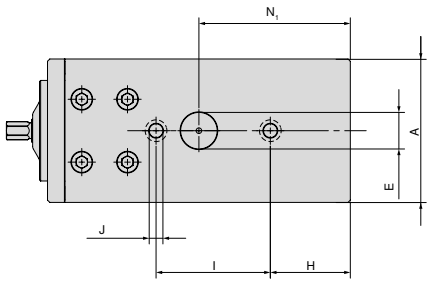


80 907 ...

A mm	B ±0,015 mm	C mm	D mm	F mm	DRVS mm	MXC kN	WT kg	
125	131 - 246	125	45	330	14	40	24,5	**22500**
125	131 - 352	125	45	430	14	40	28,5	**22600**
125	131 - 422	125	45	500	14	40	30,5	**22700**
125	131 - 552	125	45	630	14	40	35,5	**22800**

H5G/H5G-Z underside dimensions

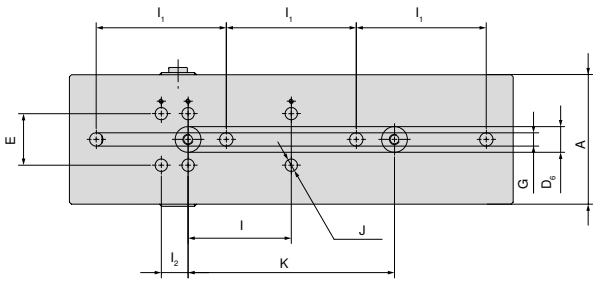
Base width 125 mm and 265 mm length



A mm	E H6 mm	H mm	I ±0,015 mm	J F7 mm	N1 mm
125	32	70	100	12	132,5

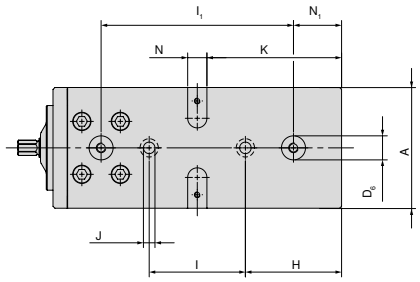
H5G with 265 mm length is not compatible with MNG

Base width 125 mm and 430 mm length



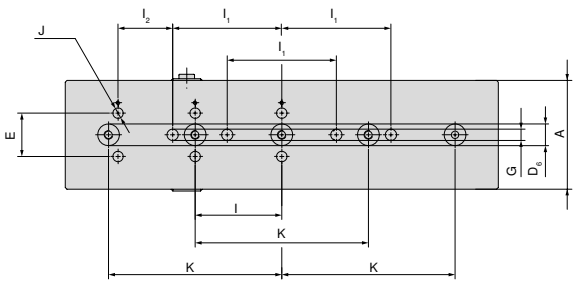
A mm	E ±0,01 mm	I1 ±0,3 mm	I2 mm	I ±0,015 mm	K ±0,015 mm	J H7 mm	G mm	D6 H6 mm
125	50	126	26	100	200	12	13	25

Base width 125 mm and length 300 mm



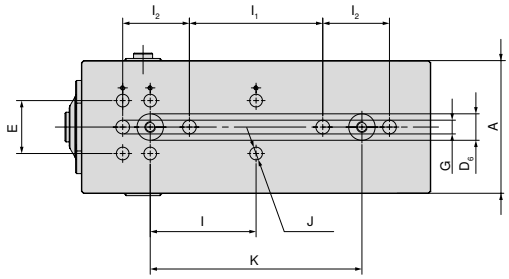
A mm	D6 H7 mm	H mm	I ±0,015 mm	J F7 mm	K mm	N H7 mm	I1 ±0,015 mm	N1 mm
125	25	100	100	12	140	20	200	50

Base width 125 mm and 500 mm length



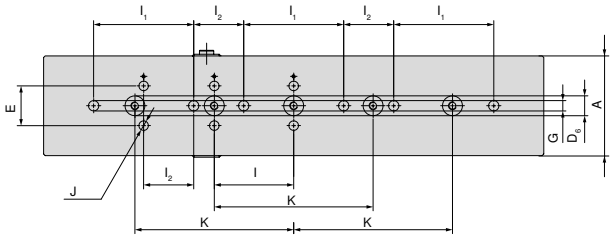
A mm	E ±0,01 mm	I1 ±0,3 mm	I ±0,015 mm	K ±0,015 mm	I2 mm	G mm	D6 H6 mm	J H7 mm
125	50	126	100	200	63	13	25	12

Base width 125 mm and 330 mm length



A mm	E ±0,01 mm	I ±0,015 mm	I2 mm	I1 ±0,3 mm	D6 H6 mm	J H7 mm	K ±0,015 mm	G mm
125	50	100	26	126	25	12	200	13

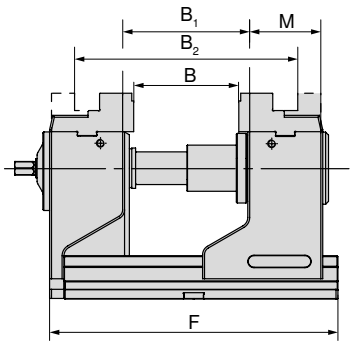
Base width 125 mm and 630 mm length



A mm	E ±0,01 mm	I1 ±0,3 mm	I2 mm	I ±0,015 mm	K ±0,015 mm	G mm	D6 H6 mm	J H7 mm
125	50	126	63	100	200	13	25	12

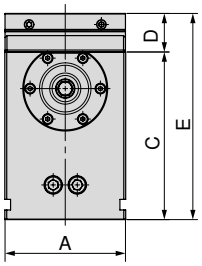
H5G/H5G-S – Structural dimension table for the different jaws

With combi jaws



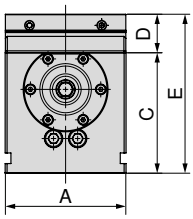
F mm	B mm	B_1 mm	B_2 mm	M mm	Article no. System jaws
265	0 - 89	22 - 112	123 - 212	76	**80 898 225**
300	0 - 126	22 - 149	123 - 249	76	**80 898 225**

H5G



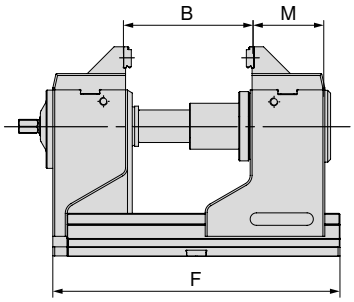
A mm	C mm	D mm	E mm
–	–	–	–
125	174	40	214

H5G-S



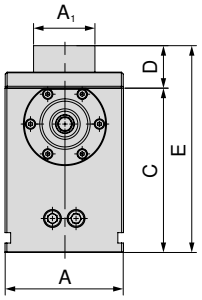
A mm	C mm	D mm	E mm
125	125	40	165
125	125	40	165

With 5A top jaws, jaw width 65 mm



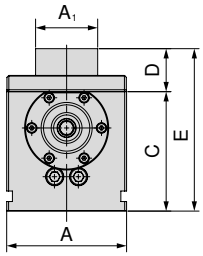
F mm	B mm	M mm	Article no. System jaws
265	16 - 105	79,5	**80 898 325**
300	16 - 142	79,5	**80 898 325**

H5G



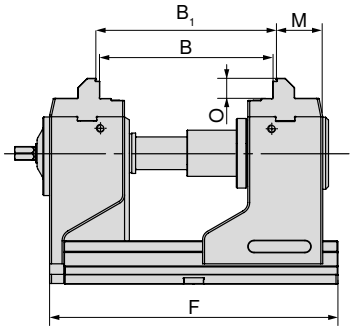
A mm	A_1 mm	C mm	D mm	E mm
–	–	–	–	–
125	65	174	45	219

H5G-S



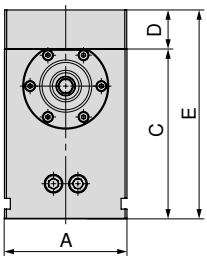
A mm	A_1 mm	C mm	D mm	E mm
125	65	125	45	170
125	65	125	45	170

With 5A top jaws, jaw width 125 mm



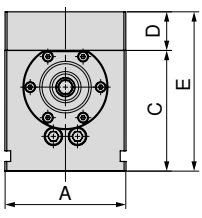
F mm	B mm	B_1 mm	O mm	M mm	Article no. System jaws
265	74 - 162	80 - 168	21	49	**80 907 300**
300	74 - 199	80 - 205	21	49	**80 907 300**

H5G



A mm	C mm	D mm	E mm
–	–	–	–
125	174	40	214

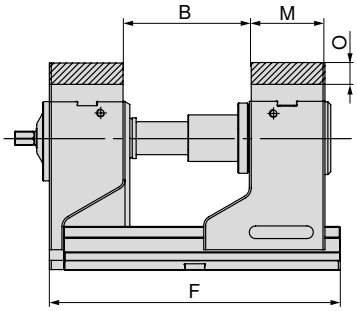
H5G-S



A mm	C mm	D mm	E mm
125	125	40	165
125	125	40	165

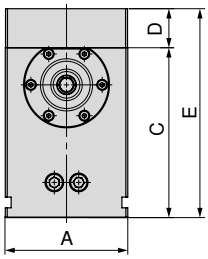
H5G/H5G-S – Structural dimension table for the different jaws

with soft jaws



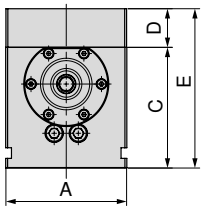
F mm	B mm	O mm	M mm	Article no. System jaws
265	23 - 112	22	76	**80 898 625**
300	23 - 149	22	76	**80 898 625**

H5G



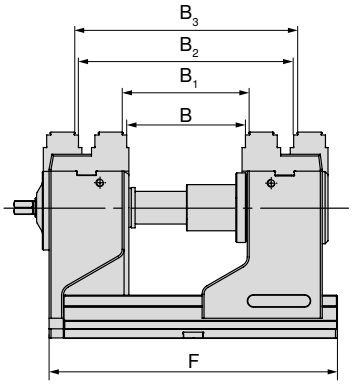
A mm	C mm	D mm	E mm
–	–	–	–
125	174	40	214

H5G-S



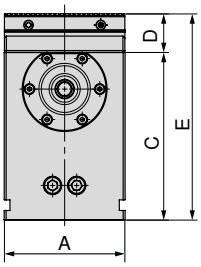
A mm	C mm	D mm	E mm
125	125	40	165
125	125	40	165

With indexable jaws, grip 3 mm



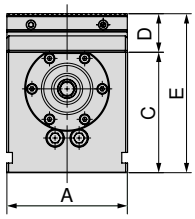
F mm	B mm	B_1 mm	B_2 mm	B_3 mm	Article no. System jaws
265	17 - 106	23 - 112	117 - 206	123 - 212	**80 898 35000**
300	17 - 140	23 - 146	117 - 240	123 - 246	**80 898 35000**

H5G



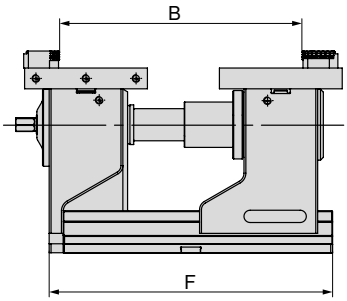
A mm	C mm	D mm	E mm
–	–	–	–
125	174	40	214

H5G-S



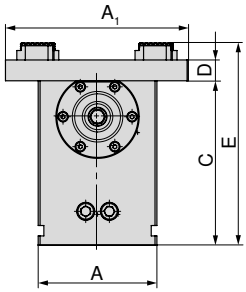
A mm	C mm	D mm	E mm
125	125	40	165
125	125	40	165

With pendulum and adapter plate



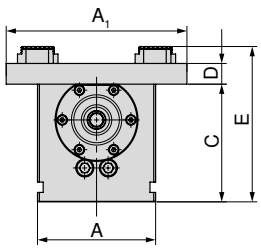
F mm	B mm	Article no. System jaws
265	17 - 236	**80 898 525 + 80 898 425**
300	17 - 274	**80 898 525 + 80 898 425**

H5G



A mm	A_1 mm	C mm	D mm	E mm
–	–	–	–	–
125	192	174	22	214

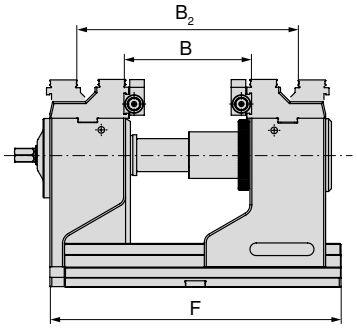
H5G-S



A mm	A_1 mm	C mm	D mm	E mm
125	192	125	22	165
125	192	125	22	165

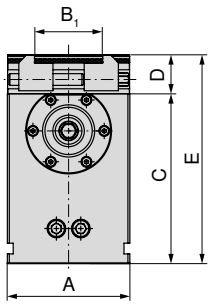
H5G/H5G-S – Structural dimension table for the different jaws

With 6-face jaw system



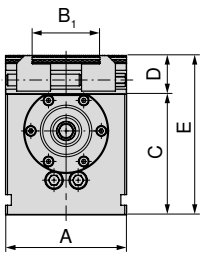
F mm	B mm	B_2 mm	O mm	M mm	Article no. System jaws
265	39 - 115	119 - 191	22	76	**80 898 230**
300	39 - 152	119 - 228	22	76	**80 898 230**

H5G



A mm	B_1 mm	C mm	D mm	E mm
–	–	–	–	–
125	37 - 101	174	40	214

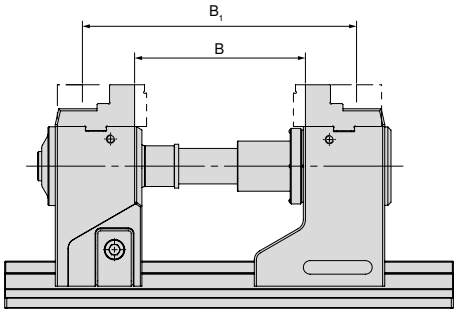
H5G-S



A mm	B_1 mm	C mm	D mm	E mm
125	37 - 101	125	40	165
125	37 - 101	125	40	165

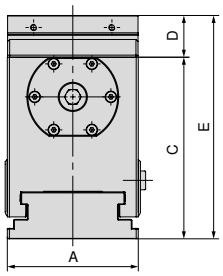
H5G-Z/-S structural dimension table for the different jaws

With combi jaws



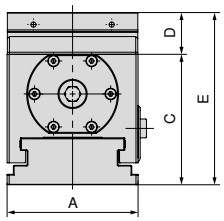
Variant	B mm	B_1 mm	Article no. System jaws
H5G-Z	57 - 182	157 - 282	**80 898 225**
H5G-Z-S	47 - 172	147 - 272	**80 898 225**

H5G-Z



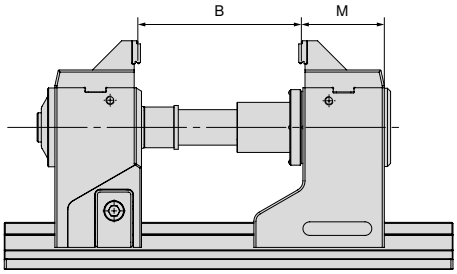
A mm	C mm	D mm	E mm
125	174	40	214
–	–	–	–

H5G-Z-S



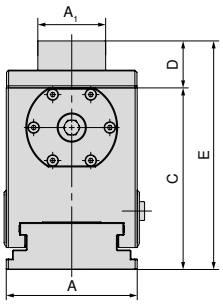
A mm	C mm	D mm	E mm
–	–	–	–
125	125	40	165

With 5A stepped top jaws



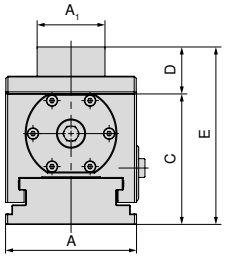
Variant	B mm	M mm	Article no. System jaws
H5G-Z	50 - 175	74	**80 898 325**
H5G-Z-S	40 - 165	74	**80 898 325**

H5G-Z



A mm	A_1 mm	C mm	D mm	E mm
125	65	174	45	214
–	–	–	–	–

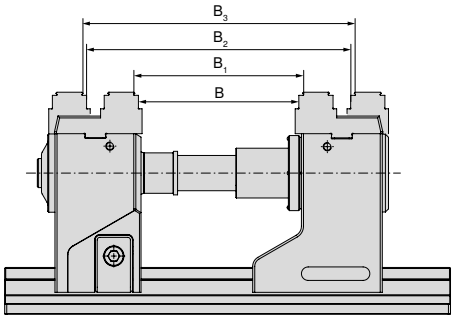
H5G-Z-S



A mm	A_1 mm	C mm	D mm	E mm
–	–	–	–	–
125	65	125	45	165

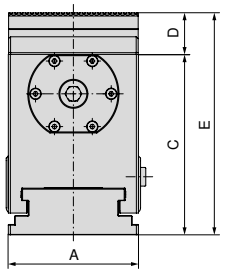
H5G-Z/-S structural dimension table for the different jaws

With indexable jaw grip 3 mm and 16 mm smooth step



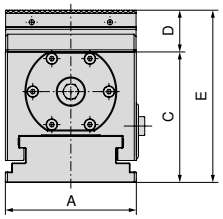
Variant	B mm	B1 mm	B2 mm	B3 mm	Article no. System jaws
H5G-Z	48 - 173	54 - 179	148 - 273	154 - 279	2 x **80 898 35000**
H5G-Z-S	38 - 173	44 - 169	138 - 263	144 - 269	2 x **80 898 35000**

H5G-Z



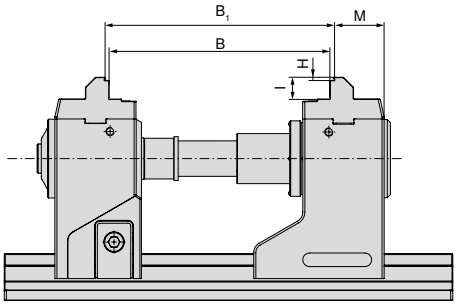
A mm	C mm	D mm	E mm
125	174	40	214
–	–	–	–

H5G-Z-S



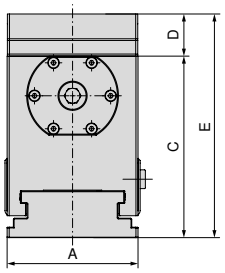
A mm	C mm	D mm	E mm
–	–	–	–
125	125	40	165

With 5A top jaw, jaw width 125 mm



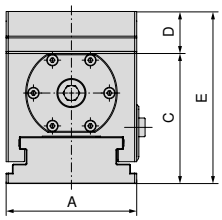
Variant	B mm	B1 mm	H mm	I mm	M mm	Article no. System jaws
H5G-Z	105 - 230	111 - 236	3	21	48,7	2 x **80 907 300**
H5G-Z-S	95 - 220	101 - 226	3	21	48,7	2 x **80 907 300**

H5G-Z



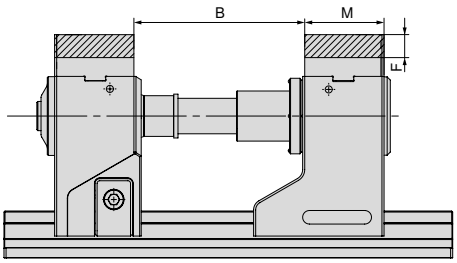
A mm	C mm	D mm	E mm
125	174	40	214
–	–	–	–

H5G-Z-S



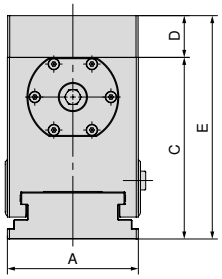
A mm	C mm	D mm	E mm
–	–	–	–
125	125	40	165

with soft jaws



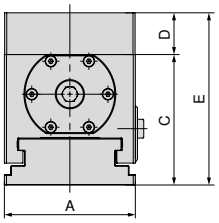
Variant	B mm	F mm	M mm	Article no. System jaws
H5G-Z	57 - 182	22	76	**80 898 625**
H5G-Z-S	47 - 172	22	76	**80 898 625**

H5G-Z



A mm	C mm	D mm	E mm
125	174	40	214
–	–	–	–

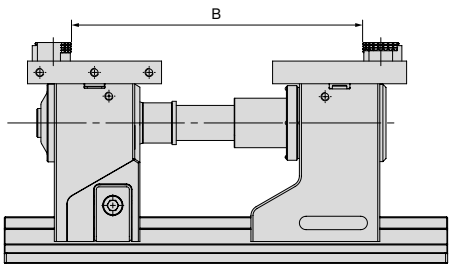
H5G-Z-S



A mm	C mm	D mm	E mm
–	–	–	–
125	125	40	165

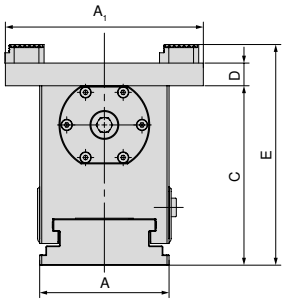
H5G-Z/-S structural dimension table for the different jaws

With pendulum and adapter plate



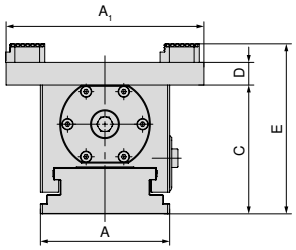
Variant	B mm	Article no. System jaws
H5G-Z	11 - 300	**80 898 525 + 80 898 425**
H5G-Z-S	11 - 290	**80 898 525 + 80 898 425**

H5G-Z



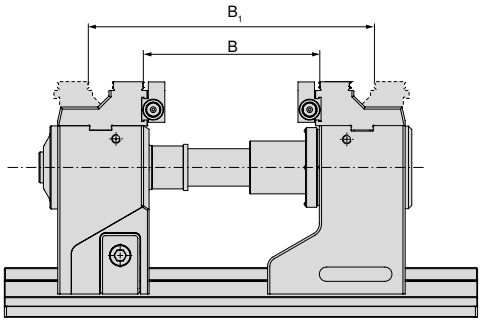
A mm	A_1 mm	C mm	D mm	E mm
125	192	174	40	214
–	–	–	–	–

H5G-Z-S



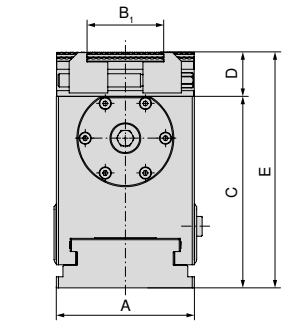
A mm	A_1 mm	C mm	D mm	E mm
–	–	–	–	–
125	192	125	40	165

With 6-face jaw system



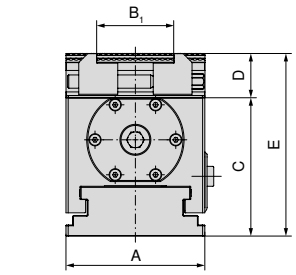
Variant	B mm	B_2 mm	Article no. System jaws
H5G-Z	52 - 177	152 - 277	**80 898 230**
H5G-Z-S	42 - 167	142 - 267	**80 898 230**

H5G-Z



A mm	B_1 mm	C mm	D mm	E mm
125	37 - 101	174	40	214
–	–	–	–	–

H5G-Z-S



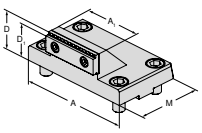
A mm	B_1 mm	C mm	D mm	E mm
–	–	–	–	–
125	37 - 101	125	40	165

Clamping ranges also apply to 500 mm and 630 mm base bodies. Extended clamping ranges with drawbar extension possible.
The specified clamping ranges can sometimes only be achieved using top jaws.

System jaws overview

5A stepped top jaw

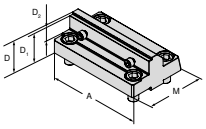
▲ including 125/65 mm attachment and 3 mm grip step
▲ price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125	65	45	42			76			**80 898 325**		●									

5A – Top jaw

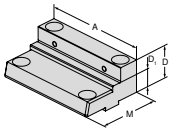
▲ Improved accessibility through tapered rear section
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		40	37	18		78			**80 907 300**		●									

Combi reversable jaw

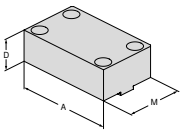
▲ to extend the clamping range
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		40	22			76			**80 898 225**		●									

Soft Alu-jaw

▲ for producing shaped jaws
▲ Price per piece

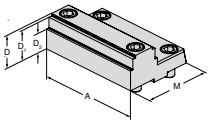


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		40				76			**80 898 625**		●									

System jaws overview

Indexable jaw, grip 3 mm, 16 mm smooth step, on both sides

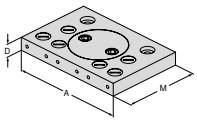
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		40	37	24		82,5			**80 898 35000**		●									

Pendulum jaw, movable

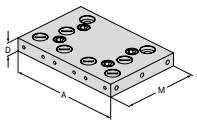
▲ to accommodate 6-way reversible jaws
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	192		22				130			**80 898 525**		●									

Adapter plate

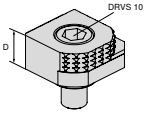
▲ to accommodate 6-way reversible jaws
▲ Price per piece

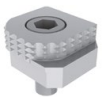


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	192		22				130			**80 898 425**		●									

6 function indexable jaw

▲ 1 = Smooth, carbide coated
▲ 2 = Grip with 3 mm step
▲ 3 = Grip with 8 mm step
▲ 4 = Grip with 18 mm step
▲ 5 = Rough grip with 8 mm step
▲ 6 = Round grip
▲ M_{max} = 60 Nm
▲ Including fixation screws



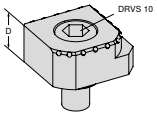


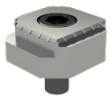
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							**80 892 246**	●	●	●	●			●		●	●	

System jaws overview

6x indexable jaw, carbide grip

- ▲ 1 = Smooth
- ▲ 2 = Carbide grip
- ▲ 3 = Carbide grip with 3 mm step
- ▲ 4 = Carbide grip with 8 mm step
- ▲ 5 = Round carbide grip with 8 mm step
- ▲ 6 = Round carbide grip
- ▲ Incl. fixing screws





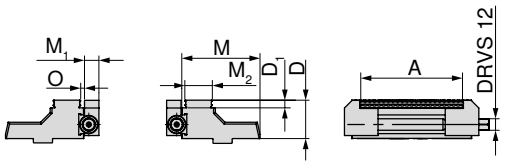
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2
			18						

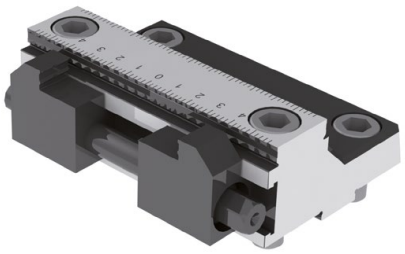
	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80 890 35300	●	●	●	●			●		●	●	

6 face jaw system for 125 mm jaw width

Scope of supply:
2 System jaws with 2 pairs of transverse jaws in T-slot guidance incl. fixing screws

H5G -S





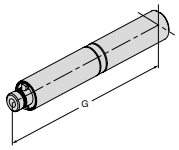
for width	A	D	D_1	M	M_1	M_2	O	WT	**80 898 ...**
mm	mm	mm	mm	mm	mm	mm	mm	kg	
125	37 - 101	40	8	81,5	15	28,7	3,2	4,5	**230**

System accessories overview

Drawbar

▲ Incl. anti-rotation

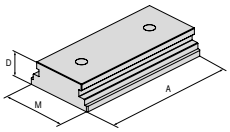
H5G | H5G -S | H5G -Z

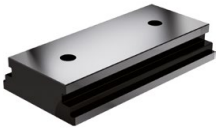


G mm	80 898 ...
125	826
250	827

Base plate to extend

H5G

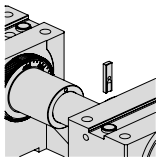




A mm	D mm	M mm	80 898 ...
250	45	125,5	725

Anti-twist plate

H5G | H5G -S | H5G -Z | H5G -Z-S



80 898 ...
024

Hand crank

▲ for fast adjustment

DRVS mm	H5G-Z X5G-Z 80 907 ...	H5G-S H5G-Z-S 80 898 ...	H5G 80 898 ...
14	500	026	025

Protection plugs

▲ Price per piece

H5G -Z

D_1 mm	80 907 ...
19	501

Clamping lever

▲ including control accessories

NCG | NCG 5A | H5G

DRVS mm	80 890 ...
14	501

Clamping Handle with Joint

▲ without socket

H5G -Z | H5G -Z-S | ESG 4 | ESG mini | ZSG 4

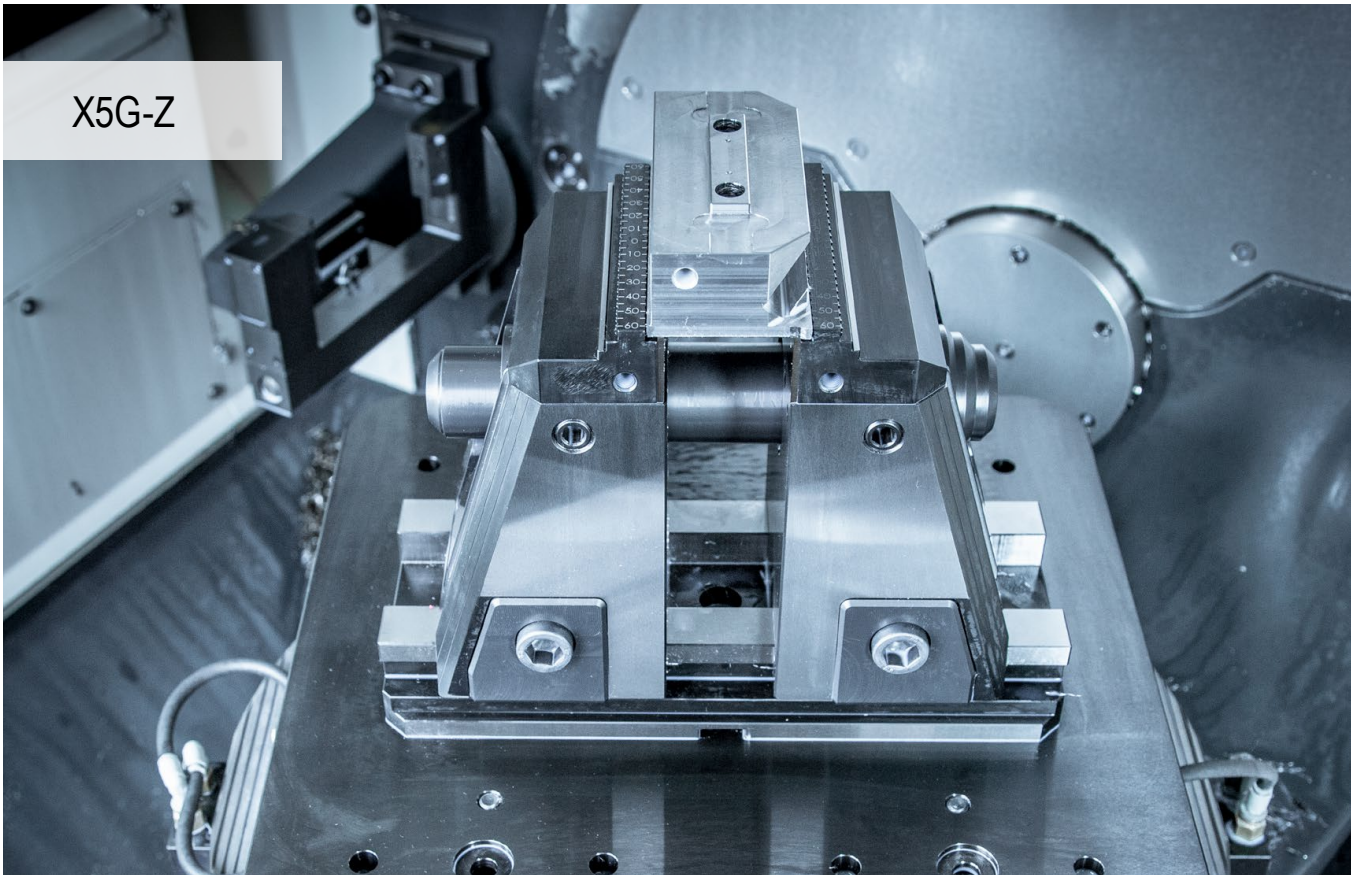
Square	80 891 ...
1/2"	600

Socket

▲ Suitable for 1/2" or 3/8" square drive

H5G -Z | ESG mini | MSG 2 | Verso | MNG

Square	DRVS mm	80 877 ...
1/2"	14	214



5-axis machining to perfection

Maximum ease of handling and integrated pull-down action for 6-sided machining. X5G-Z is the new 5-axis vice from CERATIZIT. All the advantages that ensure optimum and simple 5- and 6-sided machining combined in a single clamping device.

Your benefits:

- ▲ Either 5 and 6-axis machining thanks to clamping of one or both supporting jaws
- ▲ Fast jaw changeover without tools
- ▲ Optimum accessibility from all sides and large base clamping stroke of 130 mm
- ▲ Fully encapsulated, mechanical spindle
- ▲ Integrated, internal elastomer damping to minimise vibrations
- ▲ Extensive modular jaw range

Clamping/aligning:

Clamping with two dowel screws dia. 12_{f7} / M12 and clamping screws **Article no. 80 895 019**

Alignment through 20^{H7} precision slot nuts in the base body in the machine table's T-slot. Clamping with clamping claws.

Alignment and clamping with MNG zero point clamping system (2-3 mounting bolts). **Optional:** Positioning and fixing holes at the customer's request.

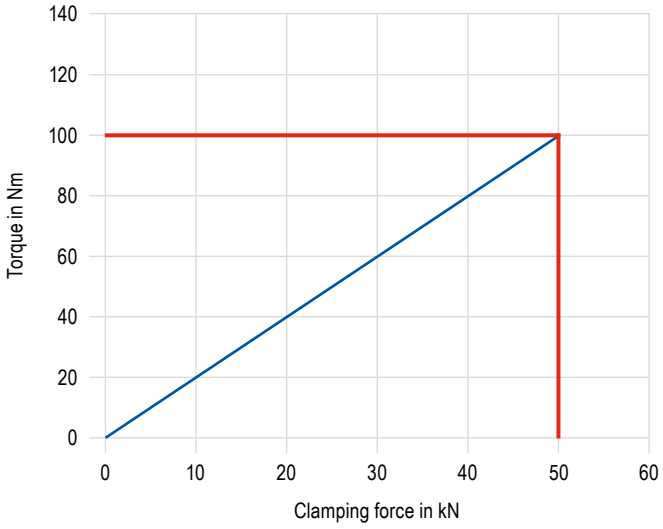
17

Clamping force:

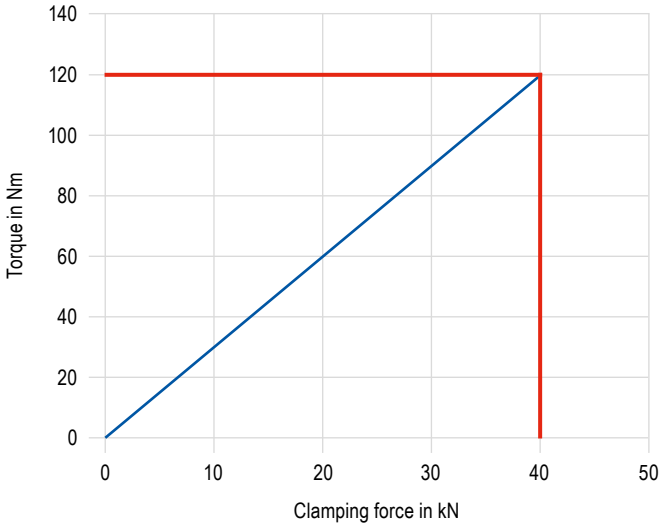
Size		Max. tightening torque in Nm	max. clamping force in kN
X5G-Z	Blank clamping	100	50
X5G-Z	Precision clamping	120	40
X5G-Z-S	Blank clamping	100	50
X5G-Z-S	Precision clamping	120	34

X5G-Z tightening torque/clamping force

Blank clamping

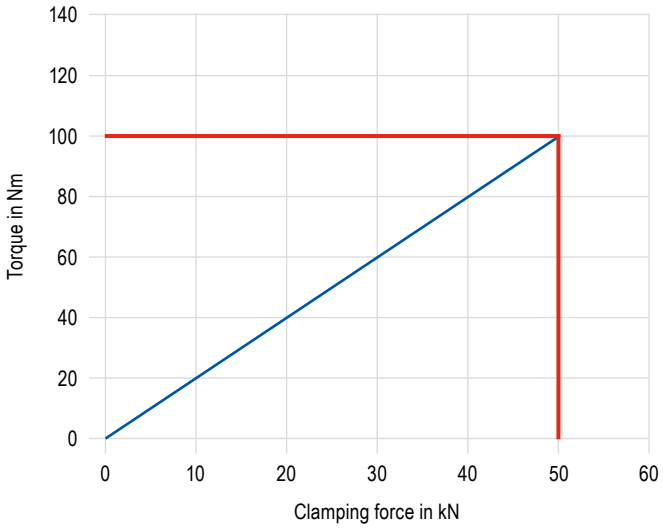


Precision clamping

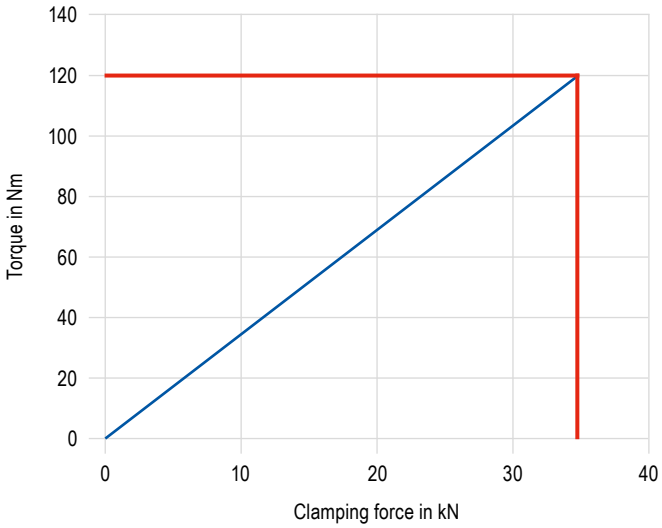


X5G-Z-S tightening torque/clamping force

Blank clamping



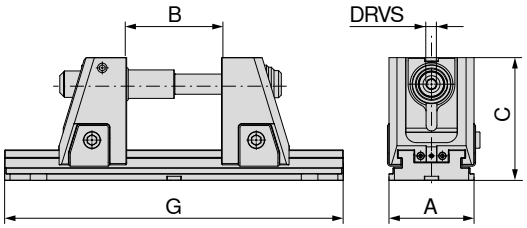
Precision clamping



SoloClamp – X5G-Z

- ▲ Mechanical 5-axis vice with movable fixed jaws, 181 mm height
- ▲ Without system jaws
- ▲ Optimum accessibility
- ▲ 5- and 6-sided machining possible
- ▲ Fast jaw changeover
- ▲ Clamping on the machine table is possible with MNG/PNG, or directly through the base body

X5G -Z



A mm	B mm	C mm	G mm	DRVS mm	MXC kN	WT kg	80 908 ...
125	4 - 134	181	330	14	40	33,2	**52500**
125	4 - 234	181	430	14	40	36,1	**52600**
125	4 - 304	181	500	14	40	38,1	**52700**
125	4 - 434	181	630	14	40	41,8	**52800**
125	4 - 604	181	800	14	40	46,6	**52900**

Basic clamping stroke 130 mm

→ **Page 48**
Here you will find the additional drawbar extensions that must be used to reach the maximum clamping ranges.

→ **Page 42–44**
Here you will fin the structural dimension tables for the different jaws.

Vice guide

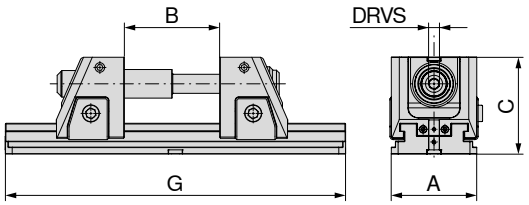
Underside Dimensions	41	System accessories	45
MNG-/PNG zero point clamping system	134–163	General accessories	164–183

17

SoloClamp – X5G-Z-S

- ▲ Mechanical 5-axis vice with movable fixed jaws, 142 mm height
- ▲ Without system jaws
- ▲ Optimum accessibility
- ▲ 5- and 6-sided machining possible
- ▲ Fast jaw changeover
- ▲ Clamping on the machine table is possible with MNG/PNG, or directly through the base body

X5G -Z-S



80 908 ...

A mm	B mm	C mm	G mm	DRVS mm	MXC kN	WT kg	
125	4 - 134	142	330	14	40	27,3	**42500**
125	4 - 234	142	430	14	40	30,2	**42600**
125	4 - 304	142	500	14	40	32,2	**42700**
125	4 - 434	142	630	14	40	35,9	**42800**
125	4 - 604	142	800	14	40	40,7	**42900**

Basic clamping stroke 130 mm

→ **Page 48**
Here you will find the additional drawbar extensions that must be used to reach the maximum clamping ranges.

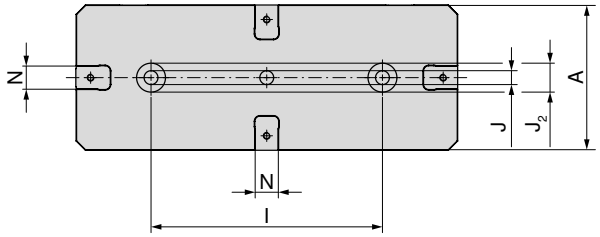
→ **Page 42–44**
Here you will fin the structural dimension tables for the different jaws.

Vice guide

Underside Dimensions	41	System accessories	45
MNG-/PNG zero point clamping system	134–163	General accessories	164–183

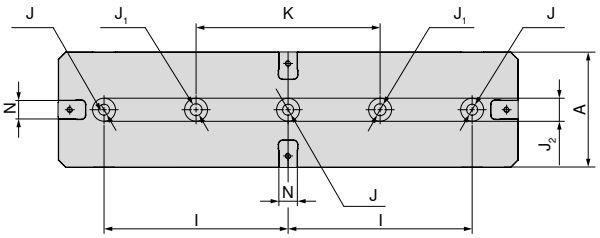
X5G-Z/-S underside dimensions

Base width 125 mm and 330 mm length



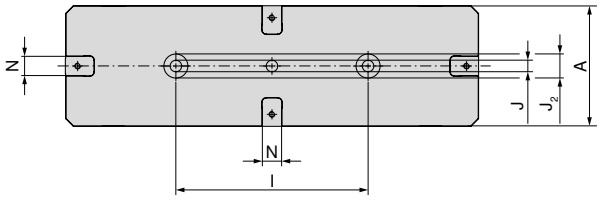
A mm	l ±0,02 mm	J H7 mm	J2 H6 mm	N H7 mm
125	200	12	25	20

Base width 125 mm and 630 mm length



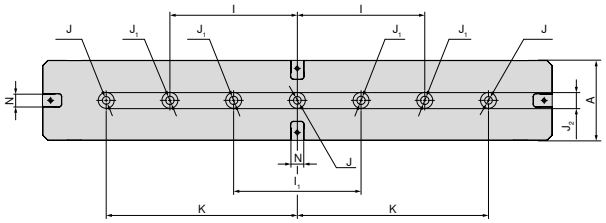
A mm	l ±0,02 mm	J H7 mm	J1 mm	J2 H6 mm	K ±0,02 mm	N H7 mm
125	200	12	13	25	200	20

Base width 125 mm and 430 mm length



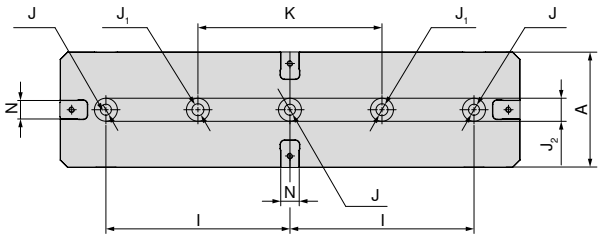
A mm	l ±0,02 mm	J H7 mm	J2 H6 mm	N H7 mm
125	200	12	25	20

Base width 125 mm and 800 mm length



A mm	l ±0,02 mm	l1 ±0,02 mm	J H7 mm	J1 mm	J2 H6 mm	K ±0,02 mm	N H7 mm
125	200	200	12	13	25	300	20

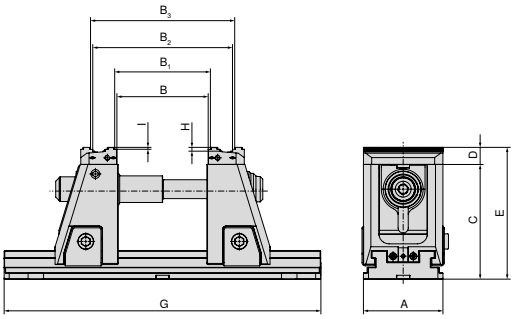
Base width 125 mm and 500 mm length



A mm	l ±0,02 mm	J H7 mm	J1 mm	J2 H6 mm
125	200	12	13	25

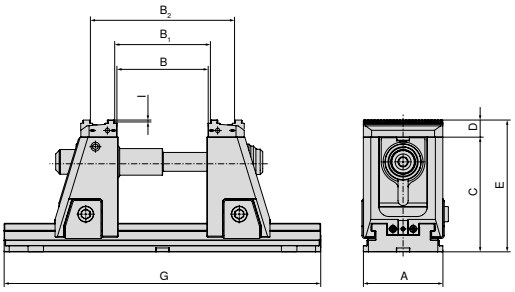
X5G-Z/-S structural dimension table for the different jaws

With indexable jaws, grip 3 mm



Type	Drawbar 430 mm 80 908 80000	Drawbar 500 mm 80 908 80100	Drawbar 630 mm 80 908 80200	Drawbar 800 mm 80 908 80300	A	B	B_1	B_2	B_3	C	D	E	G	H	I
80 908 52500					125	5–134	12–141	80–210	88–217	181	27	208	330	6	3
80 908 42500					125	5–134	12–141	80–210	88–217	142	27	169	330	6	3
80 908 52600	1 x				125	5–234	12–241	80–310	88–317	181	27	208	430	6	3
80 908 42600	1 x				125	5–234	12–241	80–310	88–317	142	27	169	430	6	3
80 908 52700	1 x	1 x			125	5–304	12–311	80–380	88–387	181	27	208	500	6	3
80 908 42700	1 x	1 x			125	5–304	12–311	80–380	88–387	142	27	169	500	6	3
80 908 52800	1 x	1 x	1 x		125	5–434	12–441	80–510	88–517	181	27	208	630	6	3
80 908 42800	1 x	1 x	1 x		125	5–434	12–441	80–510	88–517	142	27	169	630	6	3
80 908 52900	1 x	1 x	1 x	1 x	125	5–604	12–611	80–680	88–687	181	27	208	800	6	3
80 908 42900	1 x	1 x	1 x	1 x	125	5–604	12–611	80–680	88–687	142	27	169	800	6	3

With indexable jaws, grip 5 mm

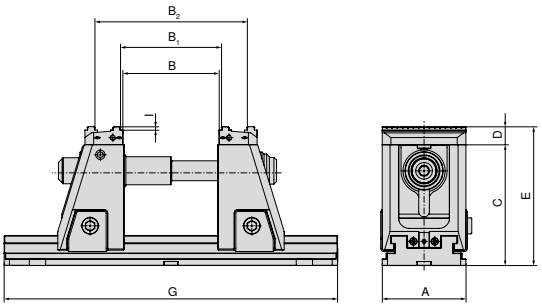


Type	Drawbar 430 mm 80 908 80000	Drawbar 500 mm 80 908 80100	Drawbar 630 mm 80 908 80200	Drawbar 800 mm 80 908 80300	A	B	B_1	B_2	C	D	E	G	I
80 908 52500					125	5–134	12–141	88–217	181	27	208	330	5
80 908 42500					125	5–134	12–141	88–217	142	27	169	330	5
80 908 52600	1 x				125	5–234	12–241	88–317	181	27	208	430	5
80 908 42600	1 x				125	5–234	12–241	88–317	142	27	169	430	5
80 908 52700	1 x	1 x			125	5–304	12–311	88–387	181	27	208	500	5
80 908 42700	1 x	1 x			125	5–304	12–311	88–387	142	27	169	500	5
80 908 52800	1 x	1 x	1 x		125	5–434	12–441	88–517	181	27	208	630	5
80 908 42800	1 x	1 x	1 x		125	5–434	12–441	88–517	142	27	169	630	5
80 908 52900	1 x	1 x	1 x	1 x	125	5–604	12–611	88–687	181	27	208	800	5
80 908 42900	1 x	1 x	1 x	1 x	125	5–604	12–611	88–687	142	27	169	800	5

→ **Page 48**
Here you will find the suitable drawbar extensions.

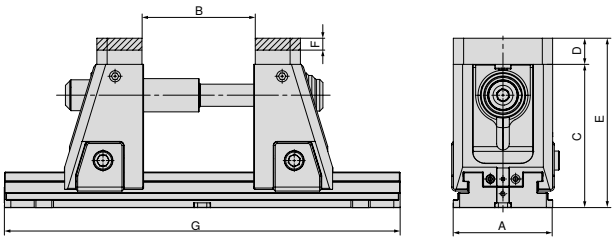
X5G-Z/-S structural dimension table for the different jaws

With stepped jaws, carbide grip 5 mm



Type	Drawbar 430 mm 80 908 80000	Drawbar 500 mm 80 908 80100	Drawbar 630 mm 80 908 80200	Drawbar 800 mm 80 908 80300	A	B	B_1	B_2	C	D	E	G	I
80 908 52500					125	5–134	12–141	88–217	181	27	208	330	5
80 908 42500					125	5–134	12–141	88–217	142	27	169	330	5
80 908 52600	1 x				125	5–234	12–241	88–317	181	27	208	430	5
80 908 42600	1 x				125	5–234	12–241	88–317	142	27	169	430	5
80 908 52700	1 x	1 x			125	5–304	12–311	88–387	181	27	208	500	5
80 908 42700	1 x	1 x			125	5–304	12–311	88–387	142	27	169	500	5
80 908 52800	1 x	1 x	1 x		125	5–434	12–441	88–517	181	27	208	630	5
80 908 42800	1 x	1 x	1 x		125	5–434	12–441	88–517	142	27	169	630	5
80 908 52900	1 x	1 x	1 x	1 x	125	5–604	12–611	88–687	181	27	208	800	5
80 908 42900	1 x	1 x	1 x	1 x	125	5–604	12–611	88–687	142	27	169	800	5

With soft jaws, steel



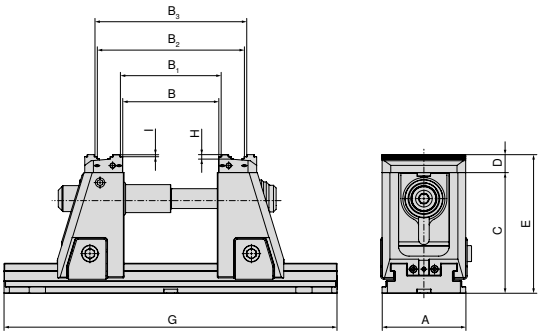
Article no. System jaws
2 x 80 909 31200

Type	Drawbar 430 mm 80 908 80000	Drawbar 500 mm 80 908 80100	Drawbar 630 mm 80 908 80200	Drawbar 800 mm 80 908 80300	A	B	C	D	E	F	G
80 908 52500					125	4–134	181	33	214	15	330
80 908 42500					125	4–134	142	33	175	15	330
80 908 52600	1 x				125	4–234	181	33	214	15	430
80 908 42600	1 x				125	4–234	142	33	175	15	430
80 908 52700	1 x	1 x			125	4–304	181	33	214	15	500
80 908 42700	1 x	1 x			125	4–304	142	33	175	15	500
80 908 52800	1 x	1 x	1 x		125	4–434	181	33	214	15	630
80 908 42800	1 x	1 x	1 x		125	4–434	142	33	175	15	630
80 908 52900	1 x	1 x	1 x	1 x	125	4–604	181	33	214	15	800
80 908 42900	1 x	1 x	1 x	1 x	125	4–604	142	33	175	15	800

→ Page 48
Here you will find the suitable drawbar extensions.

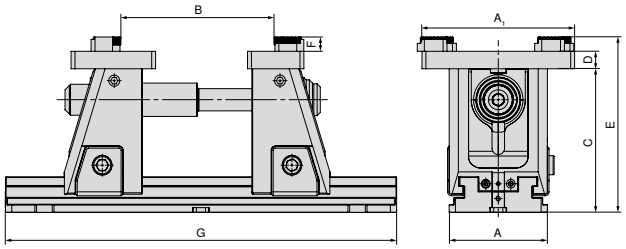
X5G-Z/-S structural dimension table for the different jaws

With indexable jaws embossed profile



Article no. System jaws															
															2 x 80 908 31200
Type	Drawbar 430 mm **80 908 80000**	Drawbar 500 mm **80 908 80100**	Drawbar 630 mm **80 908 80200**	Drawbar 800 mm **80 908 80300**	**A**	**B**	**B_1**	**B_2**	**B_3**	**C**	**D**	**E**	**G**	**H**	**I**
80 908 52500					125	5–134	12–141	82–210	89–217	181	27	208	330	6	3
80 908 42500					125	5–134	12–141	82–210	89–217	142	27	169	330	6	3
80 908 52600	1 x				125	5–234	12–241	82–310	89–317	181	27	208	430	6	3
80 908 42600	1 x				125	5–234	12–241	82–310	89–317	142	27	169	430	6	3
80 908 52700	1 x	1 x			125	5–304	12–311	82–380	89–387	181	27	208	500	6	3
80 908 42700	1 x	1 x			125	5–304	12–311	82–380	89–387	142	27	169	500	6	3
80 908 52800	1 x	1 x	1 x		125	5–434	12–441	82–510	89–517	181	27	208	630	6	3
80 908 42800	1 x	1 x	1 x		125	5–434	12–441	82–510	89–517	142	27	169	630	6	3
80 908 52900	1 x	1 x	1 x	1 x	125	5–604	12–611	82–680	89–687	181	27	208	800	6	3
80 908 42900	1 x	1 x	1 x	1 x	125	5–604	12–611	82–680	89–687	142	27	169	800	6	3

With pendulum and adapter plate



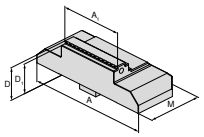
Article no. System jaws												
												80 909 31500 + 80 909 31300
Type	Drawbar 430 mm **80 908 80000**	Drawbar 500 mm **80 908 80100**	Drawbar 630 mm **80 908 80200**	Drawbar 800 mm **80 908 80300**	**A**	**B**	**C**	**D**	**E**	**F**	**G**
80 908 52500					125	42–210	181	22	221	18	330
80 908 42500					125	42–210	142	22	182	18	330
80 908 52600	1 x				125	42–310	181	22	221	18	430
80 908 42600	1 x				125	42–310	142	22	182	18	430
80 908 52700	1 x	1 x			125	42–380	181	22	221	18	500
80 908 42700	1 x	1 x			125	42–380	142	22	182	18	500
80 908 52800	1 x	1 x	1 x		125	42–510	181	22	221	18	630
80 908 42800	1 x	1 x	1 x		125	42–510	142	22	182	18	630
80 908 52900	1 x	1 x	1 x	1 x	125	42–680	181	22	221	18	800
80 908 42900	1 x	1 x	1 x	1 x	125	42–680	142	22	182	18	800

→ **Page 48**
Here you will find the suitable drawbar extensions.

System jaws overview

Indexable grip jaw, 3 mm

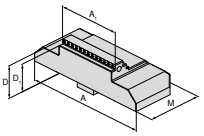
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125	40	27	24			57			**80 908 30300**			●								
125	125	65	27	24			57			**80 908 30200**			●								
125	125	80	27	24			57			**80 908 30100**			●								
125	125	125	27	24			57			**80 908 30000**			●								

Indexable grip jaw, 5 mm

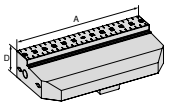
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125	40	27	22			57			**80 908 30700**			●								
125	125	65	27	22			57			**80 908 30600**			●								
125	125	80	27	22			57			**80 908 30500**			●								
125	125	125	27	22			57			**80 908 30400**			●								

Indexable smooth jaw

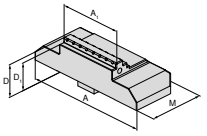
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		27							**80 908 31400**			●								

Stepped jaw, carbide grip 5 mm

▲ Price per piece

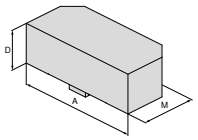
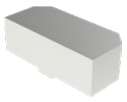


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125	40	27	22			57			**80 908 31100**			●								
125	125	65	27	22			57			**80 908 31000**			●								
125	125	80	27	22			57			**80 908 30900**			●								
125	125	125	27	22			57			**80 908 30800**			●								

System jaws overview

Soft jaw, steel

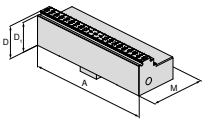
▲ Material: 16MnCr5
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		33				57			**80 909 31200**			●								

Indexable jaw embossed profile

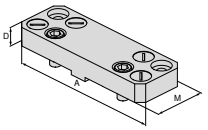
▲ Price per piece
▲ suitable for LANG embossed profile



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		27	24			57			**80 908 31200**			●								

Adapter plate

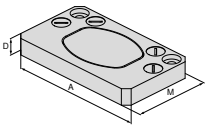
▲ for holding 6-function indexable jaws
▲ Price per piece
▲ incl. cover screws



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	180		22				104			**80 909 31500**			●								

Floating jaw

▲ for holding 6-function indexable jaws
▲ Price per piece
▲ incl. cover screws

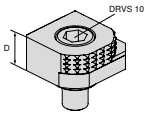


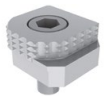
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	180		22				62			**80 909 31300**			●								

System jaws overview

6 function indexable jaw

▲ 1 = Smooth, carbide coated
▲ 2 = Grip with 3 mm step
▲ 3 = Grip with 8 mm step
▲ 4 = Grip with 18 mm step
▲ 5 = Rough grip with 8 mm step
▲ 6 = Round grip
▲ M_{max} = 60 Nm
▲ Including fixation screws

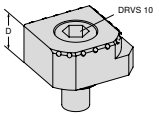


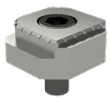


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							80 892 246	●	●	●	●			●		●	●	

6x indexable jaw, carbide grip

▲ 1 = Smooth
▲ 2 = Carbide grip
▲ 3 = Carbide grip with 3 mm step
▲ 4 = Carbide grip with 8 mm step
▲ 5 = Round carbide grip with 8 mm step
▲ 6 = Round carbide grip
▲ Incl. fixing screws

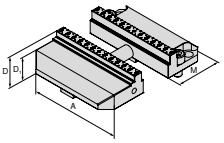




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							80 890 35300	●	●	●	●			●		●	●	

Precision jaw

▲ Price per set

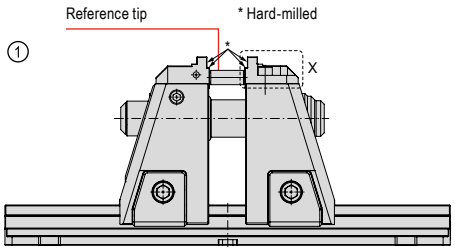


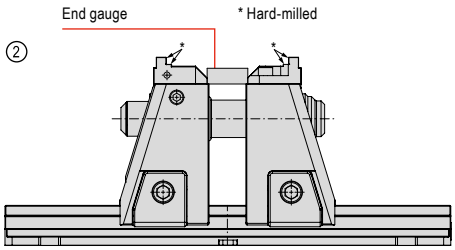
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		27	24			57			80 908 31300			●								

Procedure for hardened precision jaw set

The X5G-Z impresses with its extreme accuracy. All the components have been ground or hard-milled to a high level of precision. Despite this, there are still applications whereby the precision requirements cannot be satisfied in full due to the tolerance chain of the indexable grip jaws. For these situations we offer a hardened precision jaw set (article no. **80 908 31300**) that can be hard-milled by the customer on the clamping flat (both sides).

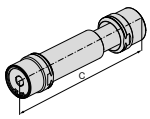
Hard machining is carried out in the precision vice (both screws on the supporting jaws tightened to 140 Nm). The precision jaws must be hard-milled as per the views shown (1+2). The reference tip supplied is used for clamping in the standard position (1). An end gauge can be used for clamping in the increased clamping range position (2).





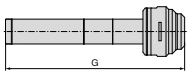
System accessories overview

Spindle unit X5G-Z



C mm	WT kg	80 908 ...
227,5	2,5	50100

Drawbar



for width mm	G mm	80 908 ...
125	430	80000
125	500	80100
125	630	80200
125	800	80300

Torque Wrench

▲ without socket

Square	TQX Nm	80 884 ...
1/2"	10 - 100	502

Hand crank

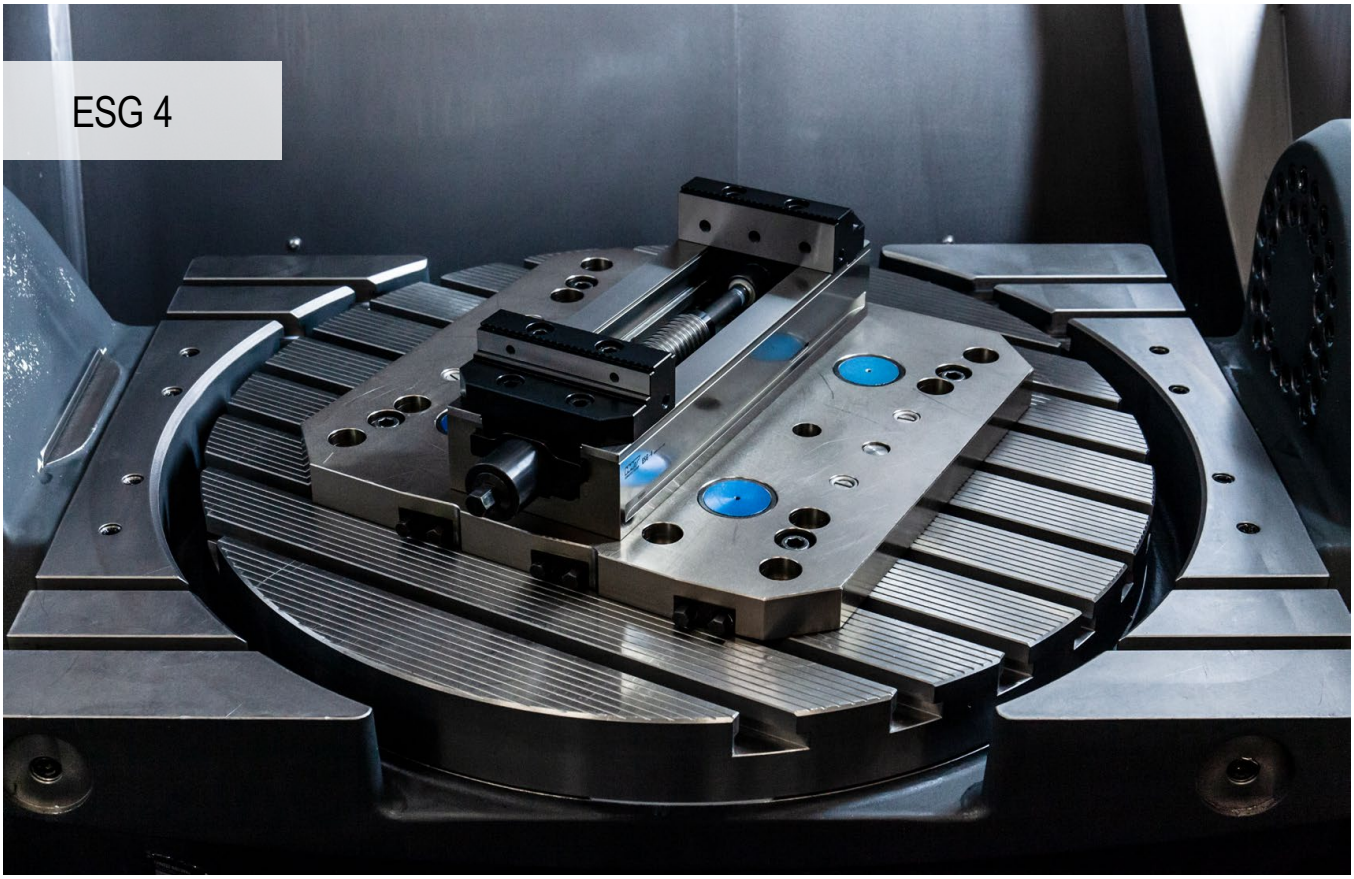
▲ Version with external hex
▲ For quick adjustment

H5G-Z
X5G-Z

for width mm	DRVS mm	80 907 ...
125	14	500

Socket

Square	DRVS mm	80 877 ...
1/2"	14	214



Highly-efficient all-rounder for machining unfinished and finished parts

The ESG 4 single vice impresses with fast handle clamping, quick setting of the clamping range, a flat design and low weight.

Your benefits:

- ▲ Several cooling lubricant flows for problem-free working and controlled outflow
- ▲ Quick and easy positioning on the MNG zero point clamping system
- ▲ High clamping force between 5 – 50 kN with low tightening torque
- ▲ Quick and easy jaw change with 2 screws
- ▲ Quick, simple disassembly of the spindle unit
- ▲ Extensive modular jaw range

Clamping/aligning:

ESG 4 – 80 mm = mounting with M8 screws through the base body
ESG 4 – 125 mm / 160 mm = mounting with M12 screws and dowel screws through the base body

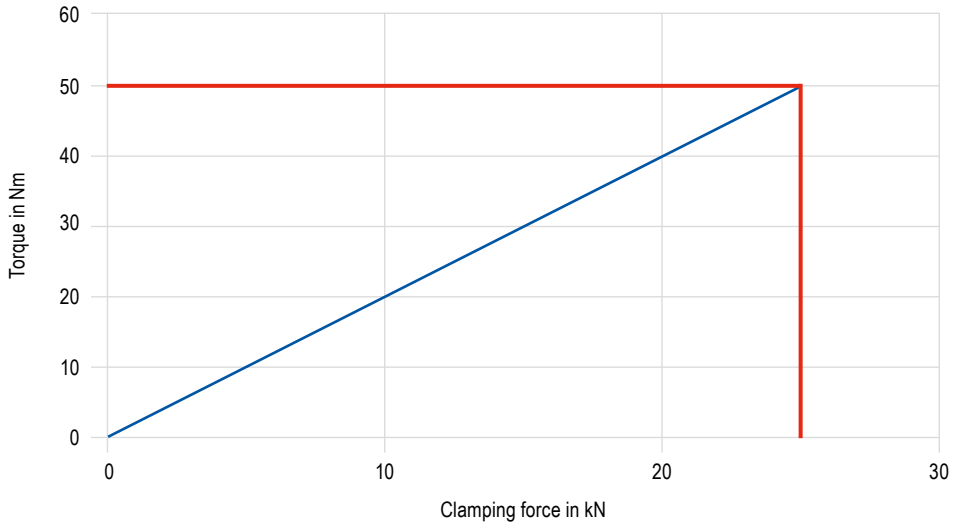
Mounting with 4 clamping claws
Article no. 80 890 315

Mounting with zero point clamping systems
ESG 4 – 80 mm = 1 mounting bolt + anti-twist protection
ESG 4 – 125 / 160 mm = 2 mounting bolts, centre distance 200 mm

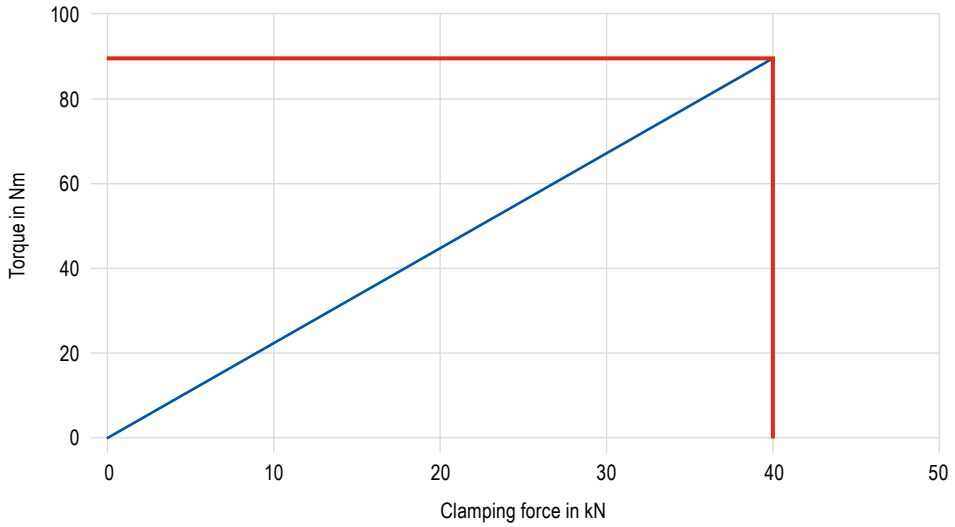
17

Clamping force:

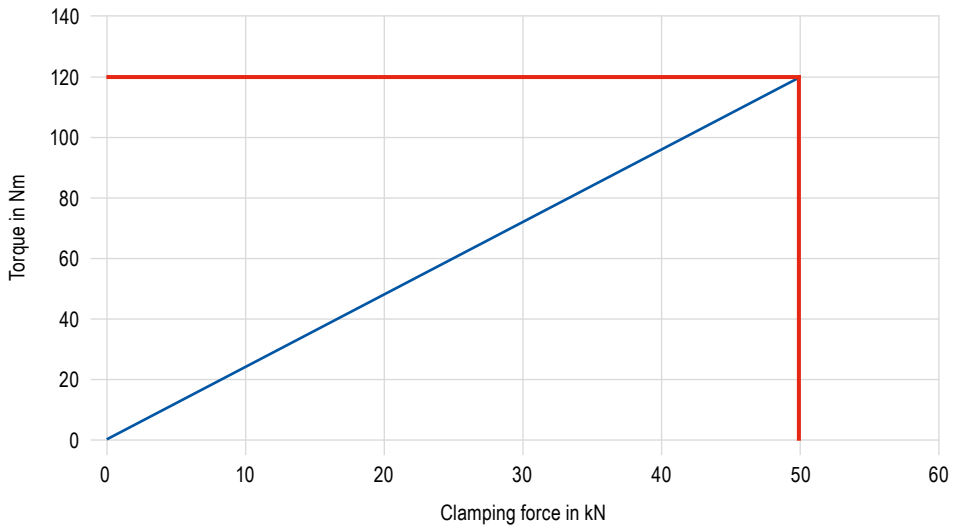
ESG 4 – 80 mm tightening torque / clamping force



ESG 4 – 125 mm tightening torque/clamping force



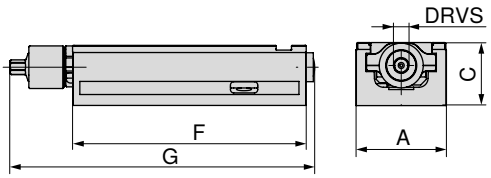
ESG 4 – 160 mm tightening torque / clamping force



SoloClamp – ESG 4

- ▲ Single vice without system jaws
- ▲ Fast 160° handle clamping with torque key
- ▲ Rapid installation and removal of the spindle assembly
- ▲ ±0.01 mm repeatability (±0.015 mm when A = 160 mm)

ESG 4 | **MNG**



80 901 ...

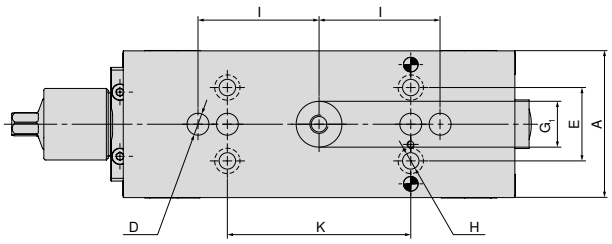
A mm	C -0.02 mm	F mm	G mm	DRVS mm	MXC kN	WT kg	clamping range mm	
80	55	214	284	12	25	5,0	0-192	**080**
125	60	362	433	14	40	15,0	0-308	**125**
160	70	480	559	14	50	28,5	0-434	**160**

Vice guide

Underside Dimensions	52	Structural dimension tables for the different jaws	53+54
System accessories	55–58	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

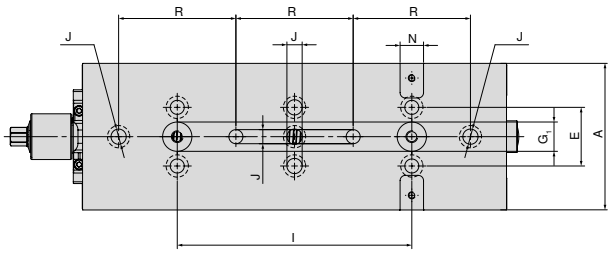
ESG 4 underside dimensions

Base width 80 mm and length 214 mm



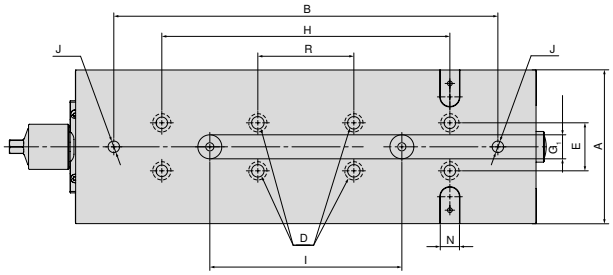
A	D	E	G_1	H	I	K
mm	mm	mm	mm	mm	mm	mm
80	12	40	25	9	66	100

Base width 125 mm and length 362 mm



A	E	G_1	I	J	N_{H7}	R
mm	mm	mm	mm	mm	mm	mm
125	50	25	200	13	20	100

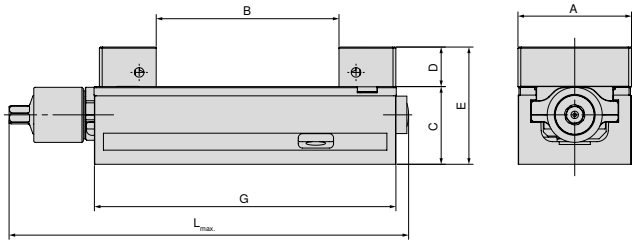
Base width 160 mm and length 480 mm



A	B	D	E	G_1	H	I	J	N_{H7}	R
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
160	400	13	50	25	300	200	12	20	100

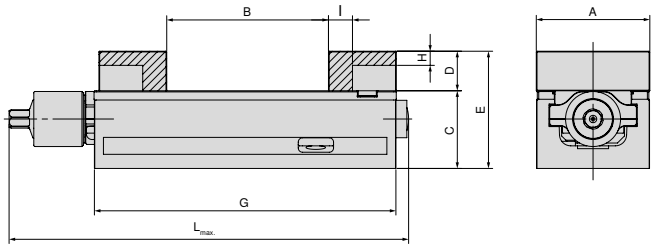
ESG 4 structural dimension table for the different jaws

With block jaws



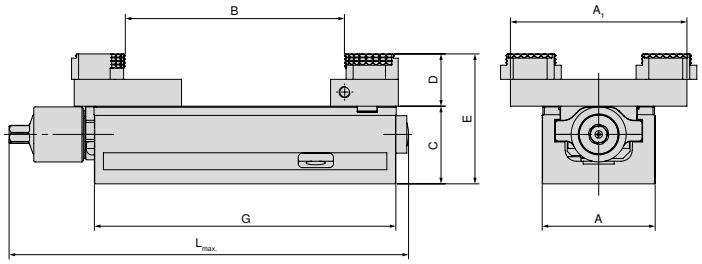
A mm	B mm	C mm	D mm	E mm	G mm	$L_{max.}$ mm	Article no. System jaws
80	0 - 130	55	28	83	214	308	**80 901 31200** + **80 901 31300**
125	0 - 231	60	40	100	362	432	**80 901 31400** + **80 901 31500**
160	0 - 312	70	50	120	480	559	**80 901 31600** + **80 901 31700**

With soft alu jaws



A mm	B mm	C mm	D mm	E mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
80	0 - 115	55	28	83	214	10	17	284	**80 901 307** + **80 878 850**
125	0 - 219	60	40	100	362	23	27	432	**80 901 304** + **80 878 550**
160	0 - 309	70	50	120	480	23	30	559	**80 901 301** + **80 878 305**

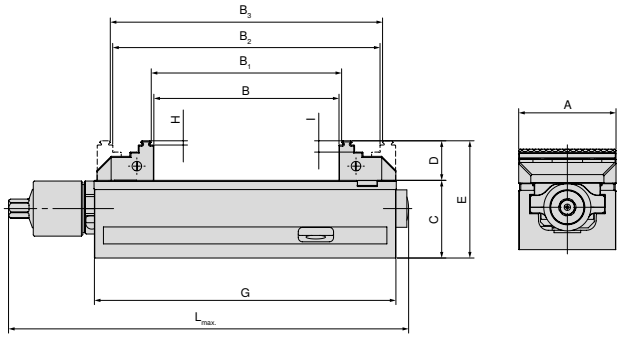
With pendulum and adapter plate



A mm	A_1 mm	B mm	C mm	D mm	E mm	G mm	$L_{max.}$ mm	Article no. System jaws
80	125	5 - 155	55	19	92	214	284	**80 878 870** + **80 901 501**
125	180	4 - 306	60	22	100	362	432	**80 878 570** + **80 901 502**
160	256	11 - 463	70	22	110	480	559	**80 878 670** + **80 901 503**

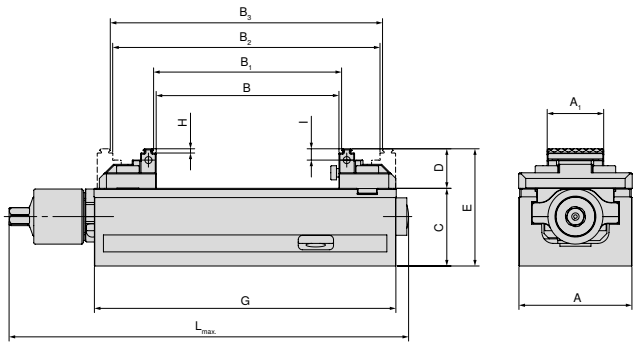
ESG 4 structural dimension table for the different jaws

With indexable jaws, grip 3 mm



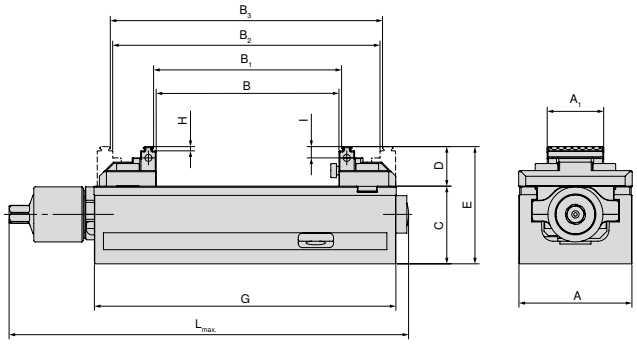
A mm	B mm	B_1 mm	B_2 mm	B_3 mm	C mm	D mm	E mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
80	0 - 130	4 - 134	59 - 188	63 - 192	55	28	83	214	3	8	284	**80 901 306** + **80 878 810**
125	0 - 231	8 - 238	71 - 301	78 - 308	60	40	100	362	3	18	433	**80 901 302** + **80 901 303**
160	0 - 310	8 - 317	117 - 427	125 - 434	70	50	120	480	3	10	559	**80 901 300** + **80 878 610**

With indexable jaws, grip 3 mm, width 40 mm



A mm	A_1 mm	B mm	B_1 mm	B_2 mm	B_3 mm	C mm	D mm	E mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
80	40	0 - 130	4 - 134	59 - 188	63 - 192	55	28	83	214	3	8	284	**80 901 308** + **80 878 81900**

With indexable jaws, grip 3 mm, height 65 mm

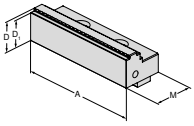


A mm	A_1 mm	B mm	B_1 mm	B_2 mm	B_3 mm	C mm	D mm	E mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
125	65	0 - 240	8 - 247	77 - 317	84 - 324	60	33	93	362	3	9	432	**80 901 305** + **80 878 51900**

System jaws overview

Indexable jaw, grip 3 mm, fixed

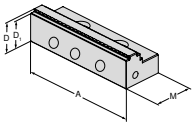
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			40			**80 901 306**				●	●						
125	125		40	37			66			**80 901 302**				●	●				●		
160	160		50	47			81			**80 901 300**				●	●						

Indexable jaw, grip 3 mm, movable

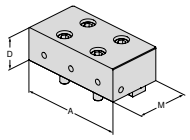
▲ Price per piece

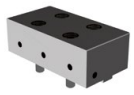


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			40			**80 878 810**				●	●		●		●		
125	125		40	37			66			**80 901 303**				●	●				●		
160	160		50	47			81			**80 878 610**				●	●		●				

Block jaw, fixed

▲ Price per piece

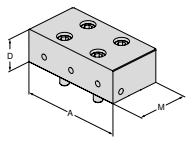


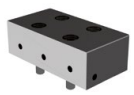


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				40			**80 901 31200**				●	●						
125	125		40				66			**80 901 31400**				●							
160	160		50				81			**80 901 31600**				●	●						

Block jaw, movable

▲ Price per piece



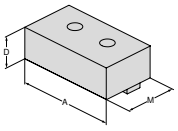
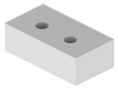


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				40			**80 901 31300**				●	●		●		●		
125	125		40				66			**80 901 31500**				●					●		
160	160		50				81			**80 901 31700**				●	●		●				

System jaws overview

Alu jaw, fixed

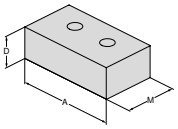
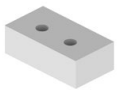
▲ for producing shaped jaws
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				48			**80 901 307**				●	●						
125	125		40				68			**80 901 304**				●							
160	160		50				85			**80 901 301**				●	●						

Alu jaw, movable

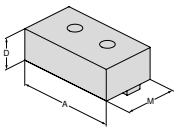
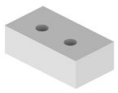
▲ for producing shaped jaws
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				48			**80 878 850**				●	●		●		●		
125	125		40				68			**80 878 550**				●					●		
160	160		50				85			**80 878 305**				●	●		●				

Soft jaw, steel, fixed

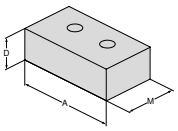
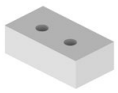
▲ Material: 16MnCr5
▲ for producing shaped jaws
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				48			**80 901 31800**				●	●						
125	125		40				68			**80 901 31900**				●	●						

Soft jaw, steel, movable

▲ Material: 16MnCr5
▲ for producing shaped jaws
▲ Price per piece

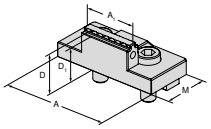



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				48			**80 878 32000**				●	●		●				
125	125		40				68			**80 878 32100**				●	●		●				

System jaws overview

Reversible grip jaw, width 40 mm, fixed

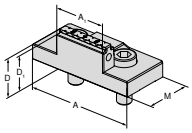
▲ Price per piece
▲ Double-sided grip step



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80	40	28	25			40			**80 901 308**				●							

Indexable grip jaw 3 mm, width 40 mm, movable

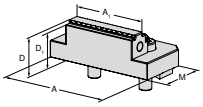
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80	40	28	25			40			**80 878 81900**				●			●				

5-axis reversible grip jaw, width 65 mm, fixed

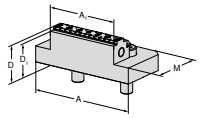
▲ price per piece
▲ double sided grip step



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	95	65	33	30			57			**80 901 305**				●							

5-axis indexable jaw, grip 3 mm, width 65 mm, movable

▲ double sided grip step
▲ price per piece

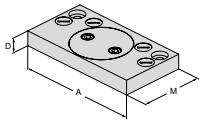


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	95	65	33	30			57			**80 878 51900**							●				

System jaws overview

Pendulum jaw, movable

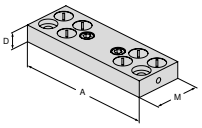
▲ to accommodate 6-way reversible jaws
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	125		19				76			**80 878 870**				●			●		●		
125	180		22				95			**80 878 570**				●			●		●		
160	256		22				170			**80 878 670**				●			●				

Adapter jaw

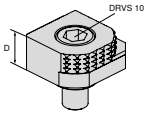
▲ to accommodate 6-way reversible jaws
▲ Price per piece

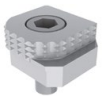


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	125		19				48			**80 901 501**				●							
125	180		22				62			**80 901 502**				●							
160	256		22				125			**80 901 503**				●							

6 function indexable jaw

▲ 1 = Smooth, carbide coated
▲ 2 = Grip with 3 mm step
▲ 3 = Grip with 8 mm step
▲ 4 = Grip with 18 mm step
▲ 5 = Rough grip with 8 mm step
▲ 6 = Round grip
▲ M_{max} = 60 Nm
▲ Including fixation screws

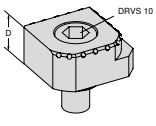


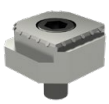


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							**80 892 246**	●	●	●	●			●		●	●	

6x indexable jaw, carbide grip

▲ 1 = Smooth
▲ 2 = Carbide grip
▲ 3 = Carbide grip with 3 mm step
▲ 4 = Carbide grip with 8 mm step
▲ 5 = Round carbide grip with 8 mm step
▲ 6 = Round carbide grip
▲ Incl. fixing screws





For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							**80 890 35300**	●	●	●	●			●		●	●	

The optimised ESG 5 – Maximum precision and process security

The new ESG 5 retains all the cherished characteristics of its predecessor and raises the bar significantly with regard to user-friendliness and durability. Optimised handling and improved durability were top of the list in the update for the single vice.

Your benefits:

- ▲ Specially designed for second side machining through high angular accuracy
- ▲ Compact design with ideal accessibility
- ▲ Jaw change Quick and easy with two screws
- ▲ The same clamping ranges, significantly improved interference contour, comprehensive modular jaw range
- ▲ Sustainable model with nickel-plated base body ensures a long service life

Clamping/aligning:

Mounting with zero point clamping system
ESG 5 – 80 mm L-130 mm + L-190 mm
ESG 5 – 125 mm L-160 mm + L-235 mm

1 mounting bolt + MNG-indexing bolt

Mounting with zero point clamping system
ESG 5 – 125 mm + L-300 mm
ESG 5 – 160 mm + L-280 mm + L-480 mm

2 mounting bolts

Dia. 12^{JS} precision holes are present in all variants for positioning the ESG 5 with precision. All variants can be mounted with screws from above through the base body.

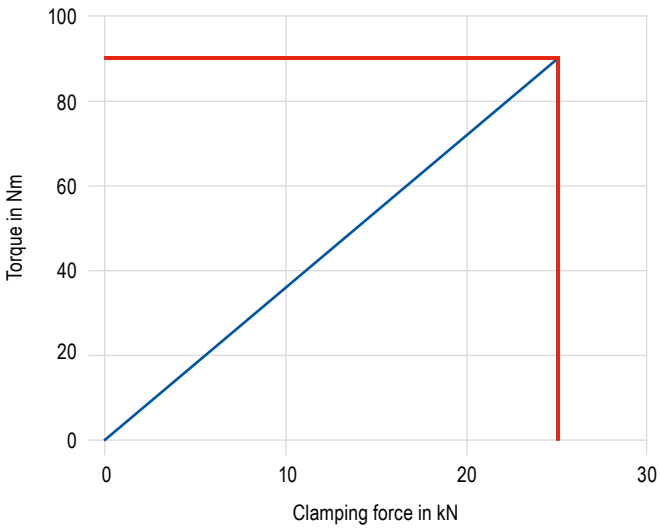
Clamping/aligning:

ESG 5 – 125 mm L-235 mm + L-300 mm
ESG 5 – 160 mm L-280 mm + L-480 mm

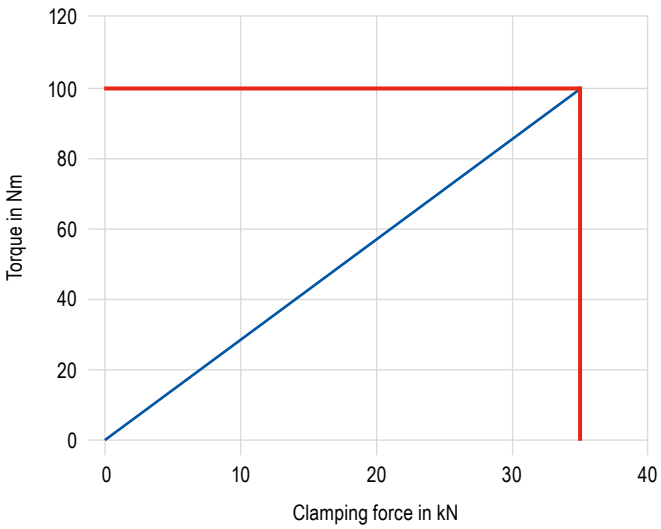
These 4 variants can also be clamped with clamping claws as an alternative.

Clamping force:

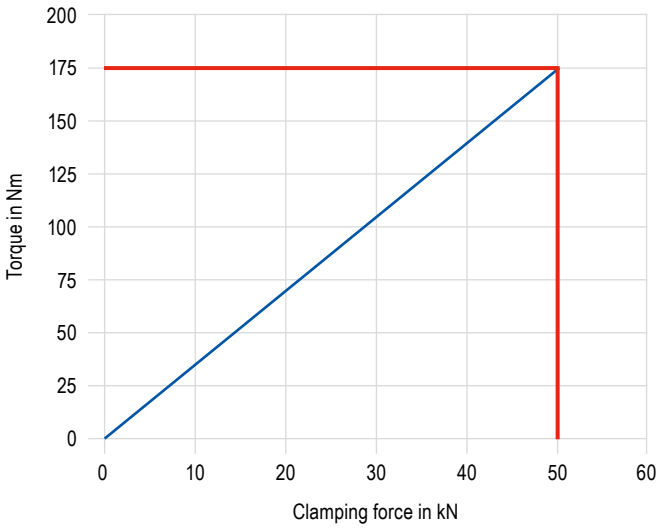
ESG 5 – 80 mm tightening torque / clamping force



ESG 5 – 125 mm tightening torque / clamping force



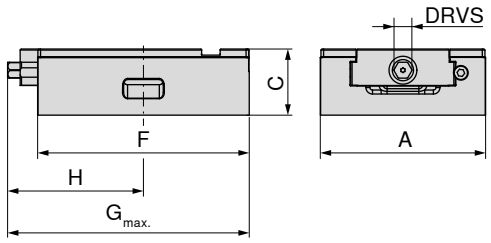
ESG 5 – 160 mm tightening torque / clamping force



SoloClamp – ESG 5

- ▲ Single vice without system jaws
- ▲ Specially designed for second side machining through high angular accuracy
- ▲ ±0.01 mm repeatability between the clamping processes
- ▲ Suitable for PNG and MNG

ESG 5 | **MNG**



A mm	C ±0,01 mm	F mm	G max. mm	H mm	DRVS mm	MXC kN	WT kg	80 857 ...
80	50	130	155,0	82	12	25	2,9	**08500**
80	50	190	203,0	102	12	25	4,4	**08600**
125	50	160	169,0	103	12	35	6,0	**15000**
125	50	235	235,0	132	12	35	8,4	**15100**
125	50	300	300,0	170	12	35	10,5	**15200**
160	70	280	309,0	169	14	50	25,0	**26100**
160	70	480	512,5	267	14	50	30,0	**26200**

Suitable for zero point clamping system								
Article no.	Type	Width in mm	Height in mm	MNG	MNG mini	PNG	LANG Quick Point 96 x 96	LANG Quick Point 52 x 52
80 857 08500	ESG 5	80	130	✓	✓	✗	✗	✓
80 857 08600		80	190	✓	✗	✓	✗	✓
80 857 15000		125	160	✓	✗	✓	✓	✓
80 857 15100		125	235	✓	✗	✓	✓	✗
80 857 15200		125	300	✓	✗	✓	✓	✗
80 857 26100		160	280	✓	✗	✓	✓	✗
80 857 26200		160	480	✓	✗	✓	✗	✗

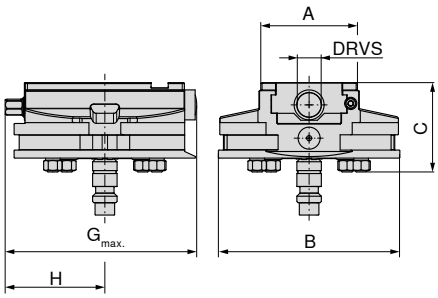
Vice guide

Underside Dimensions	63+64	Structural dimension tables for the different jaws	65
System accessories	66	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

SoloClamp – ESG 5

- ▲ Sealed single vice for Erowa ITS 148
- ▲ Without system jaws
- ▲ Specially designed for second side machining through high angular accuracy
- ▲ ±0.01 mm repeatability between the clamping processes

ESG 5



80 857 ...

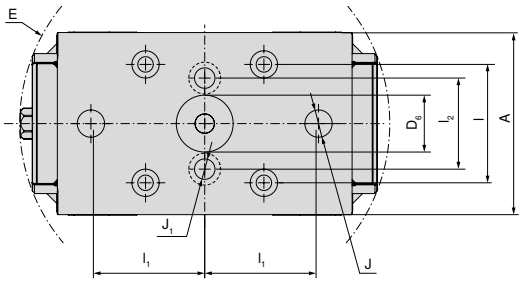
A	B	C	$G_{max.}$	H	DRVS	MXC	WT	
mm	mm	mm	mm	mm	mm	kN	kg	
80	148	73	157	81	12	25	5,6	**08900**

Vice guide

Underside Dimensions	63+64	Structural dimension tables for the different jaws	65
System accessories	66	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

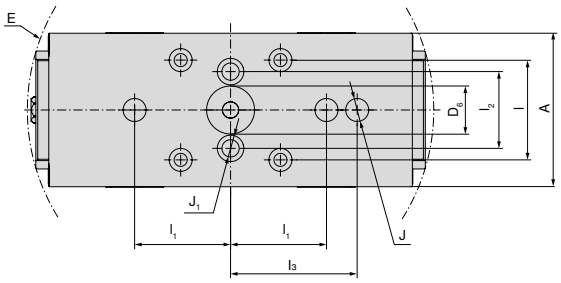
ESG 5 underside dimensions

Base width 80 mm and length 130 mm



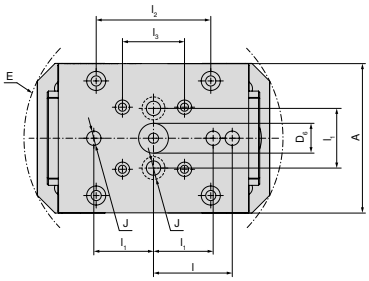
A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm	J_1 mm
80	25	163	52	50	40	12	9

Base width 80 mm and length 190 mm



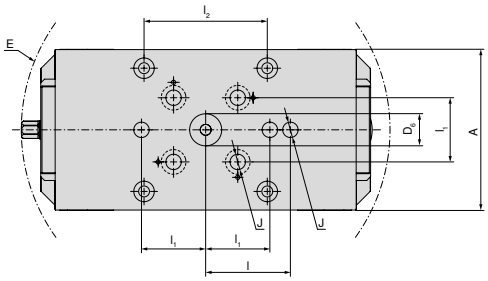
A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	$l_{3\ \pm0,015}$ mm	J_{H7} mm	J_1 mm
80	25	213	52	50	40	66	12	9

Base width 125 mm and length 160 mm



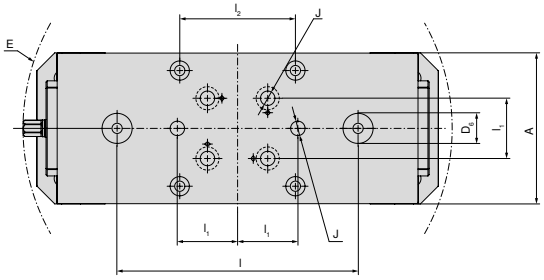
A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	$l_{3\ \pm0,015}$ mm	J_{H7} mm
125	25	218	66	50	96	52	12

Base width 125 mm and length 235 mm



A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm
125	25	288	66	50	96	12

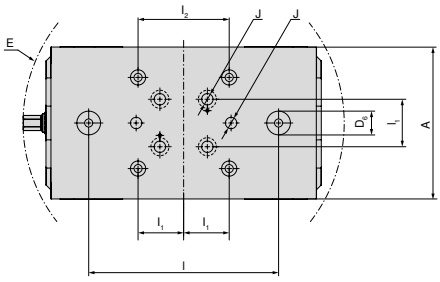
Base width 125 mm and length 300 mm



A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm
125	25	357	200	50	96	12

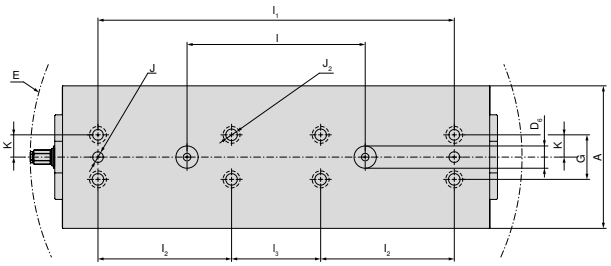
ESG 5 underside dimensions

Base width 160 mm and length 280 mm



A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm
160	25	339	200	50	96	12

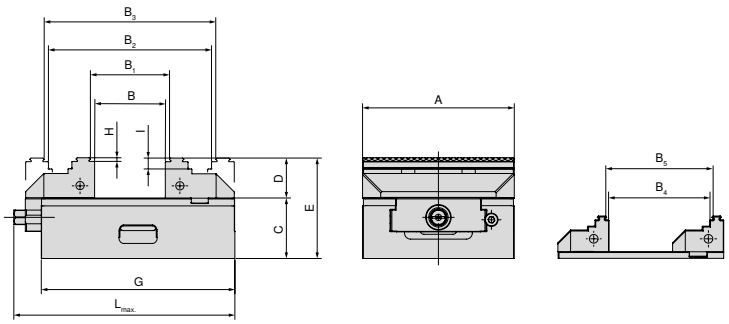
Base width 160 mm and length 480 mm



A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	$l_{3\ \pm0,015}$ mm	J_{H7} mm	$J_{2\ F7}$ mm	$K_{\pm0,02}$ mm	G mm
160	25	553	200	400	150	100	12	12	25	50

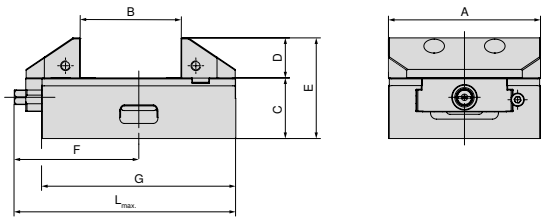
ESG 5 structural dimension table for the different jaws

With indexable jaw grip 3 mm, fixed and movable



A mm	B mm	B_1 mm	B_2 mm	B_3 mm	B_4 mm	B_5 mm	C mm	D mm	E mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
80	0-49	4-53	59-107	63-111	30-78	34-82	50	28	78	130	3	8	155	**80 901 306** + **80 878 810**
80	0-109	4-113	59-167	63-171	29-134	35-136	50	28	78	190	3	8	206	**80 901 306** + **80 878 810**
125	0-57	8-64	77-134	84-141	40-95	47-102	50	33	83	160	3	9	183	**80 857 30000** + **80 878 510**
125	0-127	8-134	77-204	84-211	40-165	47-172	50	33	83	235	3	9	250	**80 857 30000** + **80 878 510**
125	0-197	8-204	77-274	84-281	40-235	47-242	50	33	83	300	3	9	320	**80 857 30000** + **80 878 510**
160	0-121	8-128	118-238	125-245	–	–	70	50	120	280	3	10	328	**80 901 300** + **80 878 610**
160	0-324	8-331	118-441	125-448	–	–	70	50	120	480	3	10	506	**80 901 300** + **80 878 610**

With 5-axis jaws

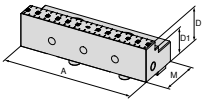


A mm	B mm	C mm	D mm	E mm	F mm	G mm	$L_{max.}$ mm	Article no. System jaws
125	25-82	50	33	83	103	160	183	**80 857 30200** + **80 857 30100**
125	25-152	50	33	83	132	235	250	**80 857 30200** + **80 857 30100**
125	25-222	50	33	83	170	300	320	**80 857 30200** + **80 857 30100**

System jaws overview

Indexable jaw, smooth, fixed

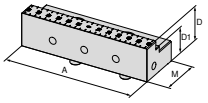
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	20			40			**80 857 30400**					●						
125	125		33	25			57			**80 857 30300**					●						

Indexable jaw, smooth, movable

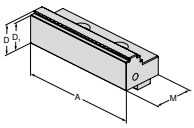
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	20			40			**80 878 34700**					●		●				
125	125		33	25			57			**80 878 34600**					●		●				

Indexable jaw, grip 3 mm, fixed

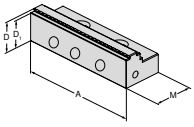
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			40			**80 901 306**				●	●						
125	125		33	30			57			**80 857 30000**					●						
160	160		50	47			81			**80 901 300**				●	●						

Indexable jaw, grip 3 mm, movable

▲ Price per piece

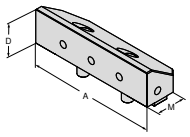
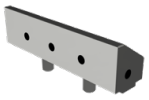


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			40			**80 878 810**				●	●		●		●		
125	125		33	30			57			**80 878 510**					●		●				
160	160		50	47			81			**80 878 610**				●	●		●				

System jaws overview

5-axis indexable jaw, fixed

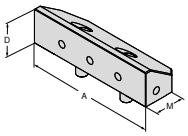
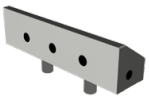
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		33				44,5			**80 857 30100**					●						

5-axis indexable jaw, movable

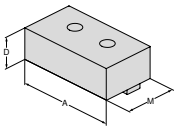
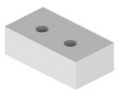
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		33				44,5			**80 857 30200**					●						

Soft jaw, steel, fixed

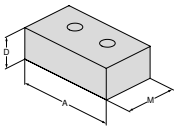
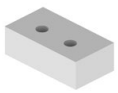
▲ Material: 16MnCr5
▲ for producing shaped jaws
▲ Price per piece

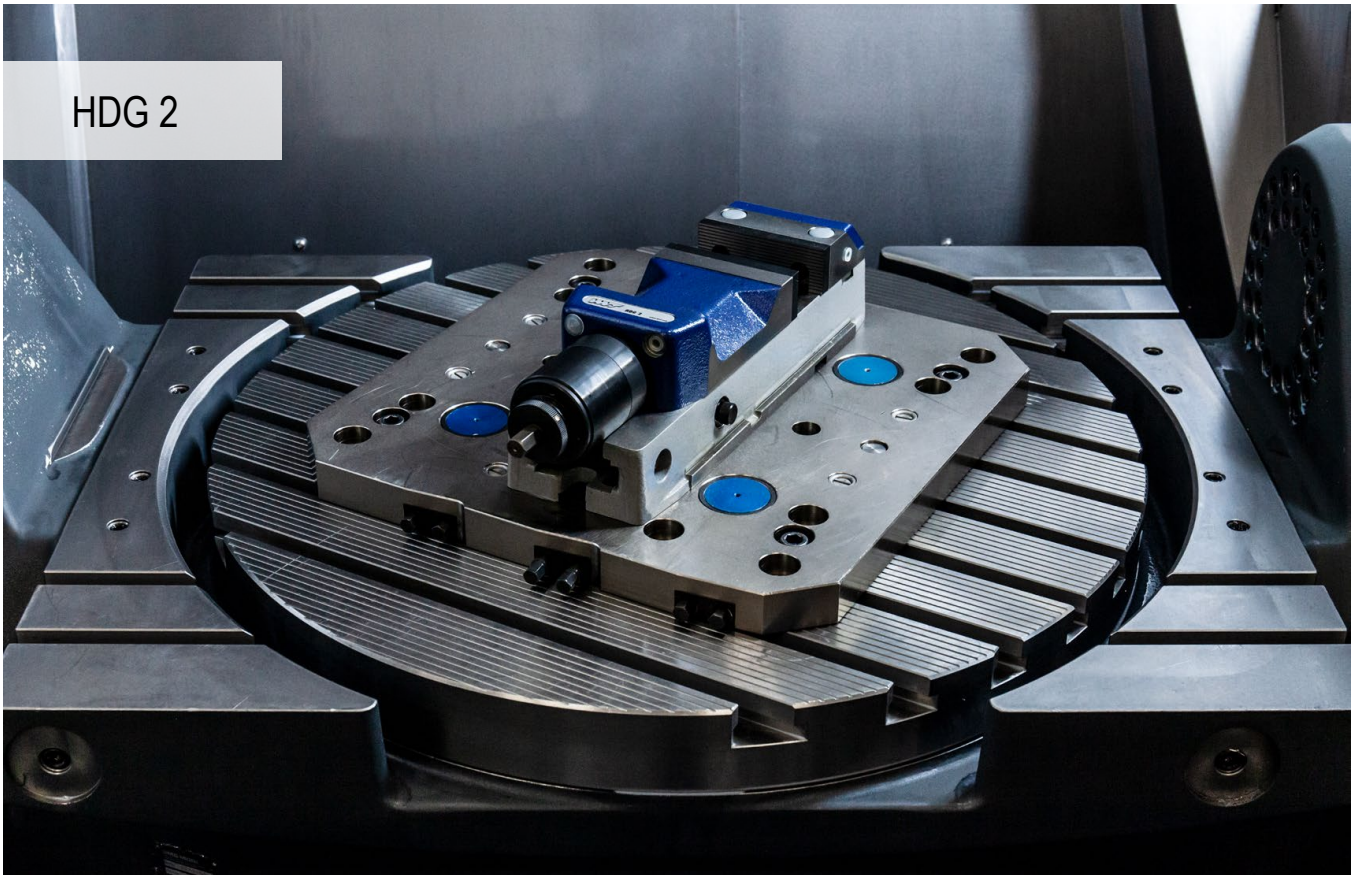
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				48			**80 901 31800**				●	●						
125	125		40				68			**80 901 31900**				●	●						

Soft jaw, steel, movable

▲ Material: 16MnCr5
▲ for producing shaped jaws
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				48			**80 878 32000**				●	●		●				
125	125		40				68			**80 878 32100**				●	●		●				



Tried-and-tested high pressure clamping system

Mechanical machine vice with continuous force adjustment from 10% to 100% of the clamping force with just one crank turn and always the same final crank position. Quick clamping range adjustment via locking pins.

Your benefits:

- ▲ Save time and effort – just one crank turn
- ▲ Clamping time of less than one second
- ▲ Easy handling
- ▲ Can be continuously adjusted without tools
- ▲ High machining precision

Clamping/aligning:

Alignment through precision slot nuts on the slot table with 20^{H7} longitudinal/transverse slot in the base body

Clamp with screws through the base body or laterally with clamping claws

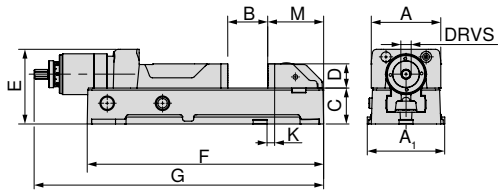
SoloClamp – HDG 2

- ▲ high pressure vice
- ▲ stepless power adjustment
- ▲ mechanical power transmission
- ▲ clamping force with only a single turn of the handle
- ▲ flexible Jaws, pre-machined to accommodate jaws for clamping range extension

Scope of supply:

High pressure vice incl. 4 clamping jaws, hand crank, 2 top jaws profiled and hardened

HDG 2



80 892 ...

A mm	A_1 mm	B mm	$C_{+0/-0,02}$ mm	D mm	E mm	F mm	$G_{max.}$ mm	$K_{\pm 0,015}$ mm	M mm	DRVS mm	MXC kN	WT kg	
100	112	0 - 159	52	35	108	342	521	11	81	12	4 - 30	20	**100**
125	140	0 - 201	62	40	118	400	584	28	85	12	4 - 40	27	**125**
160	176	0 - 300	78	50	149	544	784	40	112	12	5 - 60	55	**160**

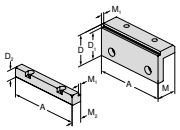
Vice guide

Underside Dimensions	71	System accessories	69–71
General accessories	164–183		

System jaws overview

Jaws for clamping range extension

▲ Price per set (1 fixed and 1 movable jaw)



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		56	50	22		37	5	19	**80 892 225**						●					
	125		56	50	22		37	5	19	**80 892 226**						●					
	160		71	65	23		47	5	23,5	**80 892 227**						●					

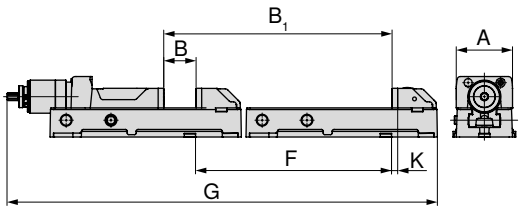
Illustration with extended clamping range

A	B	D	Vice Article Number	Jaw Article Number
100	118 - 278	56	**80 892 100**	**80 892 225**
125	137 - 338	56	**80 892 125**	**80 892 226**
160	169 - 470	71	**80 892 160**	**80 892 227**

SoloClamp – HDG 2

▲ Base body extension

HDG 2



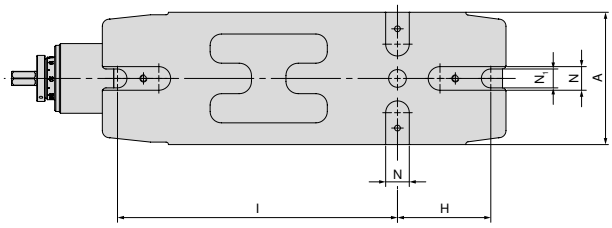
A mm	B mm	B_1 mm	F mm	G mm	K mm	**80 892 ...**
100	0-159	350-509	450	871,3	11	**51000**
125	0-201	410-611	410	994,1	28	**51100**
160	0-300	550-850	550	1334,15	40	**51200**

Shown with base body extension

A	B	D	Vice Article Number	Extension article number
100	350 - 509	35	**80 892 100**	**80 892 51000**
125	410 - 611	40	**80 892 125**	**80 892 51100**
160	550 - 850	50	**80 892 160**	**80 892 51200**

HDG 2 underside dimensions

Base width 100 mm, 125 mm, 160 mm



A mm	H mm	I mm	N_{H7} mm	N_1 mm
100	80	240	20	15
125	100	280	20	18
160	130	380	20	22

System accessories overview

Angular drive

HDG 2

for width mm	80 892 ...
100/125	**314**
160	**315**

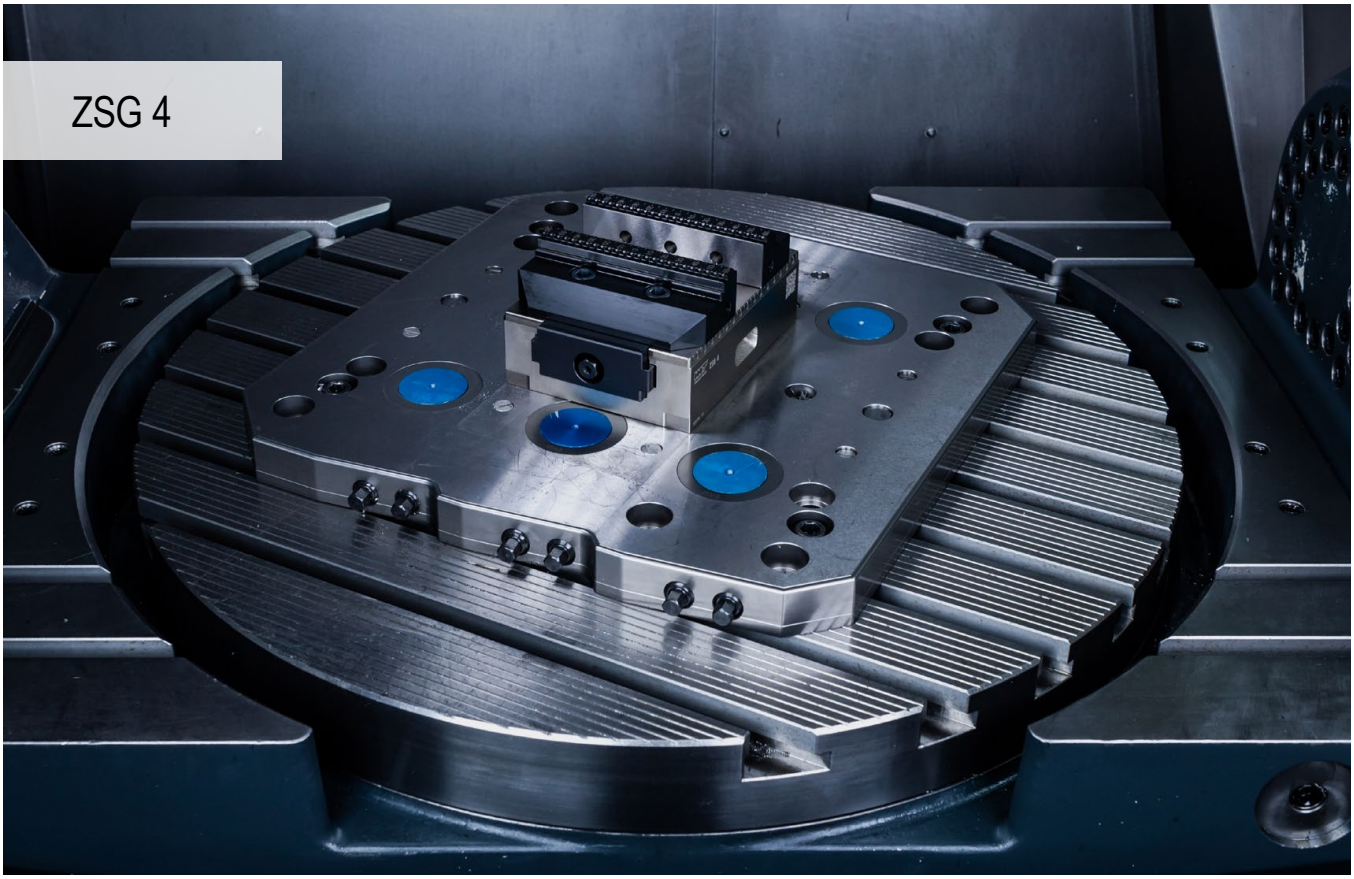
Hand crank

▲ for fast adjustment

HDG 2

for width mm	DRVS mm	80 892 ...
100/125	12	**124**
160	12	**164**

17



The optimised ZSG 4 – Maximum precision and process security

The new ZSG 4 retains all the cherished characteristics of its predecessor and raises the bar significantly with regard to user-friendliness and durability. Optimised handling and improved durability were top of the list in the update for the popular centric vice.

Your benefits:

- ▲ Specially designed for second side machining through high angular accuracy
- ▲ Compact design with ideal accessibility
- ▲ Jaw change Quick and easy with two screws
- ▲ The same clamping ranges, significantly improved interference contour, comprehensive modular jaw range
- ▲ Sustainable model with nickel-plated base body ensures a long service life

Clamping/aligning:

Mounting with zero point clamping system
ZSG 4 – 80 mm L-130 mm + L-190 mm
ZSG 4 – 125 mm L-160 mm + L-235 mm

1 mounting bolt + MNG-indexing bolt

Mounting with zero point clamping system
ZSG 4 – 125 mm + L-300 mm
ZSG 4 – 160 mm + L-280 mm + L-480 mm

2 mounting bolts

Dia. 12^{JS} precision holes are present in all variants for positioning the ZSG 4 with precision. All variants can be mounted with screws from above through the base body.

Clamping/aligning:

ZSG 4 – 125 mm L-235 mm + L-300 mm
ZSG 4 – 160 mm L-280 mm + L-480 mm

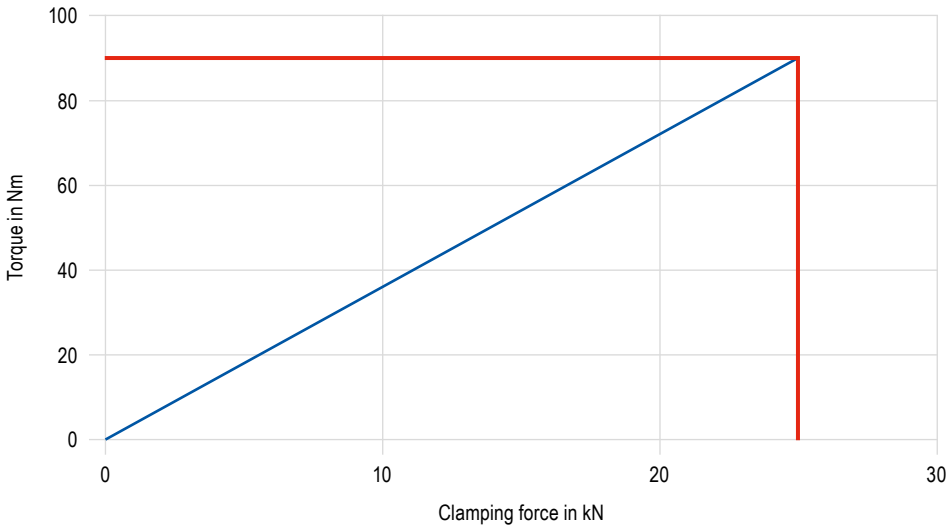
These 4 variants can also be clamped with clamping claws as an alternative.

ZSG 4 – 80 mm L-130 mm + L-190 mm
ZSG 4 – 125 mm L-160 mm + L-235 mm + L-300 mm
ZSG 4 – 160 mm L-280 mm

All 5 variants are also available with mounting holes for the LANG zero point clamping system.

Clamping force:

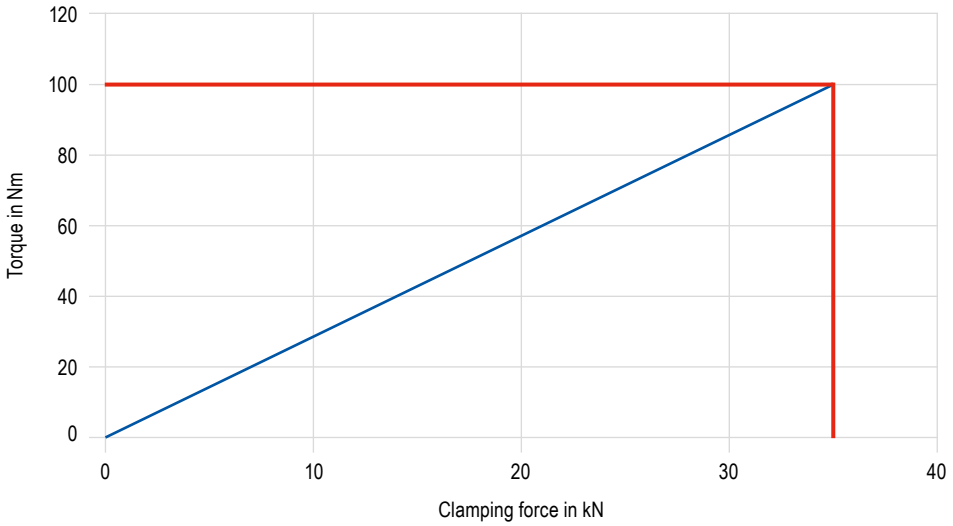
ZSG 4 – 80 mm tightening torque/clamping force



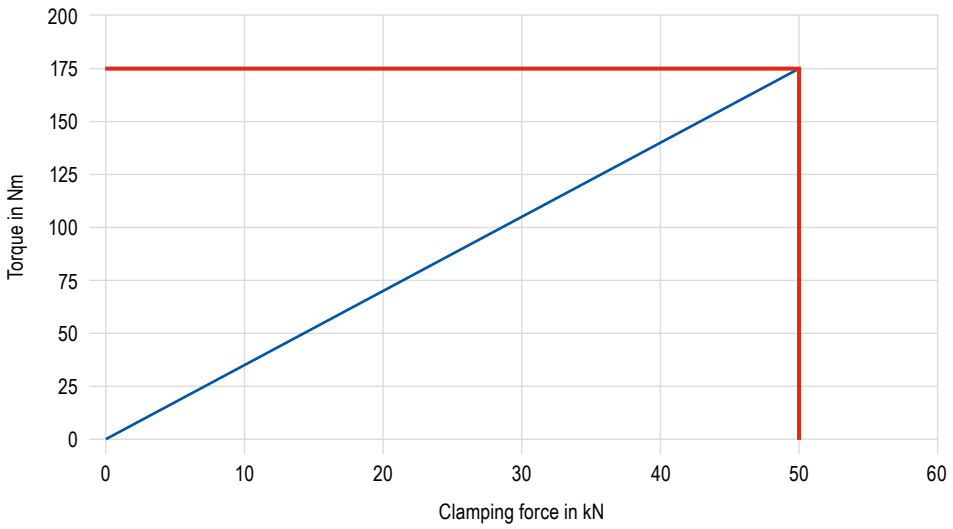
17

Clamping force:

ZSG 4 – 125 mm tightening torque / clamping force



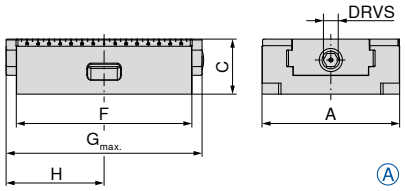
ZSG 4 – 160 mm tightening torque / clamping force



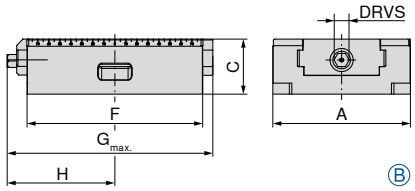
CentriClamp – ZSG 4

- ▲ Sealed centric vice
- ▲ Without system jaws
- ▲ Ball bearing mounted spindle
- ▲ ±0.01 mm repeatability between the clamping processes
- ▲ Suitable for PNG and MNG

ZSG 4 | **MNG**



Internal actuating spindle



External actuating spindle

A mm	C ±0,01 mm	F mm	$G_{max.}$ mm	H mm	DRVS mm	MXC kN	WT kg	Designation	80 878 ...
80	50	130	157	81	12	25	3,1	A	**08500**
80	50	190	206	104	12	25	4,5	B	**08600**
125	50	160	200	111,5	12	35	6,3	A	**15000**
125	50	235	272	143,5	12	35	9,5	B	**15100**
125	50	300	340	181	12	35	12,5	B	**15200**
160	70	280	315	172	14	50	25,0	A	**26100**
160	70	480	524	276	14	50	35,0	B	**26200**

Suitable for zero point clamping system							LANG Quick Point	LANG Quick Point
Article no.	Type	Width in mm	Length in mm	MNG	MNG mini	PNG	96 x 96	52 x 52
80 878 08500	ZSG 4	80	130	✓	✓	✗	✗	✓
80 878 08600		80	190	✓	✗	✓	✗	✓
80 878 15000		125	160	✓	✗	✓	✓	✓
80 878 15100		125	235	✓	✗	✓	✓	✗
80 878 15200		125	300	✓	✗	✓	✓	✗
80 878 26100		160	280	✓	✗	✓	✓	✗
80 878 26200		160	480	✓	✗	✓	✗	✗

Vice guide

Underside Dimensions	78+79	Structural dimension tables for the different jaws	80–83
System accessories	85–90	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

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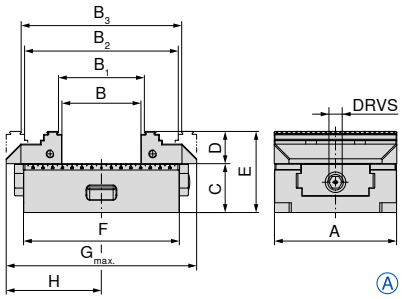
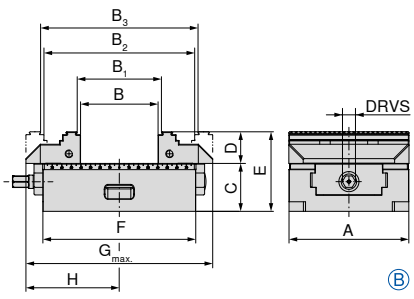
CentriClamp – ZSG 4

- ▲ Sealed centric vice
- ▲ With grip jaws, 3 mm
- ▲ Ball bearing mounted spindle
- ▲ ±0.01 mm repeatability between the clamping processes
- ▲ Suitable for PNG and MNG

ZSG 4 | **MNG**



Internal actuating spindle



External actuating spindle

80 878 ...

A mm	B mm	B_1 mm	B_2 mm	B_3 mm	C ±0,01 mm	D mm	E mm	F mm	$G_{max.}$ mm	H mm	DRVS mm	MXC kN	WT kg	Designation	
80	0 - 59	4 - 63	59 - 117	63 - 121	50	28	78	130	157	81	12	25	3,9	A	**08700**
80	0 - 123	4 - 127	59 - 181	63 - 185	50	28	78	190	206	104	12	25	5,5	B	**08800**
125	0 - 80	8 - 87	77 - 156	84 - 163	50	33	83	160	208	111,5	12	35	8,7	A	**15300**
125	0 - 155	8 - 162	77 - 218	84 - 225	50	33	83	235	272	143,5	12	35	12,0	B	**15400**
125	0 - 220	8 - 227	77 - 296	84 - 303	50	33	83	300	348	181	12	35	14,0	B	**15500**

It is not possible to fit top jaws with a height of 40 mm, if this height is required, please use the reversible jaws with D = 40 mm (Article No. **80 878 520**).

Suitable for zero point clamping system								
Article no.	Type	Width in mm	Length in mm	MNG	MNG mini	PNG	LANG Quick Point 96 x 96	LANG Quick Point 52 x 52
80 878 08700	ZSG 4	80	130	✓	✓	✗	✗	✓
80 878 08800		80	190	✓	✗	✓	✗	✓
80 878 15300		125	160	✓	✗	✓	✓	✓
80 878 15400		125	235	✓	✗	✓	✓	✗
80 878 15500		125	300	✓	✗	✓	✓	✗

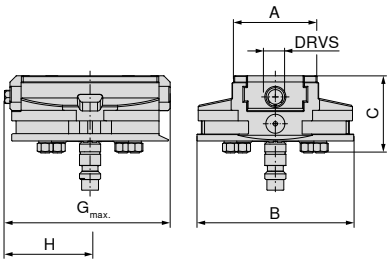
Vice guide

Underside Dimensions	78+79	Structural dimension tables for the different jaws	80–83
System accessories	85–90	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

CentriClamp – ZSG 4

- ▲ Sealed centric vice for Erowa ITS 148
- ▲ Without system jaws
- ▲ Ball bearing mounted spindle
- ▲ ±0.01 mm repeatability between the clamping processes

ZSG 4 | **MNG**



80 878 ...

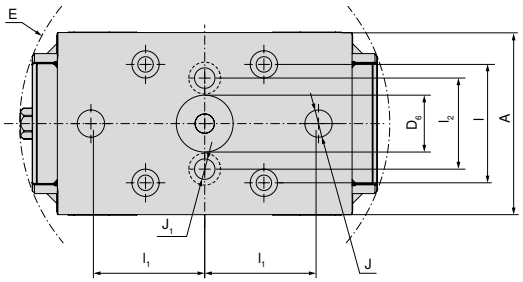
A	B	C	$G_{max.}$	H	DRVS	MXC	WT	
mm	mm	mm	mm	mm	mm	kN	kg	
80	148	73	157	81	12	25	5,6	**08900**

Vice guide

Underside Dimensions	78+79	Structural dimension tables for the different jaws	80–83
System accessories	85–90	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

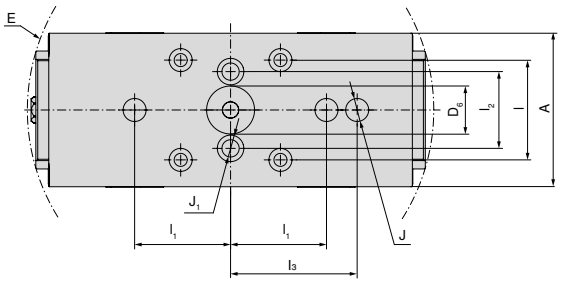
ZSG 4 underside dimensions

Base width 80 mm and length 130 mm



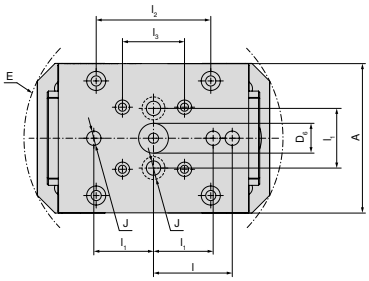
A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm	J_1 mm
80	25	163	52	50	40	12	9

Base width 80 mm and length 190 mm



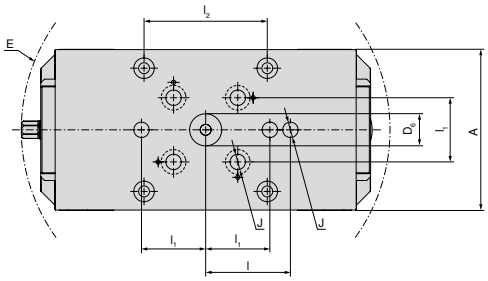
A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	$l_{3\ \pm0,015}$ mm	J_{H7} mm	J_1 mm
80	25	213	52	50	40	66	12	9

Base width 125 mm and length 160 mm



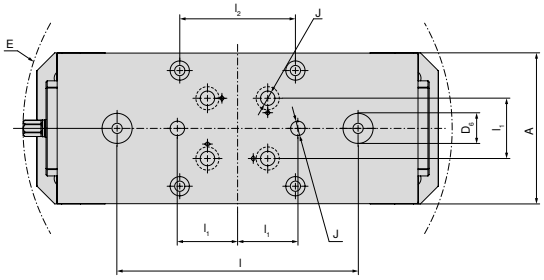
A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	$l_{3\ \pm0,015}$ mm	J_{H7} mm
125	25	218	66	50	96	52	12

Base width 125 mm and length 235 mm



A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm
125	25	288	66	50	96	12

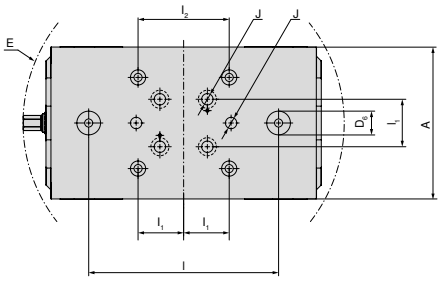
Base width 125 mm and length 300 mm



A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm
125	25	357	200	50	96	12

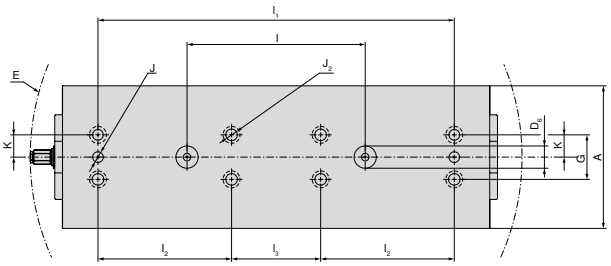
ZSG 4 underside dimensions

Base width 160 mm and length 280 mm



A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm
160	25	339	200	50	96	12

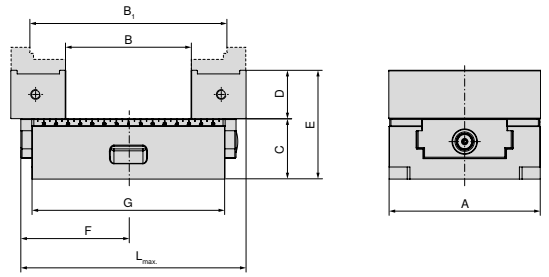
Base width 160 mm and length 480 mm



A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	$l_{3\ \pm0,015}$ mm	J_{H7} mm	$J_{2\ F7}$ mm	$K_{\pm0,02}$ mm	G mm
160	25	553	200	400	150	100	12	12	25	50

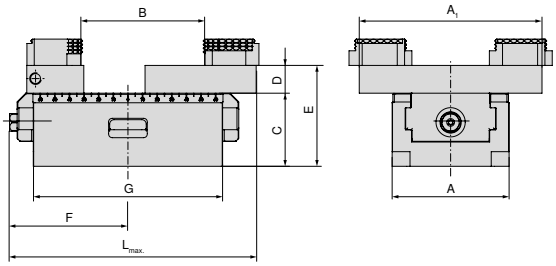
ZSG 4 structural dimension table for the different jaws

With combi jaws



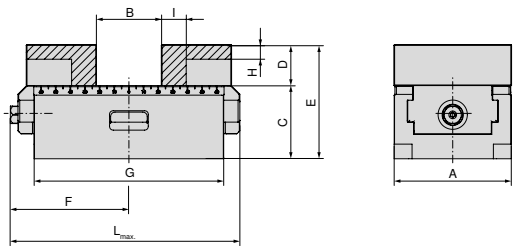
A mm	B mm	B1 mm	C mm	D mm	E mm	F mm	G mm	Lmax. mm	Article no. System jaws
125	23 - 103	82 - 161	50	40	90	111,5	160	208	2 x **80 878 530**
125	23 - 165	82 - 223	50	40	90	143,5	235	272	2 x **80 878 530**
125	23 - 241	82 - 300	50	40	90	181	300	348	2 x **80 878 530**

With pendulum and adapter plate



A mm	A1 mm	B mm	C mm	D mm	E mm	F mm	G mm	Lmax. mm	Article no. System jaws
80	125	3 - 84	50	28	78	81	130	157	**80 878 890** + **80 878 870**
80	125	3 - 145	50	28	78	104	190	206	**80 878 890** + **80 878 870**
125	180	7 - 126	50	22	90	111,5	160	212	**80 878 590** + **80 878 570**
125	180	7 - 207	50	22	90	143,5	235	272	**80 878 590** + **80 878 570**
125	180	7 - 250	50	22	90	181	300	352	**80 878 590** + **80 878 570**
160	256	16 - 292	70	22	110	170	280	315	**80 878 690** + **80 878 670**
160	256	16 - 406	70	22	110	276	480	524	**80 878 690** + **80 878 670**

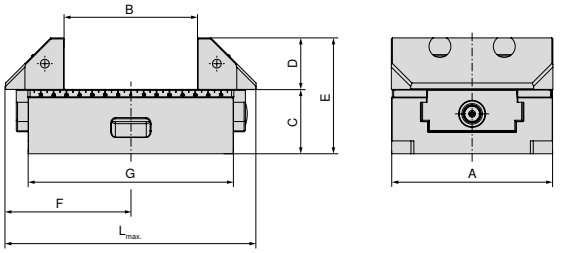
With aluminium jaws



A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	Lmax. mm	Article no. System jaws
80	0 - 44	50	28	78	81	130	10	17	157	2 x **80 878 850**
80	0 - 108	50	28	78	104	190	10	17	206	2 x **80 878 850**
125	0 - 58	50	40	90	111,5	160	17	27	208	2 x **80 878 550**
125	0 - 133	50	40	90	143,5	235	17	27	272	2 x **80 878 550**
125	0 - 198	50	40	90	181	300	17	27	348	2 x **80 878 550**
160	0 - 123	70	50	120	170	280	26	25	315	2 x **80 878 305**
160	10 - 336	70	50	120	276	480	26	25	524	2 x **80 878 305**

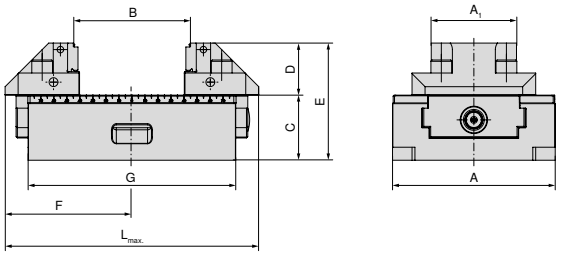
ZSG 4 structural dimension table for the different jaws

With 5-axis jaws



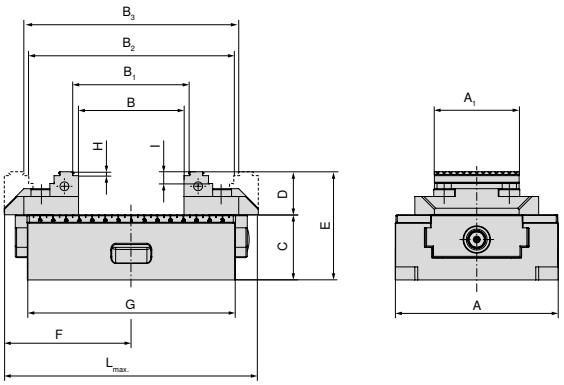
A mm	B mm	C mm	D mm	E mm	F mm	G mm	$L_{max.}$ mm	Article no. System jaws
125	22 - 102	50	40	90	115,5	160	208	2 x **80 878 625**
125	22 - 165	50	40	90	143,5	235	272	2 x **80 878 625**
125	22 - 242	50	40	90	181	300	348	2 x **80 878 625**
160	15 - 140	70	50	120	170	280	315	2 x **80 878 660**
160	28 - 354	70	50	120	276	480	524	2 x **80 878 660**

With 5 axis jaws, grip 3 mm, width 65 mm



A mm	A_1 mm	B mm	C mm	D mm	E mm	F mm	G mm	$L_{max.}$ mm	Article no. System jaws
125	65	8 - 87	50	40	90	115,5	160	208	2 x **80 878 665**
125	65	8 - 162	50	40	90	143,5	235	272	2 x **80 878 665**
125	65	8 - 227	50	40	90	181	300	348	2 x **80 878 665**

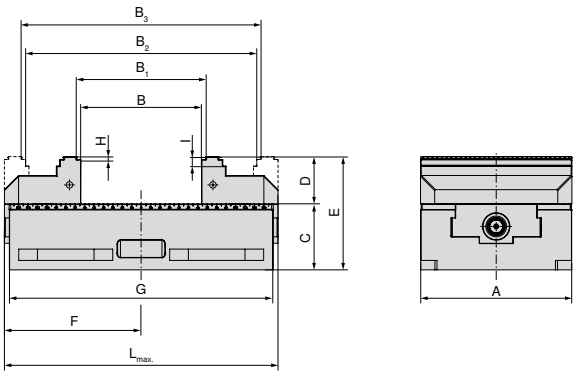
With indexable jaws, grip 3 mm, height 65 mm



A mm	A_1 mm	B mm	B_1 mm	B_2 mm	B_3 mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
125	65	0 - 80	8 - 87	77 - 156	84 - 163	50	33	83	111,5	160	3	9	208	2 x **80 878 51900**
125	65	0 - 142	8 - 149	77 - 218	84 - 225	50	33	83	143,5	235	3	9	272	2 x **80 878 51900**
125	65	0 - 220	8 - 227	77 - 296	84 - 303	50	33	83	181	300	3	9	348	2 x **80 878 51900**

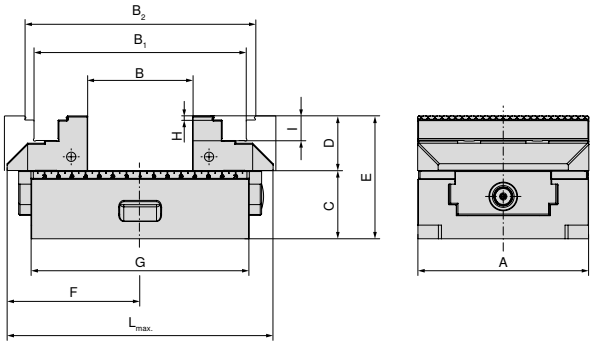
ZSG 4 structural dimension table for the different jaws

With indexable jaws, grip 3 mm



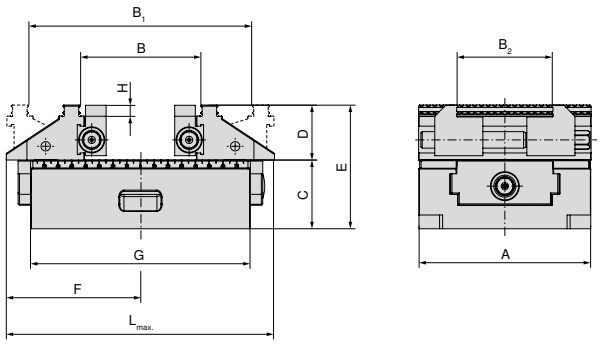
A mm	B mm	B_1 mm	B_2 mm	B_3 mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
160	0 - 127	8 - 134	118 - 244	125 - 251	70	50	120	170	280	3	10	315	2 x **80 878 610**
160	15 - 341	22 - 348	132 - 458	139 - 465	70	50	120	276	480	3	10	524	2 x **80 878 610**

With indexable jaws, grip, height 40 mm



A mm	B mm	B_1 mm	B_2 mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
125	0 - 75	75 - 154	88 - 166	50	40	90	111,5	160	3	9	208	2 x **80 878 520**
125	0 - 138	75 - 217	88 - 229	50	40	90	143,5	235	3	9	272	2 x **80 878 520**
125	0 - 215	75 - 294	88 - 306	50	40	90	181	300	3	9	348	2 x **80 878 520**

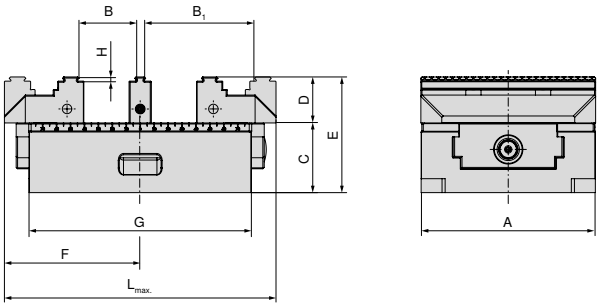
With 6 face jaw system for 125 mm jaw width



A mm	B mm	B_1 mm	B_2 mm	C mm	D mm	E mm	F mm	G mm	H mm	$L_{max.}$ mm	Article no. System jaws
125	39 - 86	83 - 161	37 - 101	50	40	90	111,5	160	8	209	**80 878 525**
125	39 - 149	83 - 224	37 - 101	50	40	90	143,5	235	8	272	**80 878 525**
125	39 - 226	83 - 301	37 - 101	50	40	90	181	300	8	349	**80 878 525**

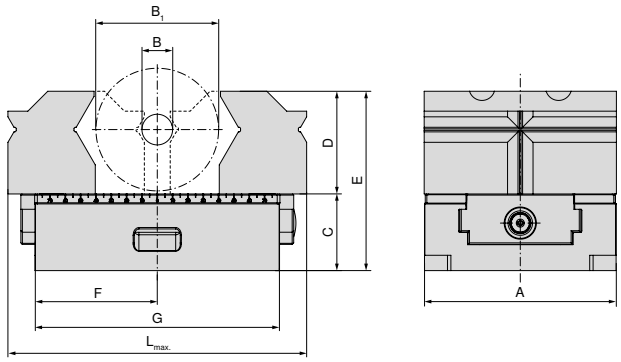
ZSG 4 structural dimension table for the different jaws

With middle jaw, grip 3 mm (height 28 mm / 33 mm) for jaw width 125 mm



A mm	B mm	B1 mm	C mm	D mm	E mm	F mm	G mm	H mm	Lmax. mm	Article no. System jaws
80	8 - 28	37 - 57	50	28	78	81	130	3	157	2 x **80 878 810** + **80 878 31200**
80	14 - 22	31 - 51	50	28	78	81	130	3	157	2 x **80 878 810** + **80 878 33400**
80	8 - 58	37 - 87	50	28	78	104	190	3	206	2 x **80 878 810** + **80 878 31200**
80	14 - 52	31 - 81	50	28	78	104	190	3	206	2 x **80 878 810** + **80 878 33400**
125	9 - 40	47 - 78	50	33	83	111,5	160	3	208	2 x **80 878 510** + **80 878 31300**
125	15 - 34	41 - 72	50	33	83	111,5	160	3	208	2 x **80 878 510** + **80 878 33500**
125	9 - 72	47 - 110	50	33	83	143,5	235	3	272	2 x **80 878 510** + **80 878 31300**
125	15 - 66	41 - 104	50	33	83	143,5	235	3	272	2 x **80 878 510** + **80 878 33500**
125	9 - 110	47 - 148	50	33	83	181	300	3	348	2 x **80 878 510** + **80 878 31300**
125	15 - 104	41 - 142	50	33	83	181	300	3	348	2 x **80 878 510** + **80 878 33500**

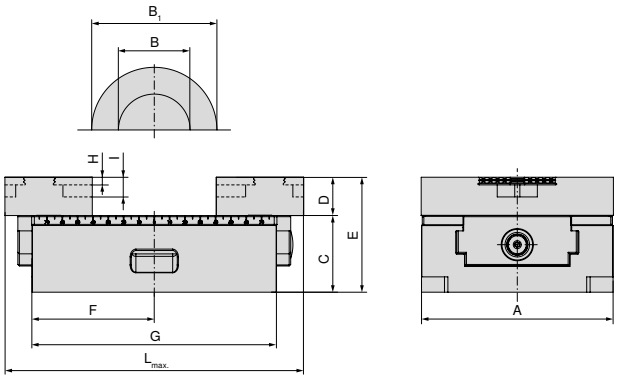
With prism jaw, movable – horizontal and vertical prism



A mm	B mm	B1 mm	C mm	D mm	E mm	F mm	G mm	Lmax. mm	Article no. System jaws
80	10 - 28	20 - 60	50	52	102	81	130	157	2 x **80 878 31800**
80	10 - 28	20 - 60	50	52	102	104	190	206	2 x **80 878 31800**
125	10 - 28	26 - 80	50	67	117	111,5	160	200	2 x **80 878 31900**
125	10 - 28	26 - 80	50	67	117	143,5	235	272	2 x **80 878 31900**
125	10 - 28	26 - 80	50	67	117	181	300	348	2 x **80 878 31900**

ZSG 4 structural dimension table for the different jaws

With prism jaw, movable – horizontal prism

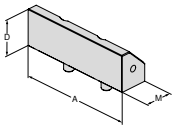


A mm	B mm	B1 mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	Lmax. mm	Article no. System jaws
80	8 - 55	15 - 76	50	25	75	81	130	5	13	157	2 x **80 878 34000**
80	8 - 55	15 - 76	50	25	75	104	190	5	13	206	2 x **80 878 34000**
125	14 - 102	25 - 112	50	25	75	111,5	160	5	13	200	2 x **80 878 34100**
125	14 - 124	25 - 165	50	25	75	143,5	235	5	13	272	2 x **80 878 34100**
125	14 - 124	25 - 165	50	25	75	181	300	5	13	348	2 x **80 878 34100**
160	22 - 158	32 - 170	70	30	100	145	280	5	13	290	2 x **80 878 34200**
160	22 - 158	32 - 170	70	30	100	273	480	5	13	521	2 x **80 878 34200**

System jaws overview

5-axis jaw, movable

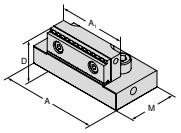
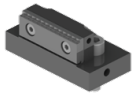
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		40				45,5			**80 878 625**							●				
160	160		50				73			**80 878 660**							●				

5-axis jaw, grip 3 mm, width 65 mm, movable

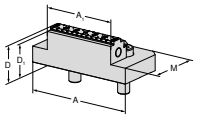
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	95	65,5	40				57			**80 878 665**							●				

5-axis indexable jaw, grip 3 mm, width 65 mm, movable

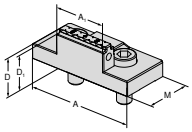
▲ double sided grip step
▲ price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	95	65	33	30			57			**80 878 51900**							●				

Indexable grip jaw 3 mm, width 40 mm, movable

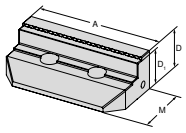
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80	40	28	25			40			**80 878 81900**				●			●				

Indexable jaw, grip 3 mm, height 40 mm, movable

▲ Price per piece

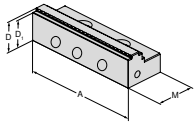


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		40	37			59			**80 878 520**							●				

System jaws overview

Indexable jaw, grip 3 mm, movable

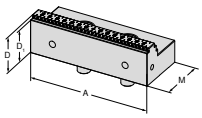
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			40			**80 878 810**				●	●		●		●		
125	125		33	30			57			**80 878 510**					●		●				
160	160		50	47			81			**80 878 610**				●	●		●				

Indexable jaw, grip 5 mm, movable

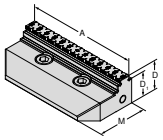
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	23			41			**80 878 81400**				●			●		●		
125	125		33	28			57			**80 878 51400**							●				
160	160		50	45			81			**80 878 34300**				●			●				

Indexable grip jaw, for aluminium and plastic

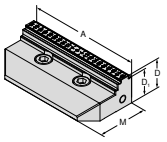
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	23			40			**80 878 81500**							●				
125	125		33	28			57			**80 878 51500**							●				

Indexable jaw with embossed profile, movable

▲ Price per piece
▲ suitable for LANG embossed profile

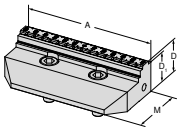


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			40			**80 878 81800**							●				
125	125		33	30			57			**80 878 51800**							●				

System jaws overview

Indexable jaw, carbide, grip 3 mm, movable

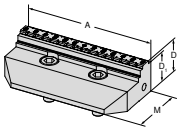
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			40			**80 878 81600**							●				
125	125		33	30			57			**80 878 51600**							●				
160	160		50	47			81			**80 878 31700**							●				

Indexable jaw, carbide, grip 5 mm, movable

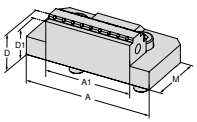
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	23			40			**80 878 81700**							●				
125	125		33	28			57			**80 878 51700**							●				

Indexable jaw, carbide grip 3 mm, width 40 mm, movable

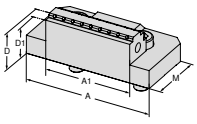
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80	40	28	25			40			**80 878 33200**							●				

Indexable jaw, carbide grip 3 mm, width 65 mm, movable

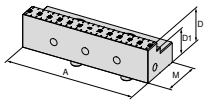
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125	65	33	30			57			**80 878 33300**							●				

Indexable jaw, smooth, movable

▲ Price per piece



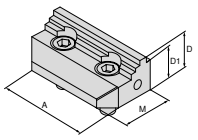
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	20			40			**80 878 34700**					●		●				
125	125		33	25			57			**80 878 34600**					●		●				

17

System jaws overview

Stepped jaw, smooth, movable

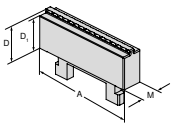
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	24			40			**80 878 34400**							●				
125	125		33	27			57			**80 878 34500**							●				

Centre jaw, grip 3 mm, narrow

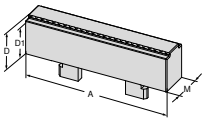
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			16			**80 878 31200**							●				
125	125		33	30			16			**80 878 31300**							●				

Centre jaw, grip 3 mm, wide

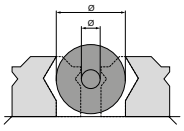
▲ Price per piece

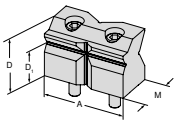


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			24			**80 878 33400**							●				
125	125		33	30			26			**80 878 33500**							●				

Prism jaw, movable

▲ With horizontal and vertical prism
▲ Price per piece



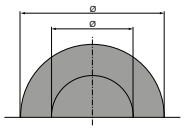
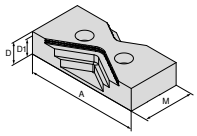


Ø For clamping diameter	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
10 - 60	80		52	32			38,5			**80 878 31800**							●				
10 - 80	125		67	42			57			**80 878 31900**							●				

System jaws overview

Prism jaw, movable

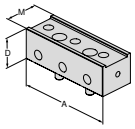
▲ With horizontal prism
▲ Price per piece

Ø For clamping diameter	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
15 - 75	80		25	20			40			**80 878 34000**							●				
25 - 110	125		25	20			57			**80 878 34100**							●				
30 - 170	160		30	25			81			**80 878 34200**							●				

Combi jaw, movable

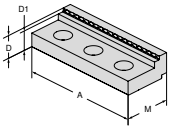
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		40				45,5			**80 878 530**							●				

Jaw, grip, VS

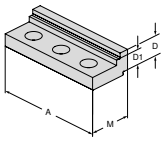
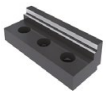
▲ Price per piece
▲ VS = Larger clamping range



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		22	17			45			**80 892 245**							●				

Jaw, smooth VS, carbide coated

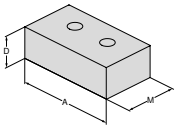
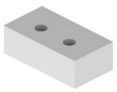
▲ Increased clamping range for finish machining and 2nd operation
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		19	14			45			**80 892 240**							●				

Alu jaw, movable

▲ for producing shaped jaws
▲ Price per piece

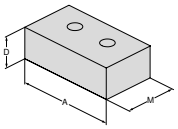



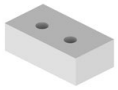
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				48			**80 878 850**				●	●		●		●		
125	125		40				68			**80 878 550**				●					●		
160	160		50				85			**80 878 305**				●	●		●				

System jaws overview

Soft jaw, steel, movable

▲ Material: 16MnCr5
▲ for producing shaped jaws
▲ Price per piece

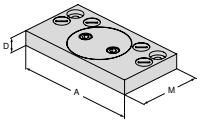




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				48			**80 878 32000**				●	●		●				
125	125		40				68			**80 878 32100**				●	●		●				

Pendulum jaw, movable

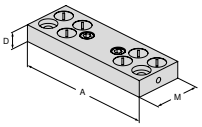
▲ to accommodate 6-way reversible jaws
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	125		19				76			**80 878 870**				●			●		●		
125	180		22				95			**80 878 570**				●			●		●		
160	256		22				170			**80 878 670**				●			●				

Adapter Jaw

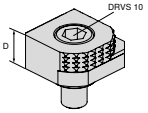
▲ to accommodate 6-way reversible jaws
▲ Price per piece

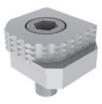


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	125		19				39			**80 878 890**							●				
125	180		22				62			**80 878 590**							●				
160	256		22				125			**80 878 690**							●				

6 function indexable jaw

▲ 1 = Smooth, carbide coated
▲ 2 = Grip with 3 mm step
▲ 3 = Grip with 8 mm step
▲ 4 = Grip with 18 mm step
▲ 5 = Rough grip with 8 mm step
▲ 6 = Round grip
▲ M_{max} = 60 Nm
▲ Including fixation screws



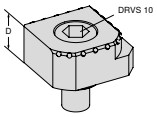


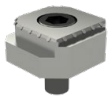
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							**80 892 246**	●	●	●	●			●		●	●	

System jaws overview

6x indexable jaw, carbide grip

- ▲ 1 = Smooth
- ▲ 2 = Carbide grip
- ▲ 3 = Carbide grip with 3 mm step
- ▲ 4 = Carbide grip with 8 mm step
- ▲ 5 = Round carbide grip with 8 mm step
- ▲ 6 = Round carbide grip
- ▲ Incl. fixing screws





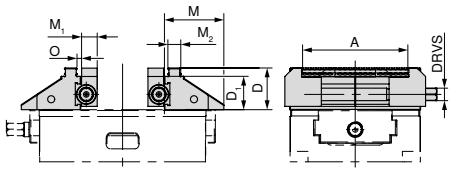
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							80 890 35300	●	●	●	●			●		●	●	

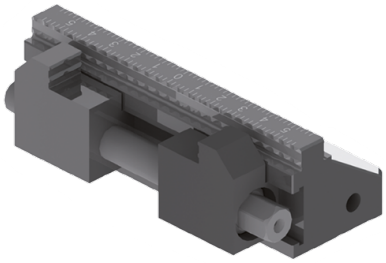
6 face jaw system for 125 mm jaw width

Scope of supply:

2 System jaws with 2 pairs of transverse jaws in T-slot guidance incl. fixing screws

ZSG 4





for width	A	D	D_1	M	M_1	M_2	O	DRVS	WT	80 878 ...
mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	
125	37 - 101	40	32	57	15	12,4	3,3	12	3,8	**525**

17

Centric vice for small parts

ZSG mini in mechanical version with high clamping force and quick change jaws.
Ideal for blank and finished part machining, multi-clamping and automation.

Your benefits:

- ▲ Fast jaw changeover without tools
- ▲ Compact and precise
- ▲ Optimum accessibility from all sides
- ▲ Exchangeable jaw widths (45 mm and 70 mm)
- ▲ High clamping force and large clamping range
- ▲ Clamping system for automation
- ▲ Stainless, hardened base body

Clamping/aligning:

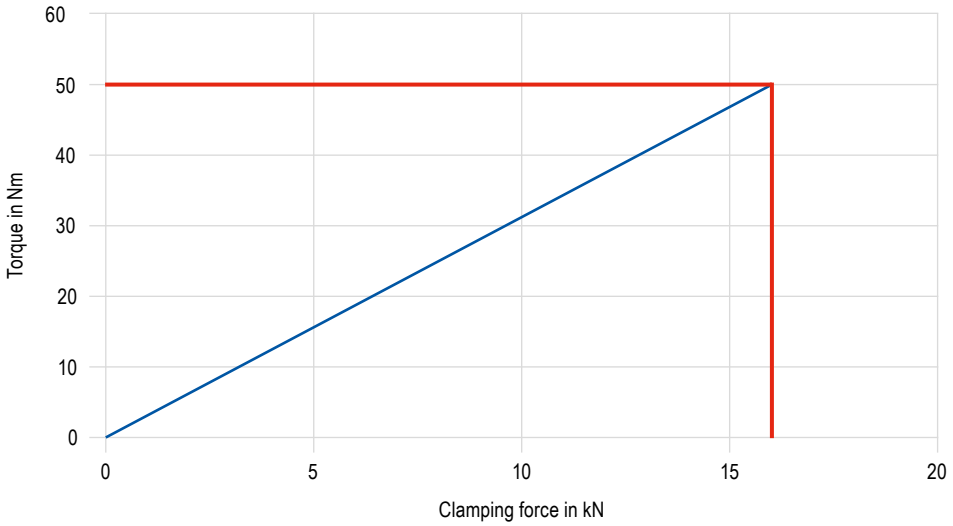
Clamping with two M6 screws
from above through the base body.

Clamping with two M6 screws from above through the base body. Alignment can be performed using Ø 12^{H7} precision holes.

Both versions come with mounting holes for the LANG zero point clamping system, Quick Point 52 x 52.

Clamping force:

ZSG mini tightening torque/clamping force



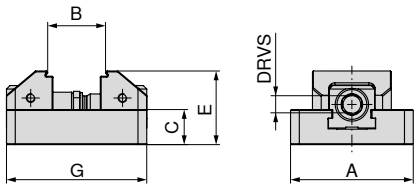
CentriClamp – ZSG mini

- ▲ Centric vice for small parts
- ▲ Without system jaws
- ▲ Fast jaw changeover without tools
- ▲ Compact and precise
- ▲ Optimum accessibility from all sides
- ▲ Exchangeable jaw widths (45 mm and 70 mm)
- ▲ Stainless, hardened base body

Scope of supply:

ZSG mini base body with spindle

ZSG mini | **MNG mini**



NEW

80 912 ...

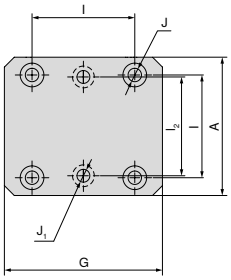
A mm	B mm	C mm	E mm	G mm	MXC kN	DRVS mm	WT kg	
70	7 - 57	20	42	80	16	11	0,9	**07000**
70	7 - 77	20	42	100	16	11	1,1	**07100**

Vice guide

Underside Dimensions	94	Structural dimension tables for the different jaws	95–97
System accessories	98–100	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

ZSG mini underside dimensions

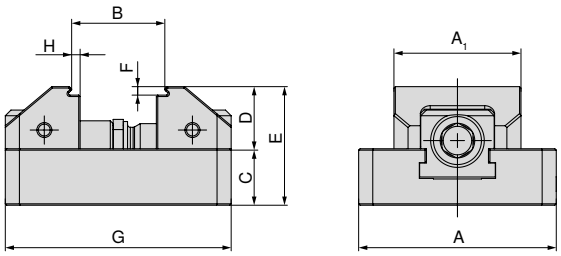
Base width 70 mm



A mm	J_1 mm	J_{H7} mm	$I_{2\ \pm0,01}$ mm	$I_{\pm0,01}$ mm	G mm
70	6,5	12	50	52	80
70	6,5	12	50	52	100

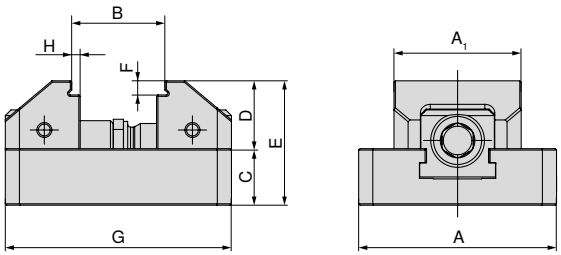
ZSG Mini – structural dimension table for the different jaws

With quick change jaw, grip 3 mm



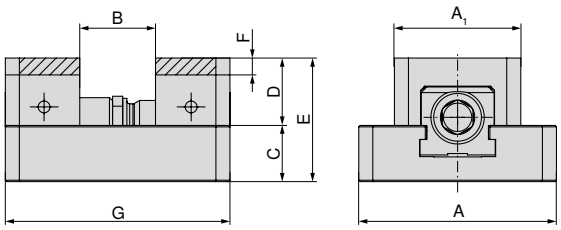
A mm	A_1 mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	Article no. System jaws
70	45	7 - 33	20	22	42	3	80	3	2 x **80 912 30100**
70	70	7 - 33	20	22	42	3	80	3	2 x **80 912 30200**
70	45	7 - 53	20	22	42	3	100	3	2 x **80 912 30100**
70	70	7 - 53	20	22	42	3	100	3	2 x **80 912 30200**

With quick change jaw, smooth step 5 mm



A mm	A_1 mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	Article no. System jaws
70	45	7 - 33	20	24	44	5	80	3	2 x **80 912 30300**
70	70	7 - 33	20	24	44	5	80	3	2 x **80 912 30400**
70	45	7 - 53	20	24	44	5	100	3	2 x **80 912 30300**
70	70	7 - 53	20	24	44	5	100	3	2 x **80 912 30400**

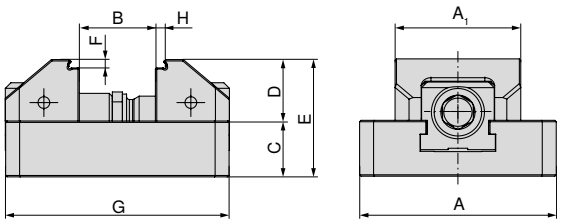
With quick change jaw, soft, steel



A mm	A_1 mm	B mm	C mm	D mm	E mm	F mm	G mm	Article no. System jaws
70	45	0 - 26	20	24	44	6	80	2 x **80 912 31000**
70	70	0 - 26	20	24	44	6	80	2 x **80 912 31100**
70	45	0 - 46	20	24	44	6	80	2 x **80 912 31000**
70	70	0 - 46	20	24	44	6	80	2 x **80 912 31100**

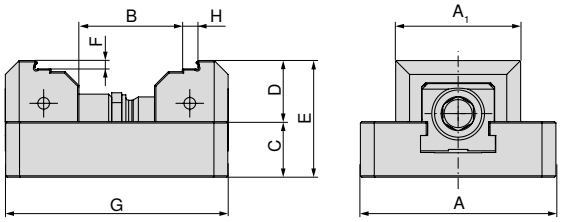
ZSG Mini – structural dimension table for the different jaws

With quick change jaw embossed profile



A mm	A_1 mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	Article no. System jaws
70	45	7 - 32	20	22	44	3	80	3	2 x **80 912 31200**
70	70	7 - 32	20	22	44	3	80	3	2 x **80 912 31300**
70	45	7 - 52	20	22	44	3	100	3	2 x **80 912 31200**
70	70	7 - 52	20	22	44	3	100	3	2 x **80 912 31300**

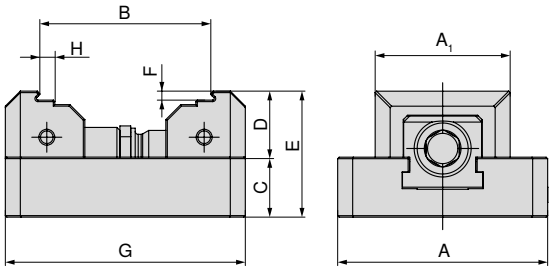
With quick change jaw embossed profile, VS



A mm	A_1 mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	Article no. System jaws
70	45	31 - 56	20	22	44	3	80	5	2 x **80 912 31400**
70	70	31 - 56	20	22	44	3	80	5	2 x **80 912 31500**
70	45	31 - 76	20	22	44	3	100	5	2 x **80 912 31400**
70	70	31 - 76	20	22	44	3	100	5	2 x **80 912 31500**

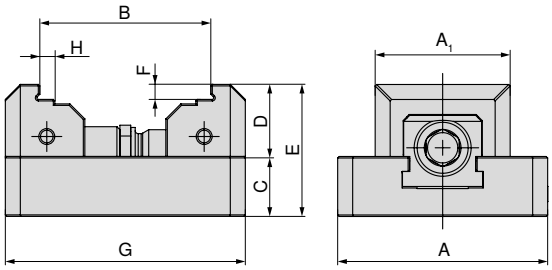
ZSG Mini – structural dimension table for the different jaws

With quick change jaw, VS, grip 3 mm



A mm	A_1 mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	Article no. System jaws
70	45	31 - 57	20	22	42	3	80	5	2 x **80 912 30500**
70	70	31 - 57	20	22	42	3	80	5	2 x **80 912 30600**
70	45	31 - 77	20	22	42	3	100	5	2 x **80 912 30500**
70	70	31 - 77	20	22	42	3	100	5	2 x **80 912 30600**

With quick change jaw, VS, smooth 5 mm

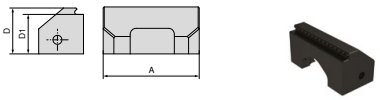


A mm	A_1 mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	Article no. System jaws
70	45	31 - 56	20	24	44	5	80	5	2 x **80 912 30700**
70	70	31 - 56	20	24	44	5	80	5	2 x **80 912 30800**
70	45	31 - 76	20	24	44	5	100	5	2 x **80 912 30700**
70	70	31 - 76	20	24	44	5	100	5	2 x **80 912 30800**

System jaws overview

Quick change jaw, grip 3 mm

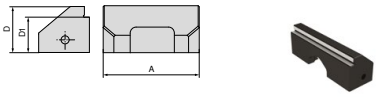
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
70	45		22	19						**80 912 30100**								●			
70	70		22	19						**80 912 30200**								●			

Quick change jaw, smooth step 5 mm

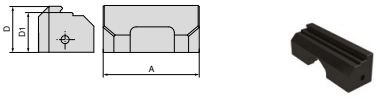
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
70	45		24	19						**80 912 30300**								●			
70	70		24	19						**80 912 30400**								●			

Quick change jaw, VS, grip 3 mm

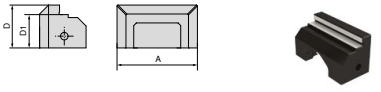
▲ Price per piece
▲ VS = Larger clamping range



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
70	45		22	19						**80 912 30500**								●			
70	70		22	19						**80 912 30600**								●			

Quick change jaw, VS, smooth 5 mm

▲ Price per piece
▲ VS = Larger clamping range

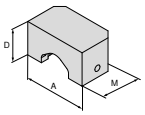


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
70	45		24	19						**80 912 30700**								●			
70	70		24	19						**80 912 30800**								●			

System jaws overview

Quick change jaw, soft, steel

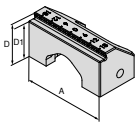
▲ Material: 15NiCr13
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
70	45		24				26,5			**80 912 31000**								●			
70	70		24				26,5			**80 912 31100**								●			

Quick change jaw embossed profile

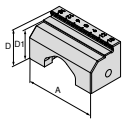
▲ Price per piece
▲ suitable for LANG embossed profile



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
70	45		22	19						**80 912 31200**								●			
70	70		22	19						**80 912 31300**								●			

Quick change jaw embossed profile, VS

▲ Price per piece
▲ Suitable for LANG embossed profile
▲ VS = Larger clamping range



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
70	45		22	19						**80 912 31400**								●			
70	70		22	19						**80 912 31500**								●			

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System accessories overview

Socket

▲ Suitable for 3/8" square drive

ESG 4 | ZSG 4 | ZSG mini | DSG 4 | MSG 2

Square	DRVS mm	80 875 ...
3/8"	11	11100

→ **Page 176+180**
Here you will find the suitable „magnetic workpiece stop“ and „torque key“ (article numbers **80 892 23800** and **80 884 402**).

Allen cap screw

▲ Price per piece

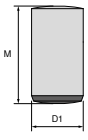
ZSG mini

G	80 912 ...
M6x25	50100

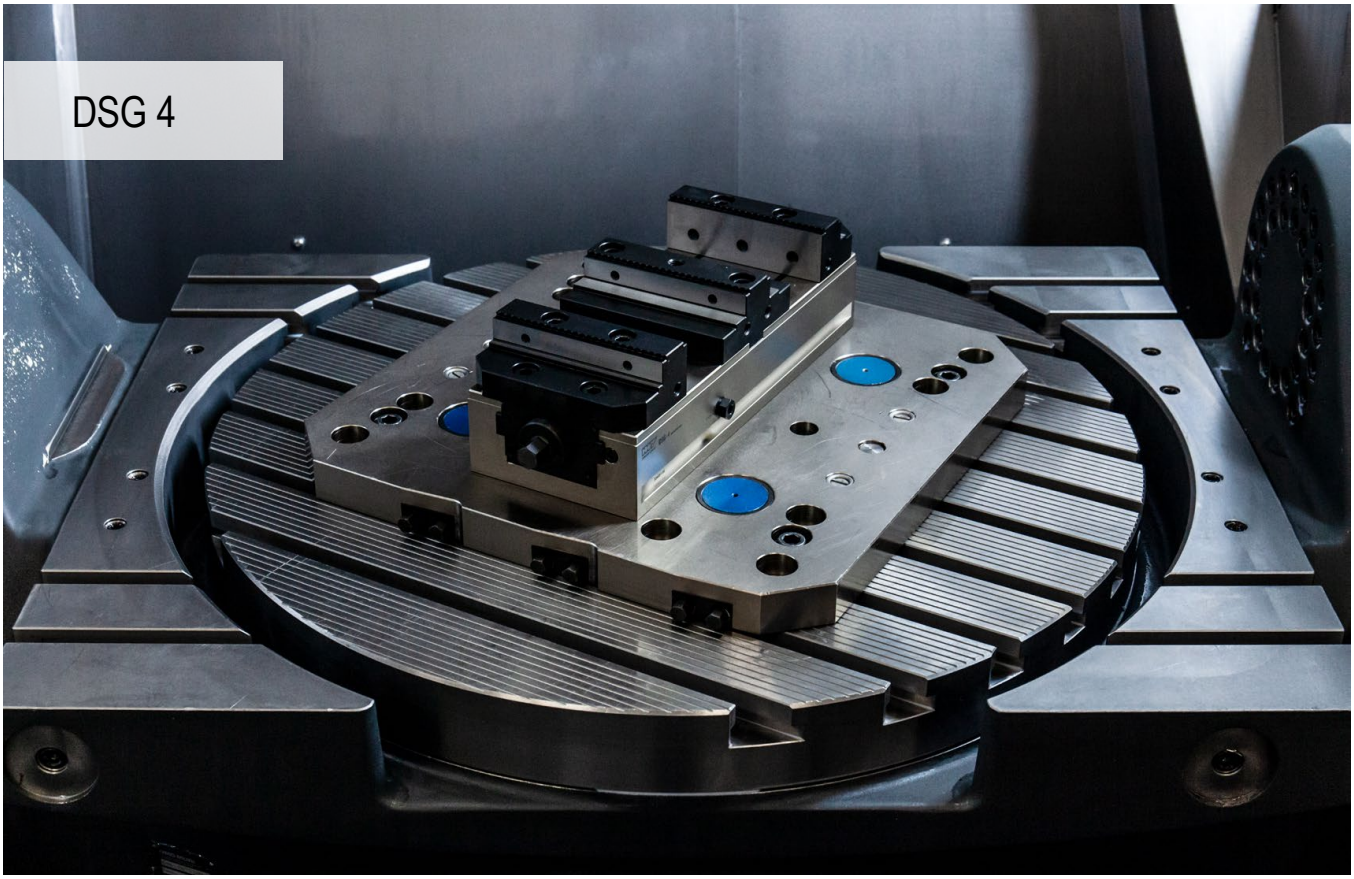
Cylindrical pin

▲ Price per piece

ZSG mini



$D_{1\ m6}$ mm	M mm	80 912 ...
12	18	50200



High accuracy and efficiency

The user-friendly DSG 4 clamping system guarantees consistently high precision and a wide application range.

Your benefits:

- ▲ Straightforward, stable third-hand function
- ▲ Quick and easy positioning on the MNG zero point clamping system
- ▲ High clamping force between 5 – 40 kN with low tightening torque
- ▲ Quick and easy jaw change with 2 screws
- ▲ Extensive modular jaw range

Clamping/aligning:

Mounting with MNG zero point clamping system (2-3 mounting bolts)

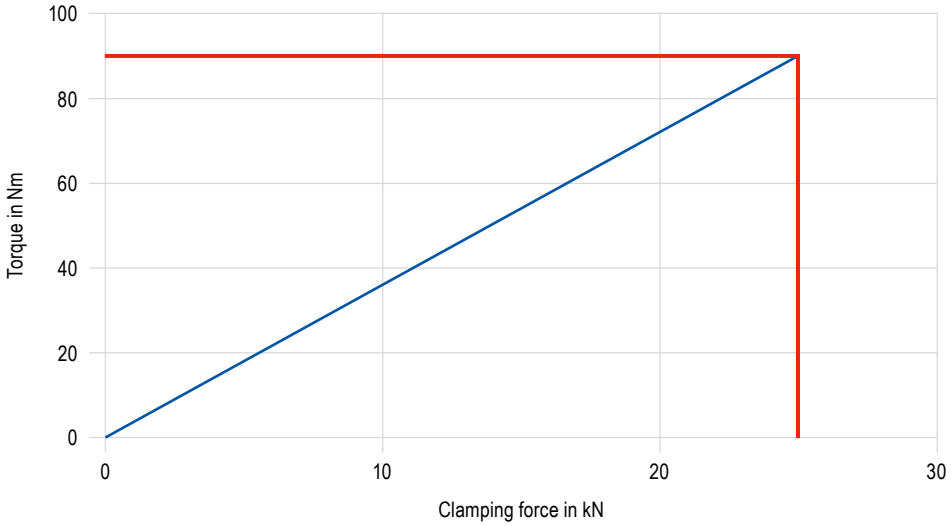
Mounting through the base body with four M8 screws

Mounting through the base body with two dowel screws **Article no. 80 895 019**

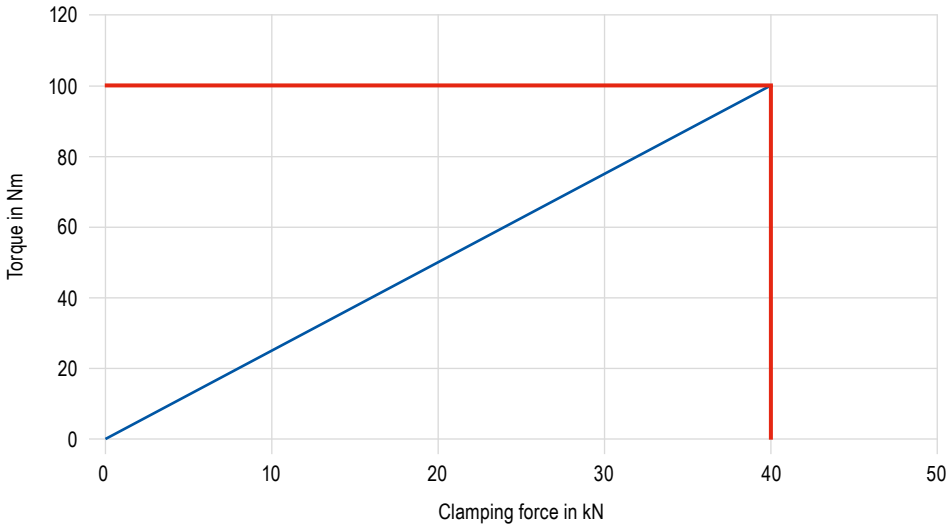
Mounting with 4-6 clamping claws **Article no. 80 890 315**

Clamping force:

DSG 4 – 80 mm tightening torque / clamping force



DSG 4 – 125 mm tightening torque / clamping force

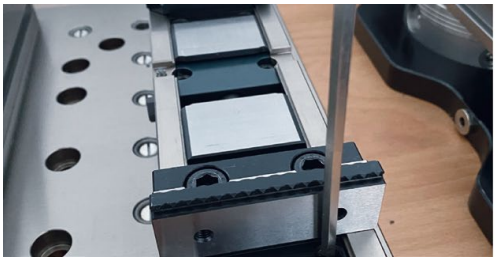


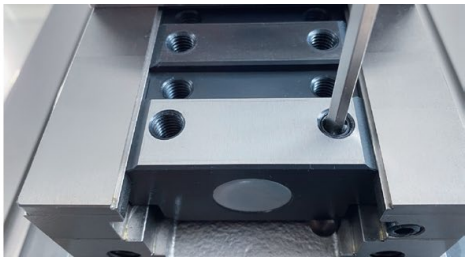
'Third hand' operation

The third-hand operation function on the DSG 4 is ensured by pre-loading the rear slide with compression springs.

The lateral clamping screw A is not tightened, instead it is open approx. 1/2 turn. When the vice is fully open, the movable jaws B and C are to be placed in the appropriate slots of slides D and E and secured according to the workpiece size. Two workpieces of different sizes can also be clamped.

Conversion to single vice



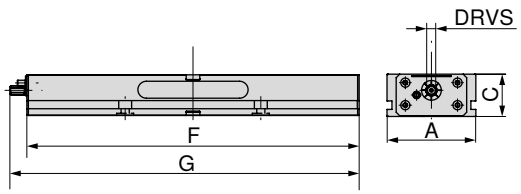


The rear slide is blocked via the hexagon socket grub screw and the DSG 4 can also be used as a single vice. **Important note:** Not suitable for using several vices as single vice next to one another. In this case, we advise modification with additional transverse slot in the base body and suitable fixed jaw.

PolyClamp – DSG 4

▲ double vice without jaws
▲ 100 % encapsulated
▲ fast assembly and disassembly
▲ flexible clamping system

DSG 4 | **MNG**



A mm	C mm	F mm	G mm	TQX Nm	DRVS mm	MXC kN	WT kg	80 906 ...
80	55	300	308	90	12	0 - 25	8	**080**
125	60	320	347	100	14	0 - 40	14	**125**
125	60	390	417	100	14	0 - 40	17	**12700**
125	60	460	487	100	14	0 - 40	20	**12800**
125	60	530	557	100	14	0 - 40	24	**12900**
125	60	600	627	100	14	0 - 40	27	**13000**
125	60	670	697	100	14	0 - 40	30	**13100**
125	60	740	767	100	14	0 - 40	34	**126**

Vice guide

Structural dimension tables for the different jaws	105–107	System accessories	108+110
'Third hand' operation	102	Conversion to single vice	103
MNG-/PNG zero point clamping system	134–163	General accessories	164–183

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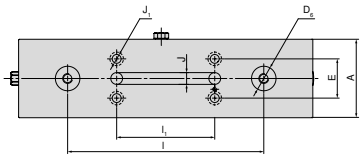
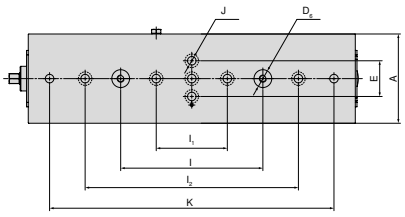
DSG 4 underside dimensions

Base width 80 mm and length 300 mm



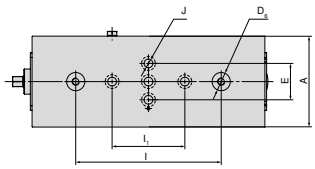
A mm	D_6 H6 mm	E ±0,015 mm	I ±0,01 mm	I_1 ±0,01 mm	J H7 mm	J_1 mm
80	25	40	200	100	12	9

Base width 125 mm and length 460 mm, 530 mm



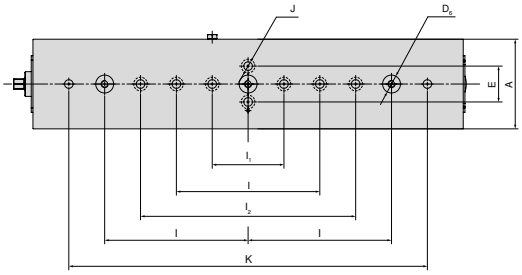
A mm	D_6 H6 mm	E ±0,015 mm	I ±0,01 mm	I_1 ±0,01 mm	I_2 ±0,002 mm	J H7 mm	K ±0,002 mm
125	25	50	200	100	300	12	400
125	25	50	200	100	300	12	500

Base width 125 mm and length 320 mm



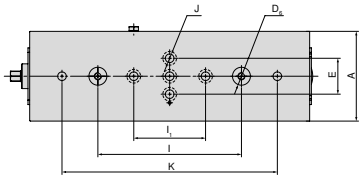
A mm	D_6 H6 mm	E ±0,015 mm	I ±0,01 mm	I_1 ±0,01 mm	J H7 mm
125	25	50	200	100	12

Base width 125 mm and length 600 mm



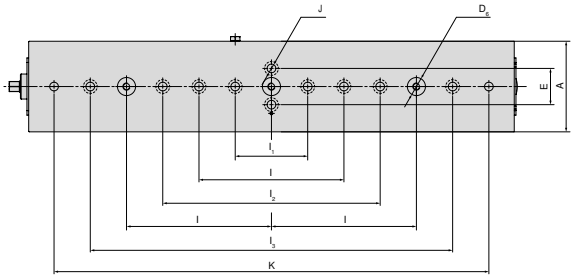
A mm	D_6 H6 mm	E ±0,015 mm	I ±0,01 mm	I_1 ±0,01 mm	I_2 ±0,002 mm	J H7 mm	K ±0,002 mm
125	25	50	200	100	300	12	500

Base width 125 mm and length 390 mm



A mm	D_6 H6 mm	E ±0,015 mm	I ±0,01 mm	I_1 ±0,01 mm	J H7 mm	K ±0,002 mm
125	25	50	200	100	12	300

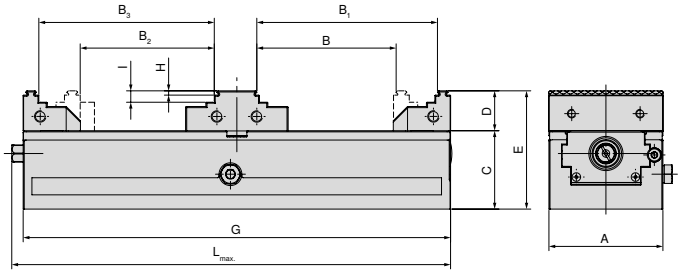
Base width 125 mm and length 670 mm, 740 mm



A mm	D_6 H6 mm	E ±0,015 mm	I ±0,01 mm	I_1 ±0,01 mm	I_2 ±0,002 mm	I_3 ±0,025 mm	J H7 mm	K ±0,002 mm
125	25	50	200	100	300	500	12	600
125	25	50	200	100	300	500	12	700

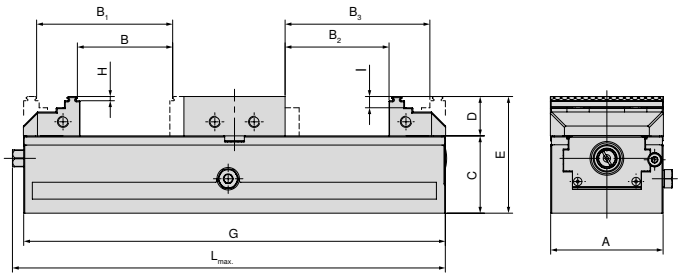
DSG 4 structural dimension table for the different jaws

With indexable jaws, grip and centre jaw, grip



A mm	B mm	B_1 mm	B_2 mm	B_3	C mm	D mm	E mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
80	25 - 97	54 - 126	31 - 93	51 - 122	55	28	83	300	3	8	308	2 x **80 878 810** + **80 906 300**
125	40 - 86	75 - 121	42 - 79	68 - 114	60	40	100	320	3	18	347	2 x **80 901 303** + **80 906 304**
125	40 - 121	75 - 156	42 - 114	68 - 149	60	40	100	390	3	18	417	2 x **80 901 303** + **80 906 304**
125	40 - 156	75 - 191	42 - 149	68 - 184	60	40	100	460	3	18	487	2 x **80 901 303** + **80 906 304**
125	40 - 191	75 - 226	42 - 184	68 - 219	60	40	100	530	3	18	557	2 x **80 901 303** + **80 906 304**
125	40 - 226	75 - 261	42 - 219	68 - 254	60	40	100	600	3	18	627	2 x **80 901 303** + **80 906 304**
125	40 - 261	75 - 296	42 - 254	68 - 289	60	40	100	670	3	18	697	2 x **80 901 303** + **80 906 304**
125	40 - 296	75 - 331	42 - 289	68 - 324	60	40	100	740	3	18	767	2 x **80 901 303** + **80 906 304**

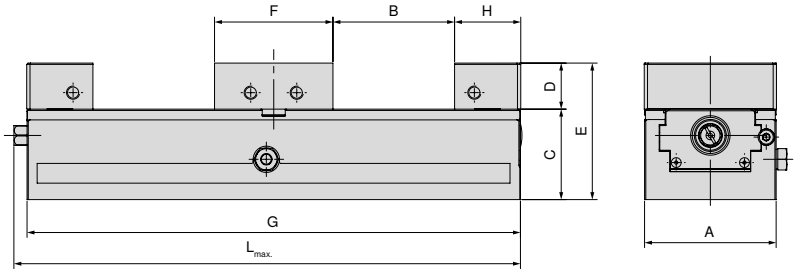
With indexable jaws, grip and centre jaw, smooth



A mm	B mm	B_1 mm	B_2 mm	B_3	C mm	D mm	E mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
80	5 - 67	34 - 96	0 - 73	40 - 102	55	28	83	300	3	8	308	2 x **80 878 810** + **80 906 301**
125	7 - 44	42 - 77	0 - 47	46 - 82	60	40	100	320	3	18	347	2 x **80 901 303** + **80 906 305**
125	7 - 79	42 - 112	0 - 82	46 - 117	60	40	100	390	3	18	417	2 x **80 901 303** + **80 906 305**
125	7 - 114	42 - 149	0 - 117	46 - 152	60	40	100	460	3	18	487	2 x **80 901 303** + **80 906 305**
125	7 - 147	42 - 182	0 - 152	46 - 187	60	40	100	530	3	18	557	2 x **80 901 303** + **80 906 305**
125	7 - 184	42 - 217	0 - 187	46 - 222	60	40	100	600	3	18	627	2 x **80 901 303** + **80 906 305**
125	7 - 219	42 - 252	0 - 222	46 - 257	60	40	100	670	3	18	697	2 x **80 901 303** + **80 906 305**
125	7 - 254	42 - 287	0 - 257	46 - 292	60	40	100	740	3	18	767	2 x **80 901 303** + **80 906 305**

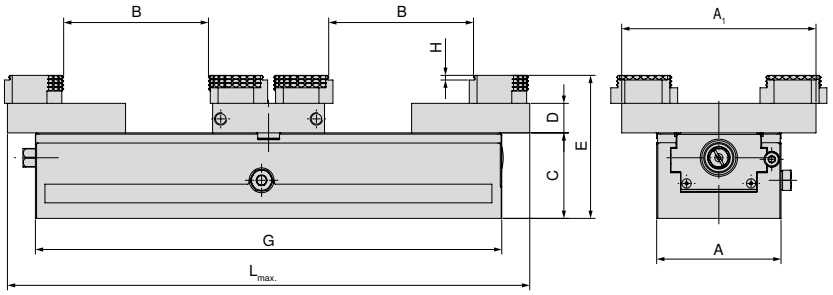
DSG 4 structural dimension table for the different jaws

With block jaws and centre jaw smooth



A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	$L_{max.}$ mm	Article no. System jaws
80	0 - 73	55	28	83	72	300	40	308	2 x **80 901 31300** + **80 906 301**
125	0 - 46	60	40	100	98	320	66	347	2 x **80 901 31500** + **80 906 305**
125	0 - 81	60	40	100	98	390	66	417	2 x **80 901 31500** + **80 906 305**
125	0 - 116	60	40	100	98	460	66	487	2 x **80 901 31500** + **80 906 305**
125	0 - 151	60	40	100	98	530	66	557	2 x **80 901 31500** + **80 906 305**
125	0 - 186	60	40	100	98	600	66	627	2 x **80 901 31500** + **80 906 305**
125	0 - 221	60	40	100	98	670	66	697	2 x **80 901 31500** + **80 906 305**
125	0 - 256	60	40	100	98	740	66	767	2 x **80 901 31500** + **80 906 305**

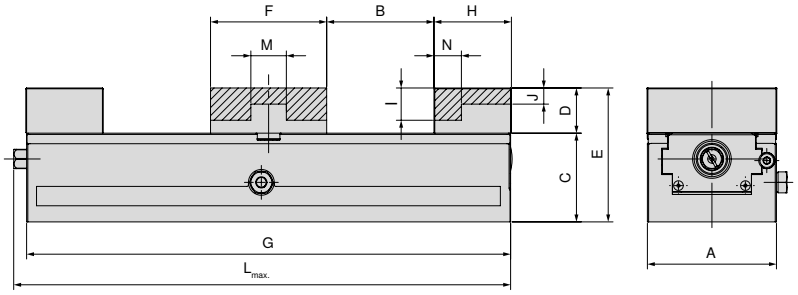
With pendulum and adapter plate



A mm	A_1 mm	B mm	C mm	D mm	E mm	G mm	H mm	$L_{max.}$ mm	Article no. System jaws
80	125	0 - 92	55	19	92	300	3	308	2 x **80 878 870** + **80 906 303**
125	180	7 - 92	60	22	100	320	3	365	2 x **80 878 570** + **80 906 307**
125	180	7 - 133	60	22	100	390	3	435	2 x **80 878 570** + **80 906 307**
125	180	7 - 168	60	22	100	460	3	505	2 x **80 878 570** + **80 906 307**
125	180	7 - 203	60	22	100	530	3	575	2 x **80 878 570** + **80 906 307**
125	180	7 - 238	60	22	100	600	3	645	2 x **80 878 570** + **80 906 307**
125	180	7 - 273	60	22	100	670	3	715	2 x **80 878 570** + **80 906 307**
125	180	7 - 308	60	22	100	740	3	785	2 x **80 878 570** + **80 906 307**

DSG 4 structural dimension table for the different jaws

With aluminium jaws and aluminium centre jaw

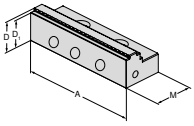


A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	$L_{max.}$ mm	M mm	N mm	Article no. System jaws
80	0 - 66	55	28	83	72	300	40	20	10	308	22	17	2 x **80 878 850** + **80 906 302**
125	0 - 42	60	40	100	98	320	68		17	347	38	28	2 x **80 878 550** + **80 906 306**
125	0 - 77	60	40	100	98	390	68		17	417	38	28	2 x **80 878 550** + **80 906 306**
125	0 - 112	60	40	100	98	460	68		17	487	38	28	2 x **80 878 550** + **80 906 306**
125	0 - 147	60	40	100	98	530	68		17	557	38	28	2 x **80 878 550** + **80 906 306**
125	0 - 182	60	40	100	98	600	68		17	627	38	28	2 x **80 878 550** + **80 906 306**
125	0 - 217	60	40	100	98	670	68		17	697	38	28	2 x **80 878 550** + **80 906 306**
125	0 - 252	60	40	100	98	740	68		17	767	38	28	2 x **80 878 550** + **80 906 306**

System jaws overview

Indexable jaw, grip 3 mm, movable

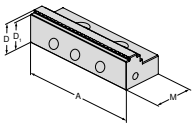
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		40	37			66			**80 901 303**				●	●				●		

Indexable jaw, grip 3 mm, movable

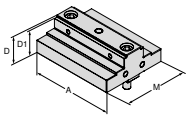
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			40			**80 878 810**				●	●		●		●		

Centre jaw, grip

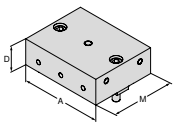
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			72			**80 906 300**									●		
125	125		40	37			98			**80 906 304**									●		

Centre jaw, smooth

▲ Price per piece

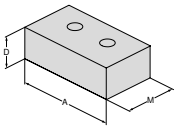
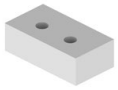


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				72			**80 906 301**									●		
125	125		40				98			**80 906 305**									●		

System jaws overview

Alu jaw, movable

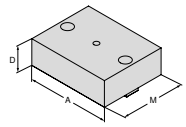
▲ for producing shaped jaws
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				48			**80 878 850**				●	●		●		●		
125	125		40				68			**80 878 550**				●					●		

Centre jaw, Alu

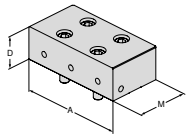
▲ for producing shaped jaws
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				72			**80 906 302**									●		
125	125		40				98			**80 906 306**									●		

Block jaw, movable

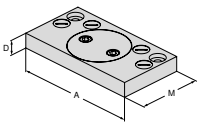
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				40			**80 901 31300**				●	●		●		●		
125	125		40				66			**80 901 31500**				●					●		

Pendulum jaw, movable

▲ to accommodate 6-way reversible jaws
▲ Price per piece

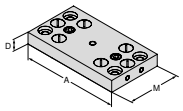


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	125		19				76			**80 878 870**				●			●		●		
125	180		22				95			**80 878 570**				●			●		●		

System jaws overview

Centre jaw adapter plate, fixed

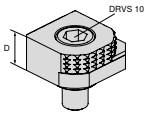
- ▲ to accommodate 6-way reversible jaws
- ▲ Price per piece

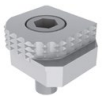


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	125		19				72			**80 906 303**									●		
125	180		22				98			**80 906 307**									●		

6 function indexable jaw

- ▲ 1 = Smooth, carbide coated
- ▲ 2 = Grip with 3 mm step
- ▲ 3 = Grip with 8 mm step
- ▲ 4 = Grip with 18 mm step
- ▲ 5 = Rough grip with 8 mm step
- ▲ 6 = Round grip
- ▲ M_{max} = 60 Nm
- ▲ Including fixation screws

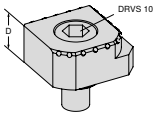


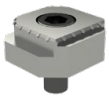


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							**80 892 246**	●	●	●	●			●		●	●	

6x indexable jaw, carbide grip

- ▲ 1 = Smooth
- ▲ 2 = Carbide grip
- ▲ 3 = Carbide grip with 3 mm step
- ▲ 4 = Carbide grip with 8 mm step
- ▲ 5 = Round carbide grip with 8 mm step
- ▲ 6 = Round carbide grip
- ▲ Incl. fixing screws





For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							**80 890 35300**	●	●	●	●			●		●	●	

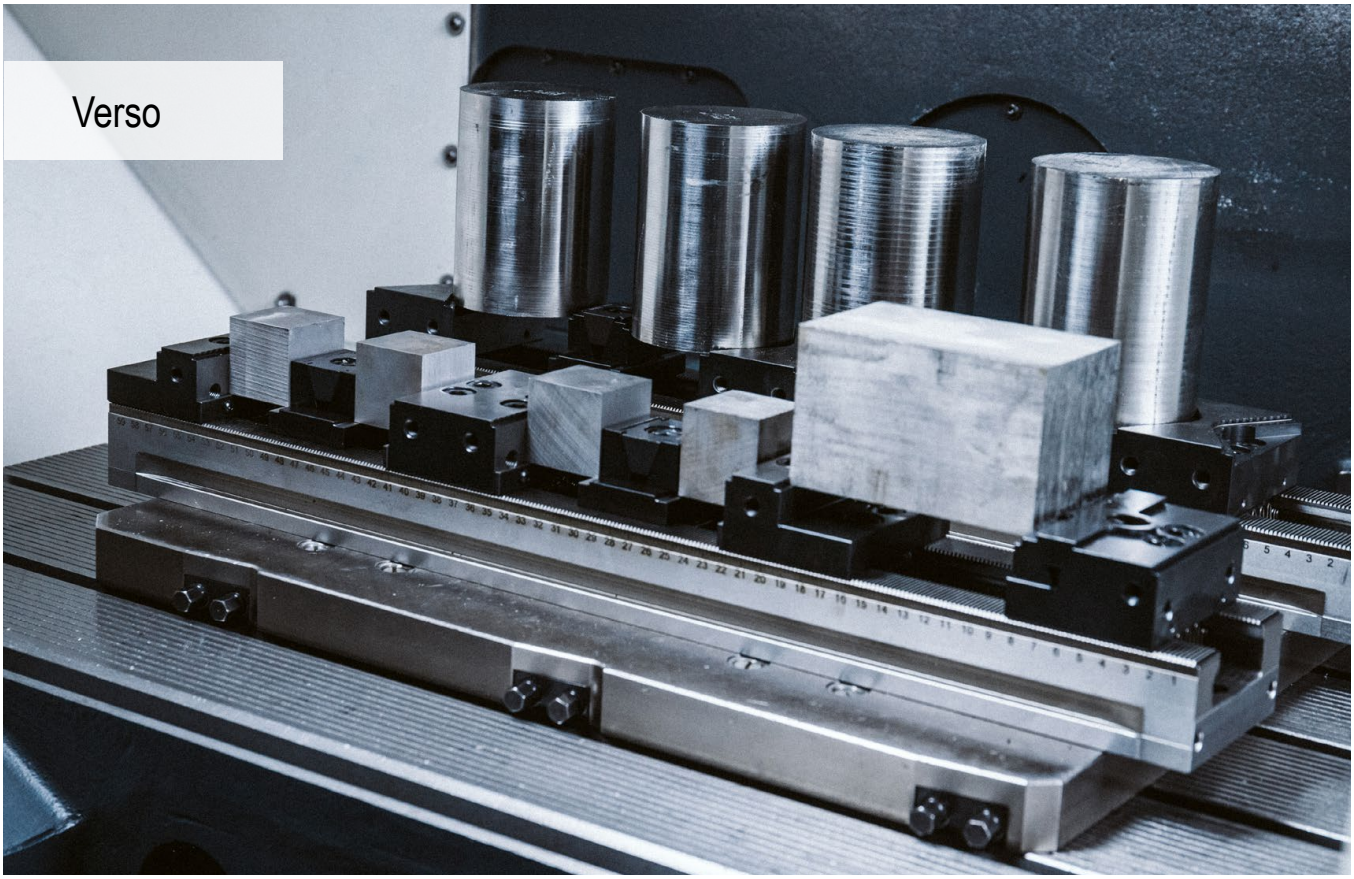
System accessories overview

Plastic protection plugs

DSG 4

80 906 ...

G	
M10x12	**500**



The all-rounder for workpiece clamping

The new multiple vice enables you to easily clamp many small and large workpieces on a 3-, 4-, or 5-axis machine. Even slimmer jaws have further increased the part thickness.

Your benefits:

- ▲ Hardened and ground teeth ensure the highest level of precision and dimensional stability
- ▲ Fast jaw changeover system for fixed and adjustable jaws
- ▲ Full modular range for all types of machining centres
- ▲ Multi-clamping with wedge grip elements
- ▲ Extensive modular system jaw range
- ▲ Simple clamping bar extension with connecting element

Clamping/aligning:

Using T-slots or screws
Alignment in the T-slot (14, 16, 18 mm) with the matching alignment set for T-slots.
For 12 mm T-slot: use two Ø 12 cylinder pins.

Using clamping claws
Alignment set and clamping using clamping claws attached at the side.

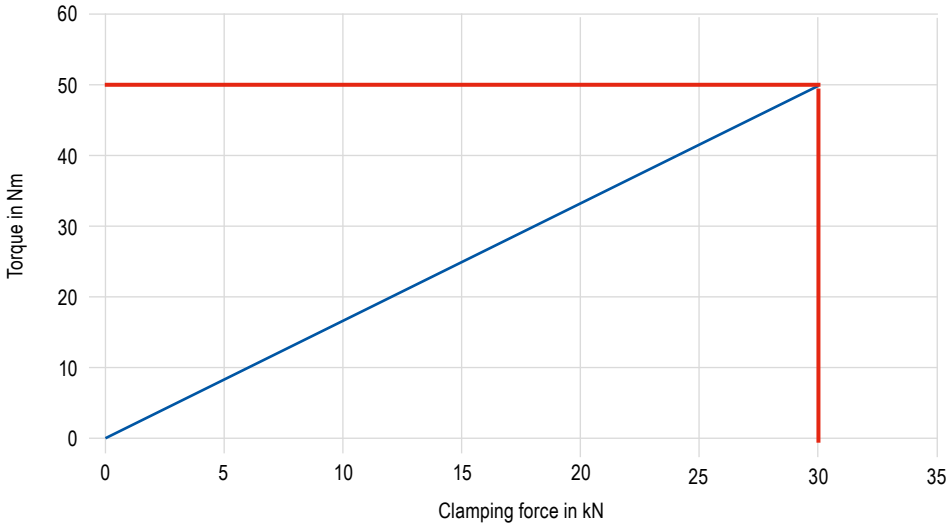
Using grid holes
Position and fasten the workpieces using two Ø12f7 / M12 dowel screws in the first and last holes of the clamping bar.
Additional fastening using M12 cylindrical screws in the remaining holes.

Clamping/aligning:

With a zero point clamping system
The clamping bar is equipped with MNG interfaces that enable MNG clamping bolts to be attached
(up to a base body length of 500 mm = 2 clamping bolts / from 600 mm upwards = 3 clamping bolts).

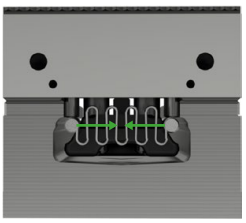
Clamping force:

Verso tightening torque/clamping force



Quick jaw change for fixed and adjustable jaws

The Verso multiple vice is equipped with a quick jaw change system as standard. Simply use the two screws to release, remove or reposition the fixed and adjustable jaw. The jaws are removed in an upwards direction, allowing each jaw to be removed individually, without taking out any others. This reduces the set-up time significantly.

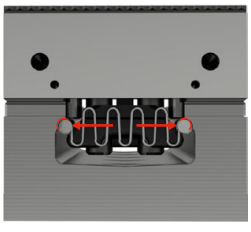


Release position

Undo screws

Take off and insert

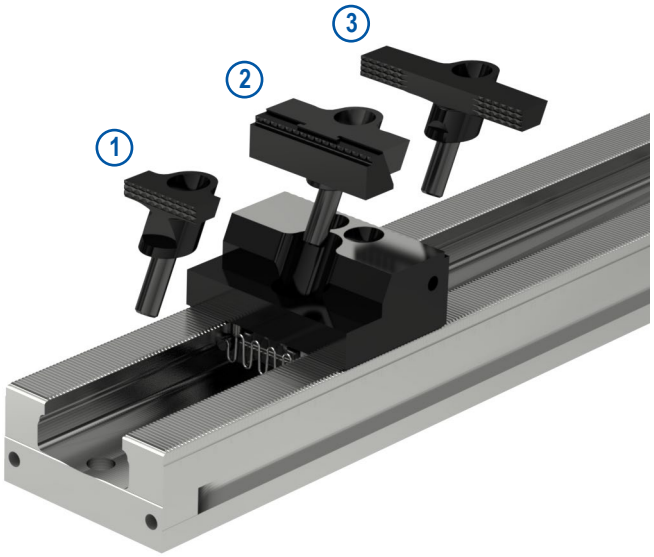
Tighten screws



Clamping position

Quick jaw change

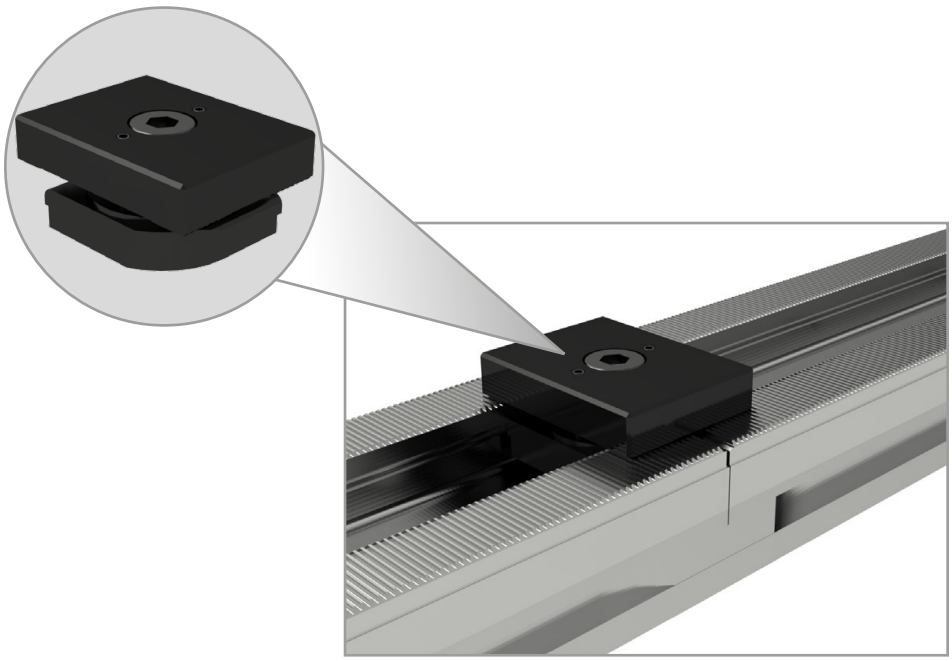
The fixed and adjustable jaws of the Verso multiple vice system are equipped with a quick jaw change system as standard. Two screws can be used to release and change the jaw, making jaw changes extremely quick.



1. Pull-down jaw, grip
2. Parallel clamping jaw
3. Pendulum jaw grip with pull-down action

Connecting the clamping bars

A connecting element allows two or more Verso clamping bars to be combined with one another or extended.

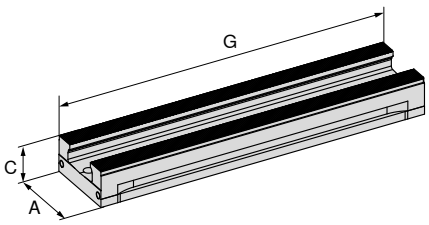


PolyClamp – Verso

- ▲ For single and multi-clamping
- ▲ Multi-clamping with wedge grip elements
- ▲ Workpieces can be clamped on 3-, 4- or 5-axis machine
- ▲ Adapter plates for MNG available

Scope of supply:
Body without jaws

Verso | **MMG**

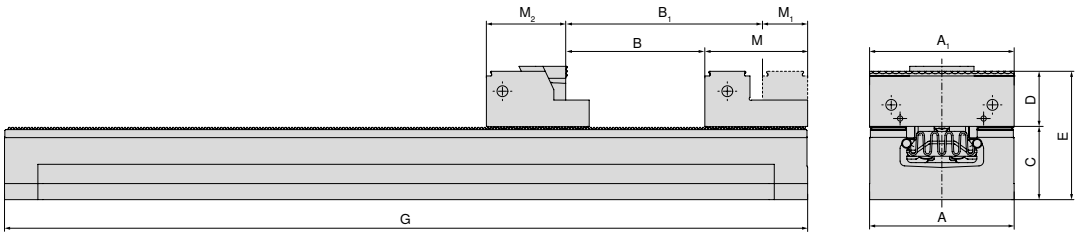


NEW

A mm	C mm	G mm	MXC kN	WT kg	80 914 ...
90	45	260	0 - 50	5,0	**09000**
90	45	400	0 - 50	7,7	**09100**
90	45	500	0 - 50	9,6	**09200**
90	45	600	0 - 50	11,5	**09300**
90	45	650	0 - 50	12,5	**09400**

Verso – Structural dimension table

Clamping rail



A mm	A_1 mm	B mm	B_1 mm	C mm	D mm	E mm	G mm	M mm	M_1 mm	M_2
90	40 / 65 / 90	145	181	45	35	80	260	64	28	53,5
90	40 / 65 / 90	285	321	45	35	80	400	64	28	53,5
90	40 / 65 / 90	385	421	45	35	80	500	64	28	53,5
90	40 / 65 / 90	485	521	45	35	80	600	64	28	53,5
90	40 / 65 / 90	535	571	45	35	80	650	64	28	53,5

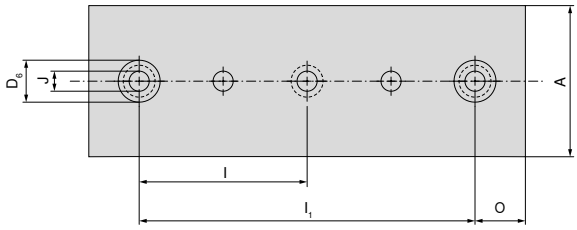
When using the 90 mm pendulum jaw grip and parallel clamping jaws, dimensions B, B_1 and M_2 will differ.

Vice guide

Underside Dimensions	115	Overview of clamping ranges	116
System accessories	117–124	General accessories	164–183

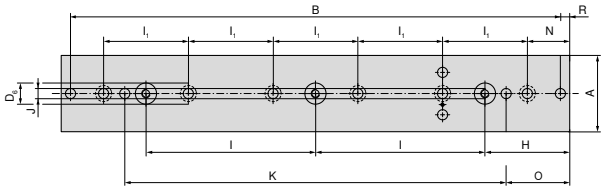
Verso underside dimensions

Base width 90 mm and length 260 mm



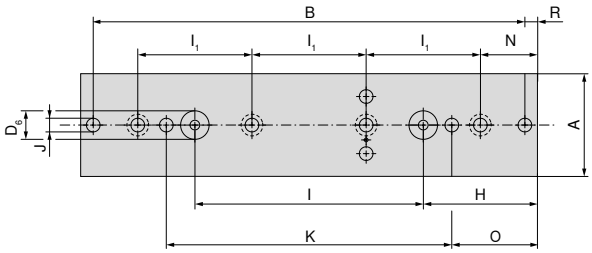
A mm	D6 H7 mm	I ±0,015 mm	I1 ±0,015 mm	J F7 mm	O ±0,015 mm
90	25	100	200	12	30

Base width 90 mm and length 600 mm



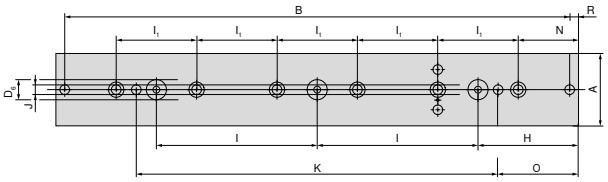
A mm	B mm	D6 H7 mm	H ±0,015 mm	I ±0,015 mm	I1 ±0,015 mm	J F7 mm	K ±0,015 mm	N mm	O ±0,015 mm	R mm
90	578	25	100	200	100	12	450	50	75	11

Base width 90 mm and length 400 mm



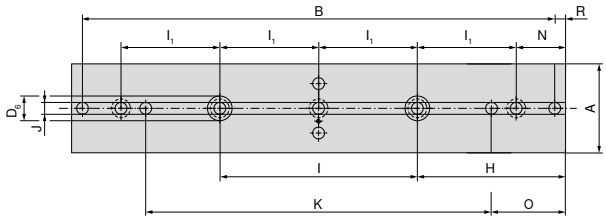
A mm	B mm	D6 H7 mm	H ±0,015 mm	I ±0,015 mm	I1 ±0,015 mm	J F7 mm	K ±0,015 mm	N mm	O ±0,015 mm	R mm
90	378	25	100	200	100	12	250	50	75	11

Base width 90 mm and length 650 mm



A mm	B mm	D6 H7 mm	H ±0,015 mm	I ±0,015 mm	I1 ±0,015 mm	J F7 mm	K ±0,015 mm	N mm	O ±0,015 mm	R mm
90	628	25	125	200	100	12	450	75	100	11

Base width 90 mm and length 500 mm

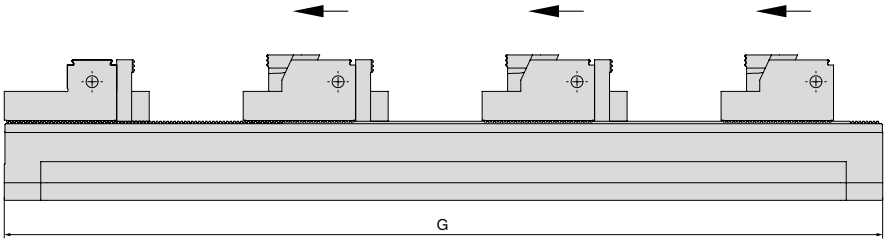


A mm	B mm	D6 H7 mm	H ±0,015 mm	I ±0,015 mm	I1 ±0,015 mm	J F7 mm	K ±0,015 mm	N mm	O ±0,015 mm	R mm
90	478	25	150	200	100	12	350	50	75	11

Verso – Overview of clamping ranges

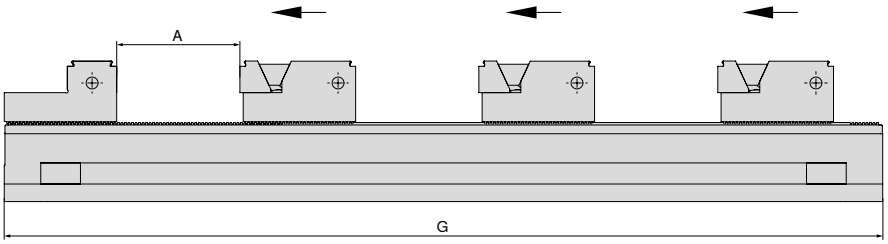
The clamping range shows the max. workpiece size depending on the number of clamping points for the individual clamping bar lengths.

Adjustable jaws with 40 mm pull-down jaw grip



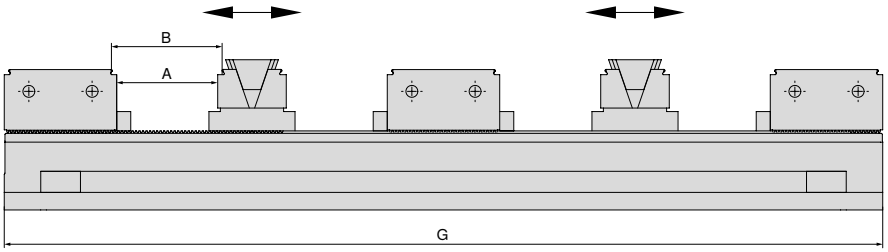
G mm	Number of workpieces 1	2	3	4	5	6	7	Article no. Vices
260	134	36	–	–	–	–	–	**80 914 09000**
400	274	106	50	22	–	–	–	**80 914 09100**
500	374	156	82	45	24	–	–	**80 914 09200**
600	474	206	116	72	44	26	–	**80 914 09300**
650	524	230	135	84	54	34	20	**80 914 09400**

Adjustable jaws with parallel clamping jaws



G mm	Number of workpieces 1 A	2 A	3 A	4 A	5 A	6 A	7 A	8 A	9 A	Article no. Vices
260	175	59	–	–	–	–	–	–	–	**80 914 09000**
400	315	129	67	27	10	–	–	–	–	**80 914 09100**
500	415	179	100	61	30	15	–	–	–	**80 914 09200**
600	515	229	133	86	57	32	19	10	–	**80 914 09300**
650	565	254	150	98	67	46	26	16	8	**80 914 09400**

With wedge grip elements

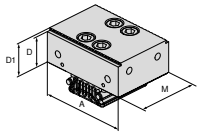


G mm	Number of workpieces 2 A	2 B	4 A	4 B	6 A	6 B	8 A	8 B	Article no. Vices
260	45	50	–	–	–	–	–	–	**80 914 09000**
400	115	120	31	36	–	–	–	–	**80 914 09100**
500	165	170	56	61	19	24	–	–	**80 914 09200**
600	215	220	81	86	36	41	14	19	**80 914 09300**
650	240	245	93	98	44	49	20	25	**80 914 09400**

System jaws overview

Stop jaw, fixed, grip 2,9 mm

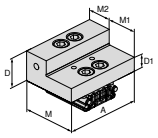
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		32	34,9			64			**80 914 31800**										●	

Indexable jaw, fixed, smooth

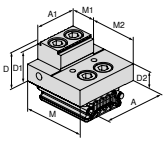
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		34,9	17			64	35,9	28,1	**80 914 32000**										●	

Stop jaw, fixed, grip 2,9 mm

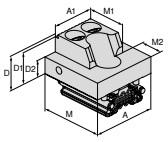
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	65		34,9	32	17		64	28,1	35,9	**80 914 31100**										●	
90	65	40	34,9	32	17		64	28,1	35,9	**80 914 31000**										●	
90	90		34,9	32	17		64	28,1	35,9	**80 914 31200**										●	

Reversible adjustable jaw profiled, grip 2,9 mm

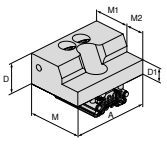
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	65		34,9	32	17		64	42	22	**80 914 31400**										●	
90	65	40	34,9	32	17		64	42	22	**80 914 31300**										●	
90	90		34,9	32	17		64	42	22	**80 914 31500**										●	

Reversible adjustable jaw, smooth

▲ Price per piece

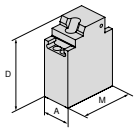


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		34,9	17			64	42	22	**80 914 31600**										●	

System jaws overview

Reversible adjustable jaw, high

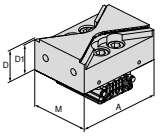
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	NEW		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	65		165				124				**80 914 31700**										●	

Prismatic jaw, smooth, grip 2,9 mm

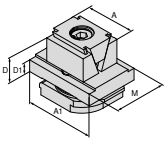
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	NEW		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		34,9	32			64				**80 914 31900**										●	

Wedge jaw

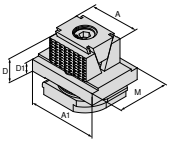
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	NEW		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40	65	35	11			49				**80 914 32100**										●	
90	40	65	39	11			49				**80 914 32400**										●	

Wedge grip jaw

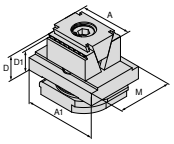
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	NEW		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40	65	35	11			49				**80 914 32200**										●	
90	40	65	39	11			49				**80 914 32500**										●	

Wedge grip jaw, 3 mm

▲ Price per piece

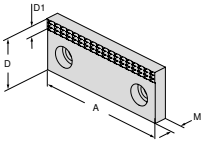


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	NEW		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40	65	35	32			49				**80 914 32300**										●	

System jaws overview

Jaw, grip

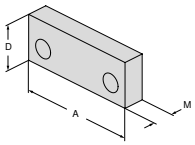
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
65	65		35	7			10			**80 889 656**										●	
65	40		35	7			10			**80 889 406**										●	
90	90		35	7			10			**80 889 906**										●	

Jaw, soft

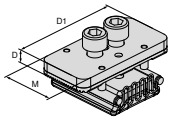
▲ Material: 16MnCr5
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
65	65		35				16			**80 889 657**										●	
65	40		35				16			**80 889 407**										●	
90	90		35				16			**80 889 907**										●	

Base jaw

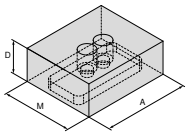
▲ Price per piece
▲ For Alu jaw Article no. **80 914 34200**



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90			9,1	80			40			**80 914 34100**										●	

Soft Alu-jaw

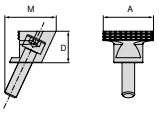
▲ Price per piece
▲ For Base jaw Article no. **80 914 34100**



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		34,9				75			**80 914 34200**										●	

Pull-down jaw, grip

▲ Price per piece

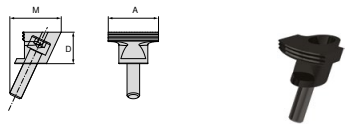


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG2	ZSG 4	ZSG mini	DSG4	Verso	HSG
90	40		25				41			**80 914 32600**										●	

System jaws overview

Pull-down jaw, grip – round

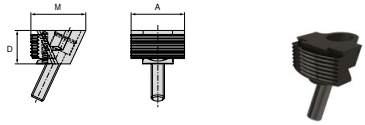
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40		25				41			80 914 32700											●	

Parallel clamping jaw, grip – round

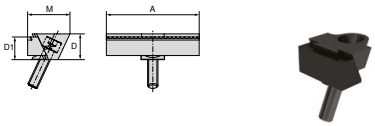
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40		25				41			80 914 32800											●	

Parallel clamping jaw

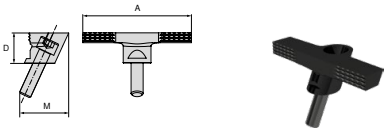
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40		25	22			41			80 914 32900											●	
90	65		25	22			41			80 914 33000											●	
90	90		25	22			41			80 914 33100											●	

Pendulum jaw, grip

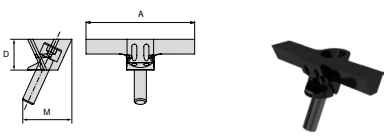
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		25				41			80 914 33200											●	

Clamping Wedge

▲ Price per piece

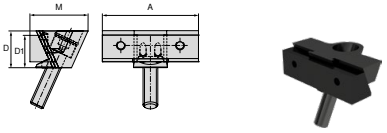


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		25				41			80 914 33300											●	

System jaws overview

Parallel clamping jaw, smooth

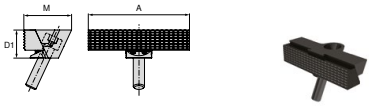
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NEW NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40		25	22			41			80 914 33400										●	
90	65		25	22			41			80 914 33500										●	
90	90		25	22			41			80 914 33600										●	

Parallel clamping jaw, grip

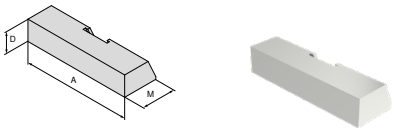
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NEW NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90			25			42,5			80 914 33700										●	

Jaw, steel

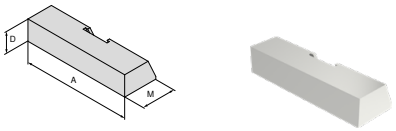
▲ Material: 16MnCr5
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NEW NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		18				30			80 914 33800										●	

Jaw, alu

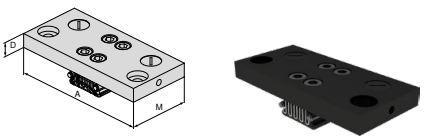
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NEW NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		18				30			80 914 33900										●	

Fixed adaptor jaw

▲ to accommodate 6-way reversible jaws
▲ Price per piece



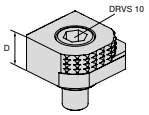
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NEW NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	160		17				74			80 914 34000										●	

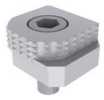
17

System jaws overview

6 function indexable jaw

- ▲ 1 = Smooth, carbide coated
- ▲ 2 = Grip with 3 mm step
- ▲ 3 = Grip with 8 mm step
- ▲ 4 = Grip with 18 mm step
- ▲ 5 = Rough grip with 8 mm step
- ▲ 6 = Round grip
- ▲ M_{max} = 60 Nm
- ▲ Including fixation screws

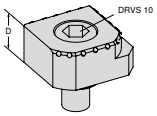


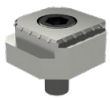


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							**80 892 246**	●	●	●	●			●		●	●	

6x indexable jaw, carbide grip

- ▲ 1 = Smooth
- ▲ 2 = Carbide grip
- ▲ 3 = Carbide grip with 3 mm step
- ▲ 4 = Carbide grip with 8 mm step
- ▲ 5 = Round carbide grip with 8 mm step
- ▲ 6 = Round carbide grip
- ▲ Incl. fixing screws



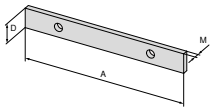


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							**80 890 35300**	●	●	●	●			●		●	●	

Workpiece supports overview

Workpiece support

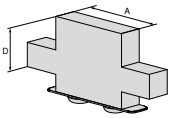
▲ Price for 2 pieces

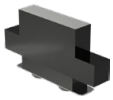


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		11				3			**80 914 73100**											●	

Workpiece supports, offset

▲ Price for 2 pieces

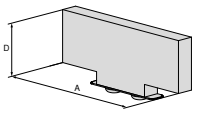


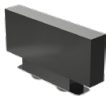


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40		30							**80 914 70200**											●	
90	40		25							**80 914 70100**											●	

Workpiece supports, offset

▲ Price for 2 pieces

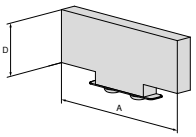


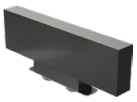


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	65		11							**80 914 71100**											●	
90	65		17							**80 914 71200**											●	
90	65		25							**80 914 71300**											●	
90	65		30							**80 914 71400**											●	

Workpiece supports, offset

▲ Price for 2 pieces





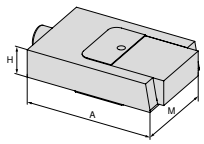
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		11							**80 914 72100**											●	
90	90		17							**80 914 72200**											●	
90	90		25							**80 914 72300**											●	
90	90		30							**80 914 72400**											●	

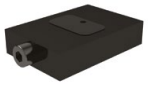
System accessories overview

Adjustable stop with basic body

▲ for vibration damping
▲ height adjustable 16 – 17 mm

Verso





NEW

H mm	A mm	M mm	80 914 ...
16	72	50	50100

Clamping Screw Set for T-slot for MNG

Scope of supply:
Clamping screw and T-Nuts

Verso

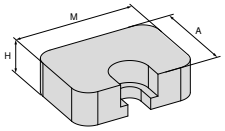
NEW

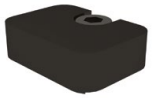
for slot width mm	G	80 914 ...
20	M12	50500
22	M12	50600
24	M12	50700

Support

▲ for vibration damping: Article no. **80 914 50100**

Verso





NEW

H mm	A mm	M mm	80 914 ...
8	20	28	50200
13	20	28	50300

Alignment Pin

Verso

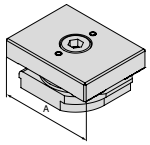
NEW

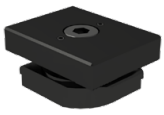
D_1 mm	D_2 mm	80 914 ...
12	14	81400
12	16	81600
12	18	81800

Joint

▲ to connect 2 basic bodies

Verso



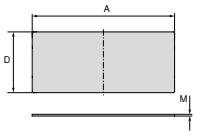


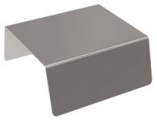
NEW

A mm	80 914 ...
90	50400

Cover

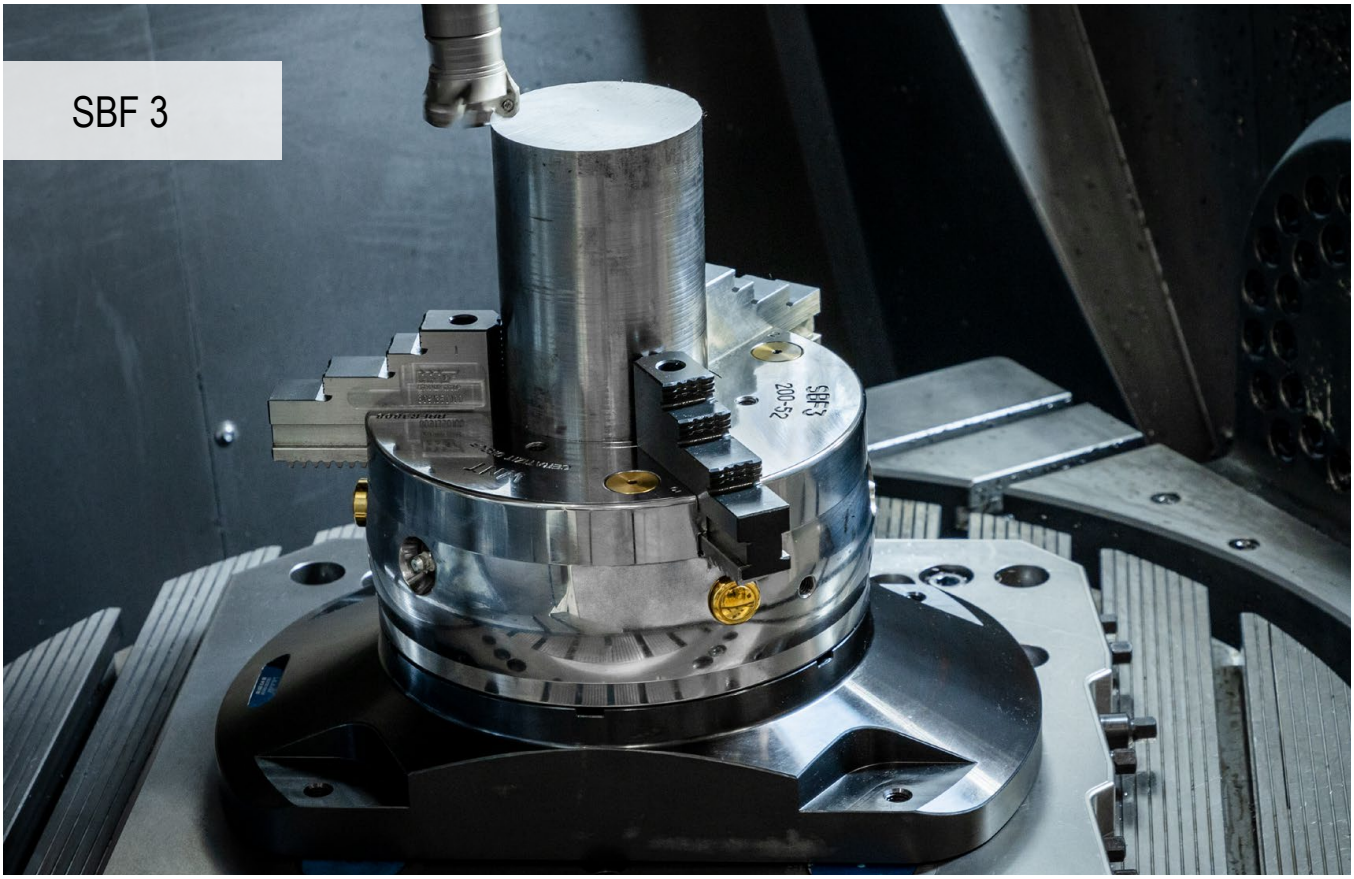
Verso





NEW

A mm	D mm	M mm	80 914 ...
50	84	0,5	51000
50	86	0,5	50800
200	86	0,5	50900



Hotly anticipated – now also for round components

Machining round components has become daily routine for many companies. We now have a solution in the portfolio in the form of the SBF 3 stationary three-jaw chuck – fully compatible with the in-house MNG and PNG zero point clamping systems for rapid, uncomplicated handling.

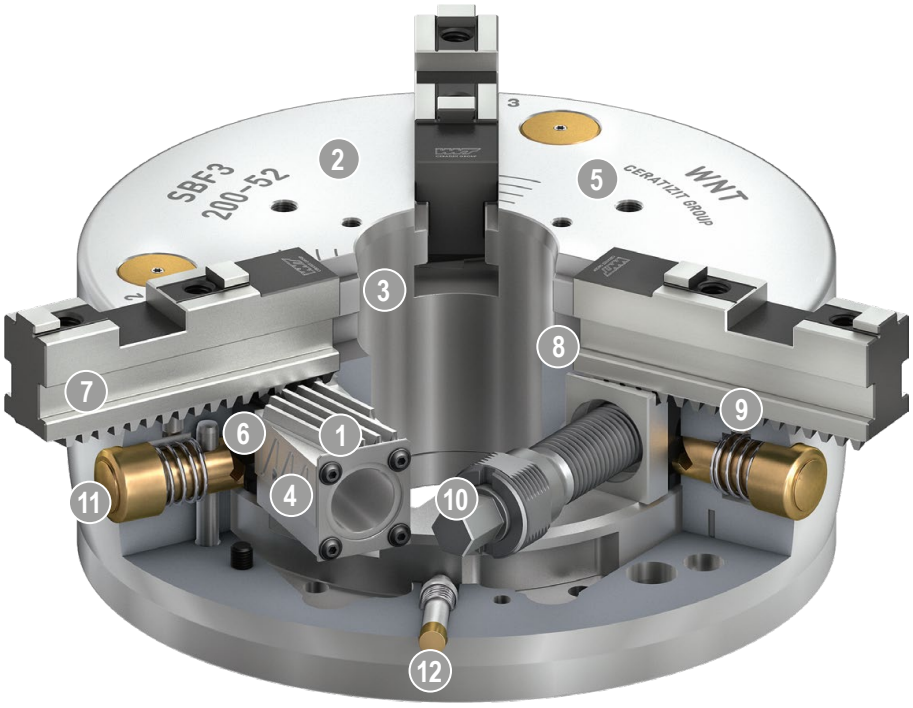
Your benefits:

- ▲ Suitable for 3/5-axis machining of round components
- ▲ Compatible with PNG and MNG zero point clamping systems
- ▲ Quick change jaw system with single release of jaws
- ▲ Spindle with hex connection

SBF 3 Ø 200 mm

SBF 3 Ø 315 mm

Technical information – cross-section diagram



1	**Wedge bar drive** Allows for excellent machining results	7	**Base jaws with angled teeth (SFG)**
2	**Hardened and extremely stiff base body** Longer service life with maximum precision as a result – even at the highest clamping force	8	**Locking mechanism** Guarantees secure engagement of the base jaw teeth with the wedge bar teeth
3	**Large through hole** For machining all common bar material diameters (optional: enlargement of through hole)	9	**Engagement pin** For pre-positioning the base jaw
4	**Optimised lubrication system** For high degree of efficiency	10	**Actuation via hex connection** Easier operation as a result
5	**Mounting threads** For workpiece stops or cover plates	11	**Pushbutton for jaw change** For extremely short setup times
6	**Quick jaw change system** Single release of jaws, meaning extremely short setup times	12	**Indicator pin** For visual stroke monitoring of the manual clamping chuck

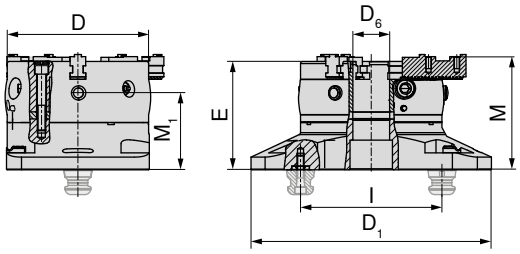
SBF 3 three-jaw chuck (Ø 200 mm) with console

- ▲ Suitable for 3/5-axis machining of round components
- ▲ Compatible with PNG and MNG zero point clamping systems (zero point clamping bolts must be ordered separately)
- ▲ Quick change jaw system with single release of jaws
- ▲ Spindle with hex connection

Scope of supply:

SBF 3 three-jaw chuck (Ø 200 mm) including console (PNG- and MNG-compatible)
1 set GBA base jaws
1 set SB-H stepped jaws
6 fixing screws and clamping key

SBF 3



80 913 ...

D	D1	D6	E	I	M	M1	MXC	TQX	DRVS	Stroke / jaw	Tooth pitch	WT	
mm	mm	mm	mm	mm	mm	mm	kN	Nm	mm	mm	mm	kg	
200	340	52	153,3	200	160,1	108,8	100	120	12	7	4,8	49,5	**20000**

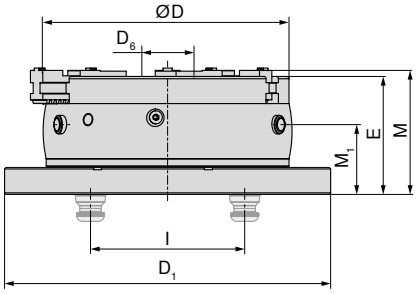
SBF 3 three-jaw chuck (Ø 315 mm) with console

- ▲ Suitable for 3/5-axis machining of round components
- ▲ Compatible with PNG and MNG zero point clamping systems (zero point clamping bolts must be ordered separately)
- ▲ Quick change jaw system with single release of jaws
- ▲ Spindle with hex connection

Scope of supply:

SBF 3 three-jaw chuck (Ø 315 mm) including console (PNG- and MNG-compatible)
1 set GBA base jaws
1 set SB-H stepped jaws
6 fixing screws and clamping key

SBF 3



80 913 ...

D	D1	D6	E	I	M	M1	MXC	TQX	DRVS	Stroke / jaw	Tooth pitch	WT	
mm	mm	mm	mm	mm	mm	mm	kN	Nm	mm	mm	mm	kg	
315	423	92	153	200	160,86	90,5	180	220	16	9,9	7	95	**31500**

The chuck is designed exclusively for stationary use – do not use while rotating!

System jaws overview

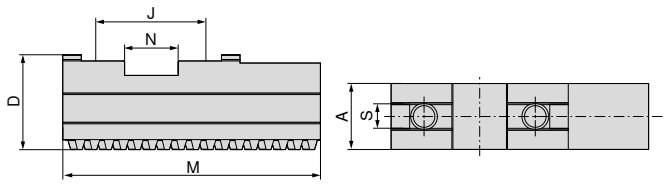
Base jaws (GBA) – set

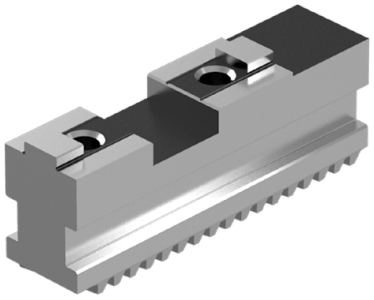
▲ Base jaws with angled teeth
▲ Price per set of 3 pieces

Scope of supply:

3 base jaws with angled teeth
Including cylindrical screws

SBF 3





80 913 ...

for	A mm	D mm	J mm	M mm	N mm	S mm	G	WT kg	
SBF-3.200	22	32	40	90	20	10	M8x1	1,2	**50300**
SBF-3.315	32	43	54	125	26	12	M12x1,5	3,1	**60300**

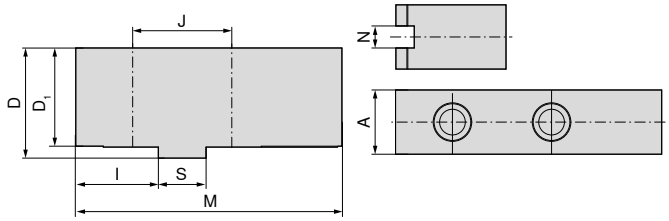
Soft top jaws (AB-W) – set

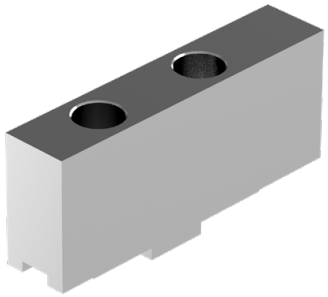
▲ Price per set of 3 pieces
▲ Material: 16MnCr5

Scope of supply:

3 soft top jaws

SBF 3





80 913 ...

for	A mm	D mm	D_1 mm	I mm	J mm	M mm	N mm	S mm	Hole for	WT kg	
SBF-3.200	22	47	43	35	40	105	10	20	M8	2,0	**50400**
SBF-3.315	35	60	54	45	54	145	12	26	M12	5,6	**60400**

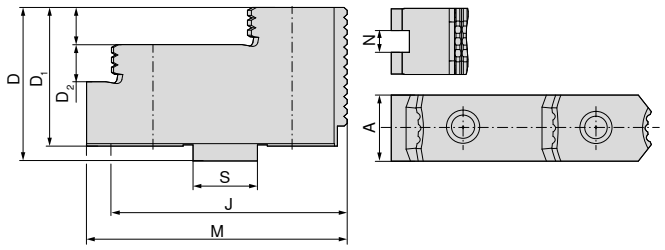
System jaws overview

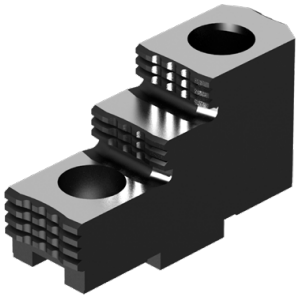
Hard stepped top jaws (AB-H) – set

▲ Price per set of 3 pieces

Scope of supply:
3 hard stepped top jaws

SBF 3

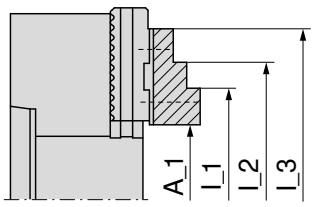




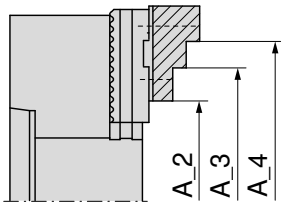
80 913 ...

for	A mm	D mm	D_1 mm	D_2 mm	J mm	M mm	N mm	S mm	Hole for	WT kg	
SBF-3.200	22	42	38	10	40	71,7	10	20	M8	2,4	**50200**
SBF-3.315	36	62	56	15	54	105	12	26	M12	3,3	**60200**

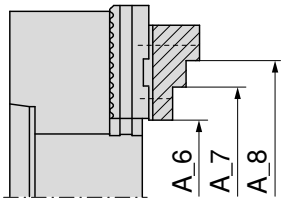
Dimension table – Hard stepped top jaws (AB-H)



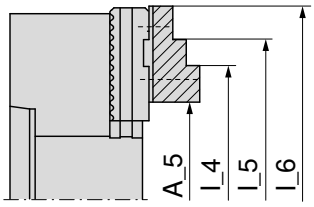
Basic jaw position 2



Basic jaw position 1



Basic jaw position 2



Basic jaw position 1

			Externall clamping range							
3-jaw chuck		System jaw	A_1	A_2	A_3	A_4	A_5	A_6	A_7	A_8
SBF-3.200	**80 913 50200**	SBF-3.AB-H.200.71,7.22.10	7–76	57–125	108–177	135–204	55–125	14–77	66–129	93–156
SBF-3.315	**80 913 60200**	SBF-3.AB-H.315.105.36.15	14–125	93–224	202–333	–	87–219	44–130	153–239	–

			Internal clamping range					
3-jaw chuck		System jaw	l_1	l_2	l_3	l_4	l_5	l_6
SBF-3.200	**80 913 50200**	SBF-3.AB-H.200.71,7.22.10	72–141	99–168	151–220	120–189	147–216	199–268
SBF-3.315	**80 913 60200**	SBF-3.AB-H.315.105.36.15	93–204	202–313	–	167–298	276–407	–

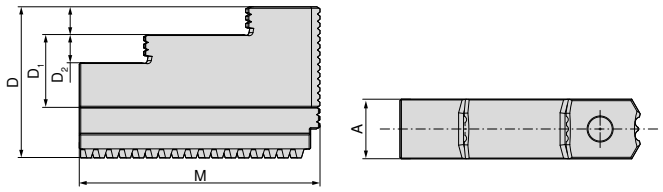
System jaws overview

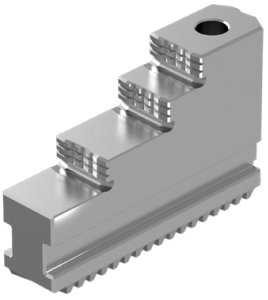
Hard stepped top jaws (SB-H) – set

▲ Stepped block jaws with angled teeth
▲ Price per set of 3 pieces

Scope of supply:
3 hard stepped block jaws

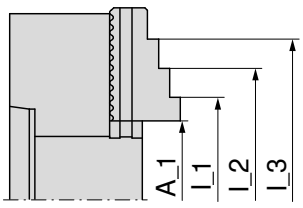
SBF 3



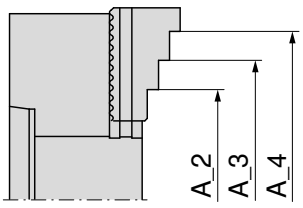


for	A mm	D mm	D_1 mm	D_2 mm	M mm	WT kg	80 913 ...
SBF-3.200	22	60	35	10	94	1,9	**50100**
SBF-3.315	32	81	46	15	129	5,5	**60100**

Dimension table – Hard stepped top jaws (SB-H)



Hard stepped top jaws
steel 16MnCr5, case-hardened



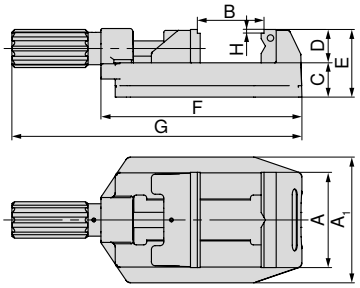
Hard stepped top jaws
steel 16MnCr5, case-hardened

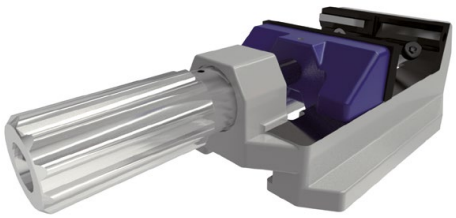
			Externall clamping range				Internal clamping range		
3-jaw chuck	System jaw		A_1	A_2	A_3	A_4	I_1	I_2	I_3
SBF-3.200	**80 913 50100**	SBF-3.SB-H.200.94.22.10	6–74	59–128	111–180	138–207	70–138	97–165	149–217
SBF-3.315	**80 913 60100**	SBF-3.SB-H.315.129.32.15	12–124	89–210	189–420	–	91–203	199–311	–

Manual machine vice

- ▲ handy, universal vice with large clamping range
- ▲ Stepped jaws with horizontal and vertical 120° prism
- ▲ Optional material stop can be used on both sides

HSG





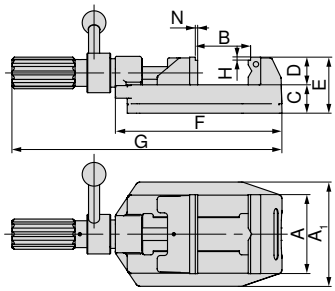
80 893 ...

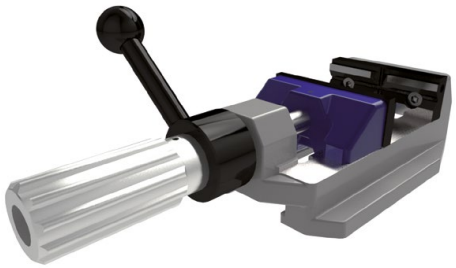
A	A1	B	C	D	E	F	G	H	WT	
mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	
80	112	0 - 81	36	35	71	194	286,5	4	4,5	**080**
100	132	0 - 100	36	35	71	211	304,5	4	5,6	**100**
125	156	0 - 131	40	40	84	274	386	4	11,2	**125**

Manual machine vice with clamping aid

- ▲ Quick and accurate workpiece clamping using the clamping aid
- ▲ handy, universal vice with large clamping range
- ▲ Stepped jaws with horizontal and vertical 120° prism
- ▲ Optional material stop can be used on both sides
- ▲ N = Stroke with handle clamping

HSG





80 893 ...

A	A1	B	C	D	E	F	G	H	N	WT	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	
100	132	0 - 100	36	35	71	211	342	4	1,5	6,1	**101**
125	156	0 - 133	44	40	84	274	405	4	1,5	11,7	**126**

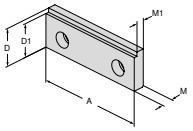
Vice guide

System accessories 132+133
General accessories 164–183

Top jaws overview

Stepped jaw, smooth

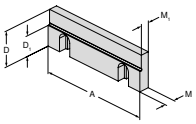
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	80		35	31			10,2	7,2		**80 893 082**											●
	100		35	31			10,2	7,2		**80 893 102**											●
	125		40	36			11,8	8,8		**80 893 127**											●

Stepped jaw, 17 mm

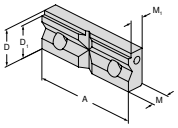
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		40	23			11,5	9,5		**80 892 244**											●

Prismatic jaw

▲ Prism jaw with horizontal and vertical prism
▲ price per piece



For clamping diameter	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
9 - 31	80		35	31			15,8	12,8		**80 893 083**											●
9 - 31	100		35	31			15,8	12,8		**80 893 103**											●
11 - 41	125		40	36			17,8	14,8		**80 893 128**											●

→ **Page 164–173**
Here you will find other matching top jaws.

System accessories overview

Workpiece stop

▲ Fixed to the top section, either on the left, the right, or at both ends. The length adjustment can be performed quickly and accurately using a clamping screw.

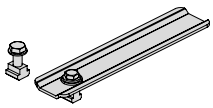
HSG

for width mm	80 893 ...
80/100/125	265

Guide rail

▲ Helps prevent accidents
▲ Prevents unwanted movement, lifting and dragging

HSG



for width mm	80 893 ...
80/100/125	260

Clamping set

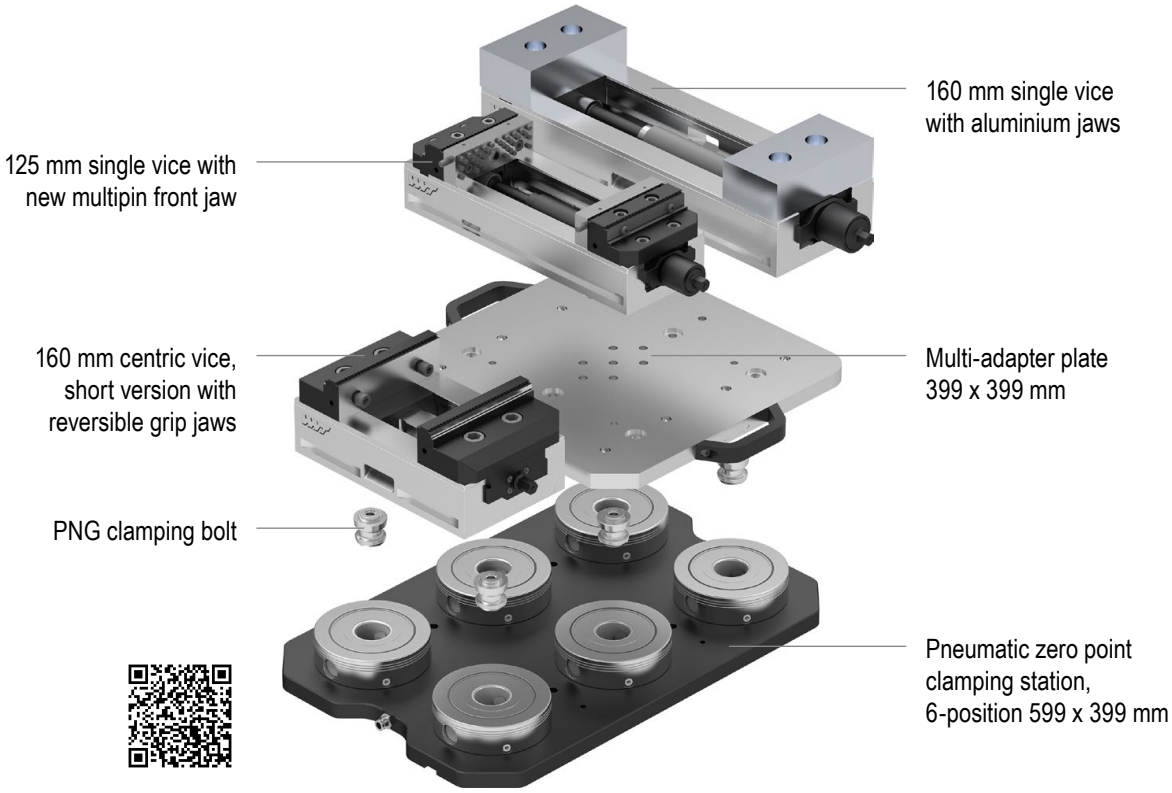
▲ A movable support with an eccentric swivel plate allows any clamping position to be adopted on machine tables with different T-slot arrangements. The inside slot of the vice body provides an additional fixing option, just as with the **80 893 260** guide rail.
▲ Price per Set

Scope of supply:
2 positioning clamps incl. clamping accessories.

HSG

for width mm	for slot width mm	80 893 ...
80/100/125	12/14	250

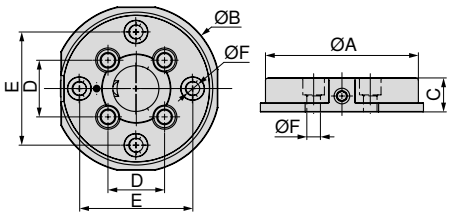
Overview of MNG and PNG zero point clamping system



MNG – Base plate, round

- ▲ MNG – Mechanical Zero-point Clamping System
- ▲ hardened and ground
- ▲ Repeatability ≤ 0.01 mm
- ▲ Insertion force 20 kN
- ▲ Torque 30 Nm

MNG



80 899 ...

A mm	B mm	C ±0,005 mm	D mm	E mm	F H7 mm	WT kg	
135	148	30	50	100	12	3,5	**125**

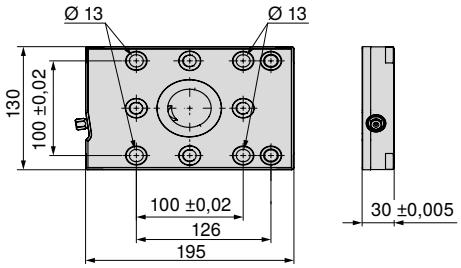
Vice guide

System accessories 144+145 General accessories 164–183

MNG – Base plate, rectangular

- MNG – Mechanical Zero-point Clamping System
- Insertion force 20 kN on the clamping bolt
- Stainless and vacuum-hardened
- Repeatability ≤ 0.01 mm
- Tightening torque 30 Nm

MNG



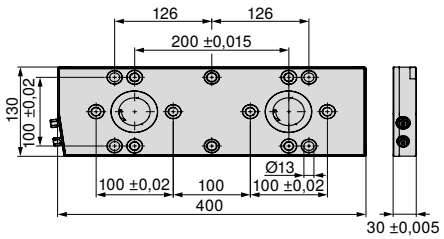
80 899 ...

Size	WT kg	
195x130 mm	5,2	**65000**

MNG – Base plate, rectangular 2-location

- MNG – Mechanical Zero-point Clamping System
- Insertion force 20 kN on the clamping bolt
- Stainless and vacuum-hardened
- Repeatability ≤ 0.01 mm
- Tightening torque 30 Nm

MNG



80 899 ...

Size	WT kg	
400x130 mm	11	**65100**

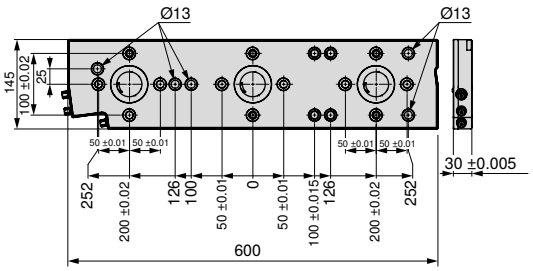
Vice guide

System accessories	144+145	General accessories	164–183
MNG clamping options	146–148		

MNG – Base plate, rectangular 3-location

- ▲ MNG – Mechanical Zero-point Clamping System
- ▲ Insertion force 20 kN on the clamping bolt
- ▲ Stainless and vacuum-hardened
- ▲ Repeatability ≤ 0.01 mm
- ▲ Tightening torque 30 Nm

MNG



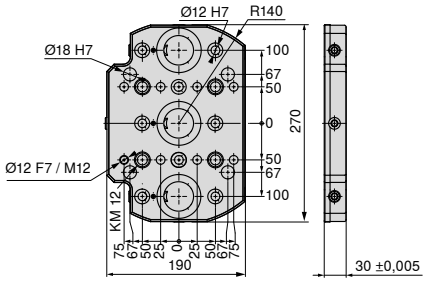
80 899 ...

Size	WT kg	
600x145 mm	18	**65200**

MNG – 3 location base plate, 270 x 190 mm

- ▲ MNG – Mechanical Zero-point Clamping System
- ▲ Clamping force 20 kN on each location bolt
- ▲ 4 x M12 mounting holes for T-slot nuts 50 mm spread
- ▲ 8 x dowel bushes Ø12 F7 / M12
- ▲ 4 x dowel holes Ø18 H7 for positioning

MNG



80 899 ...

Size	WT kg	
270x190 mm	9	**230**

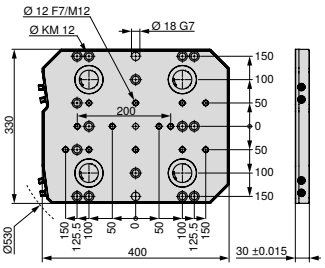
Vice guide

System accessories	144+145	General accessories	164–183
MNG clamping options	146–148		

MNG – 4 location base plate, 330 x 400 mm

- ▲ MNG – Mechanical Zero-point Clamping System
- ▲ Stainless and vacuum-hardened
- ▲ Insertion force 20 kN on the clamping bolt
- ▲ 15 x mounting holes for M12, for T-slot spacing 50, 63, 100, 125 mm
- ▲ 13 x mating holes Ø12 F7/M12
- ▲ 2 x mating holes Ø18 G7 for positioning
- ▲ 1 x mating holes Ø12 F7 for positioning

MNG



80 899 ...

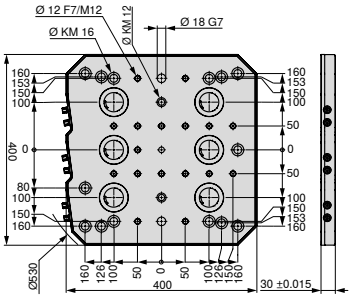
Size	WT kg	
330x400 mm	28	**63000**[1)]

1) Not ex-stock

MNG – 6 location base plate, 400 x 400 mm

- ▲ MNG – Mechanical Zero-point Clamping System
- ▲ Stainless and vacuum-hardened
- ▲ Insertion force 20 kN on the clamping bolt
- ▲ 14 x mounting holes for M16, for T-slot spacing 63, 80, 100, 125 mm
- ▲ 2 x mounting holes for M12
- ▲ 17 x mating holes Ø12 F7/M12
- ▲ 2 x mating holes Ø18 G7 for positioning
- ▲ 1 x mating holes Ø12 F7 for positioning

MNG



80 899 ...

Size	WT kg	
400x400 mm	33	**63100**[1)]

1) Not ex-stock

Vice guide

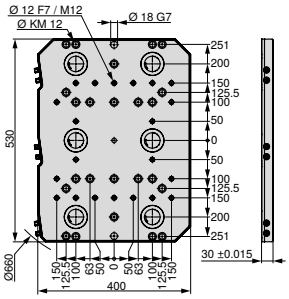
System accessories 144+145 General accessories 164–183

17

MNG – 6 location base plate, 400 x 530 mm

- ▲ MNG – Mechanical Zero-point Clamping System
- ▲ Stainless and vacuum-hardened
- ▲ Insertion force 20 kN on the clamping bolt
- ▲ 24 x mounting holes for M12, for T-slot spacing 63, 100, 125 mm
- ▲ 21 x mating holes Ø12 F7/M12
- ▲ 2 x mating holes Ø18 G7 for positioning
- ▲ 1 x mating holes Ø12 F7 for positioning

MNG



80 899 ...

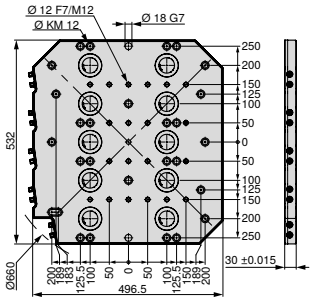
Size	WT kg	
400x530 mm	45	**63200**[1)]

1) Not ex-stock

MNG – 10 location base plate, 496.5 x 532 mm

- ▲ MNG – Mechanical Zero-point Clamping System
- ▲ Stainless and vacuum-hardened
- ▲ Insertion force 20 kN on the clamping bolt
- ▲ 27 x mounting holes M12 for T-slot spacing 50, 63, 100, 125 mm and star slots 45°
- ▲ 20 x mating holes Ø12 F7/M12
- ▲ 2 x mating holes Ø18 G7 for positioning
- ▲ 1 x mating holes Ø12 F7 for positioning

MNG



80 899 ...

Size	WT kg	
497x532 mm	54	**63300**[1)]

1) Not ex-stock

Vice guide

System accessories 144+145 General accessories 164–183

MNG – Centering Pin

▲ MNG – Mechanical Zero-point Clamping System

MNG

$D_{1\ n6}$ mm	$D_{2\ h6}$ mm	80 899 ...
12	30	**61700**
12	32	**61800**
12	50	**61900**

MNG – Alignment Pin

▲ MNG – Mechanical Zero-point Clamping System

MNG

$D_{1\ n6}$ mm	$D_{2\ h6}$ mm	80 899 ...
18	14	**607**
18	18	**608**
18	20	**609**
18	22	**610**

MNG – Clamping Screw Set for T-slot

▲ MNG – Mechanical Zero-point Clamping System

Scope of supply:
Clamping screw and T-Nuts

MNG

for slot width mm	G	80 899 ...
12	M8	**63800**
12	M10	**63400**
14	M8	**63900**
14	M12	**63500**[1)]
16	M8	**64000**
16	M12	**63600**[1)]
18	M8	**64100**
18	M12	**63700**[1)]

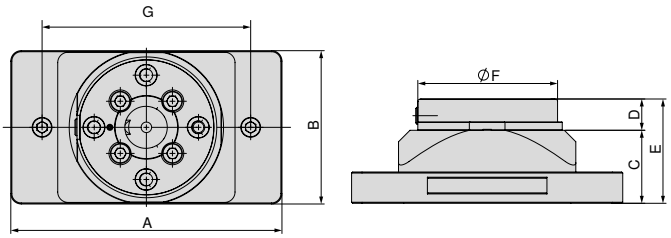
1) With low head screws

MNG – Console with zero point clamping module

▲ MNG – Mechanical Zero-point Clamping System
▲ universal application on all machine tables
▲ Clamping force 20 kN

Scope of supply:
Plate incl. MNG round clamping module

MNG

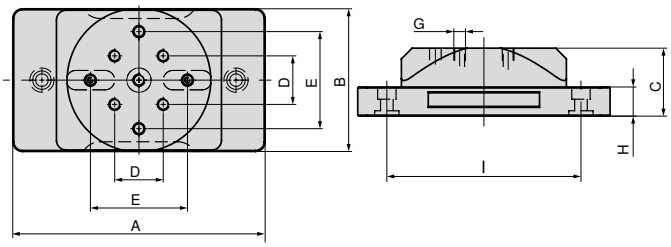


80 899 ...

A	B	C	D	E	F	G	WT	
mm	mm	mm	mm	mm	mm	mm	kg	
260	147	70	30	100	135	200	8,9	**425**

MNG – Console

▲ MNG – Mechanical Zero-point Clamping System
▲ universal application on all machine tables
▲ Material: Aluminum, hard anodized



80 899 ...

A	B	C	D	E ±0,02	G	H	I	WT	
mm	mm	mm	mm	mm		mm	mm	kg	
260	147	70	50	100	M12	30	200	5,5	**420**

Vice guide

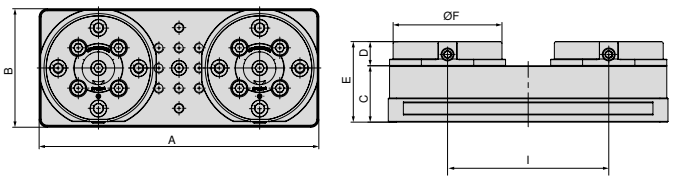
System accessories 144+145 General accessories 164–183

MNG – Double console with zero point clamping module

▲ MNG – Mechanical Zero-point Clamping System
▲ universally applicable on all machine tables
▲ Material: Aluminium Hard Anodised

Scope of supply:
Console including MNG round clamping module

MNG

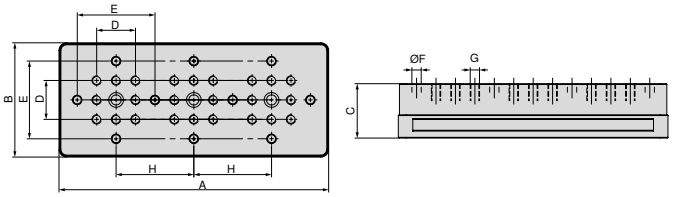


80 899 ...

A	B	C	D	E	F	I	WT	
mm	mm	mm	mm	mm	mm	mm	kg	
347	147	70	30	100	135	200	16,5	**435**

MNG – Double console

▲ MNG – Mechanical Zero-point Clamping System
▲ universally applicable on all machine tables
▲ Material: Aluminium Hard Anodised



80 899 ...

A	B	C	D	E ±0,02	F F7	G	H	WT	
mm	mm	mm	mm	mm	mm		mm	kg	
347	147	70	50	100	12	M12	100	9,3	**430**

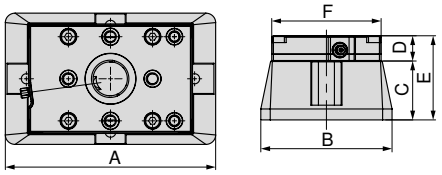
Vice guide

System accessories 144+145
General accessories 164–183

MNG – Console with zero point clamping module

▲ MNG – Mechanical Zero-point Clamping System

MNG

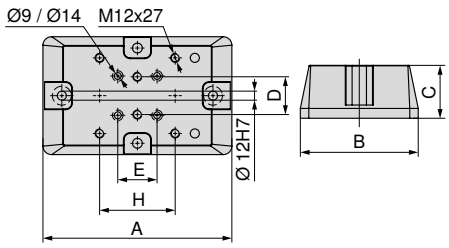


A	B	C	D	E	F	80 878 ...
mm	mm	mm	mm	mm	mm	
250	156	70	30	100	130	**54000**

Console

▲ MNG – Mechanical Zero-point Clamping System

ZSG 4



A	B	C	D	E	H	for	80 878 ...
mm	mm	mm	mm	mm	mm		
250	156	70	50	52	100	ZSG 4 - 80 L = 130 mm + 190 mm / ZSG 4 - 125 L = 160 mm	**54100**
320	197	100	50	50	100	ZSG 4 - 160 L = 280 mm	**54400**
340	162	100	50	50	100	ZSG 4 - 125 L = 235 mm / 300 mm	**54300**

MNG – Assembly set for console

▲ MNG – Mechanical Zero-point Clamping System

for	80 878 ...
ZSG-4.125/160.L235-L280	**54500**
ZSG-4.80.L130-L190	**54200**

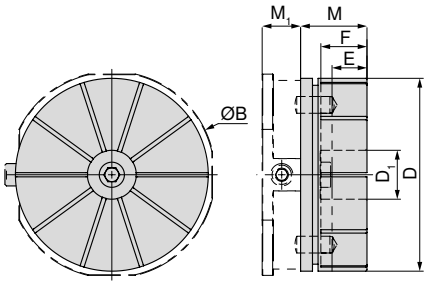
Vice guide

System accessories 144+145 General accessories 164–183

MNG – Aluminum form chuck

▲ MNG – Mechanical Zero-point Clamping System
▲ for incorporation of forms for 2nd op machining

Scope of supply:
Collet with positioning pins, without locating bolts



80 899 ...

B	D	D_1	E	F	M	M_1	
mm	mm	mm	mm	mm	mm	mm	
148	138	35	22	33	47,5	27,5	**500**

Machineable Alu chuck to suit round MNG

Machineable Alu chuck to suit round MNG with clamped workpiece

Available on request

Grid plate

Blank plate

The maximum cutting depth E is 22 mm

Adjustable ring for MNG form collet

MNG

80 899 ...

510

Vice guide

System accessories 144+145
General accessories 164–183

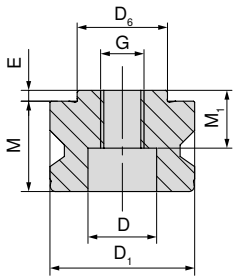
17

MNG – Pull studs

▲ MNG – Mechanical Zero-point Clamping System

Scope of supply:
with clamping screws

MNG



80 899 ...

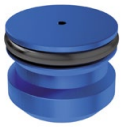
$D_{6\ h6}$ mm	$D_{1\ h6}$ mm	M mm	M_1 mm	E mm	D mm	G
25	40	27	17	3	19	M12

025

MNG – Bungs

▲ MNG – Mechanical Zero-point Clamping System

MNG



80 899 ...

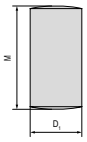
D_1 mm
40

040

MNG – Dowel Set

▲ MNG – Mechanical Zero-point Clamping System
▲ for ESG mini 4V tower and direct workpiece clamping
▲ Price per 2 Pieces

MNG



80 899 ...

$D_{1\ m6}$ mm	M mm
12	24

120

MNG – Sealing plug with O-ring

▲ MNG – Mechanical Zero-point Clamping System

MNG

80 899 ...

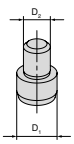
G
M12

126

MNG – positioning pin set

▲ MNG – Mechanical Zero-point Clamping System
▲ for ESG mini and direct workpiece clamping
▲ Price per 2 Pieces

MNG



80 899 ...

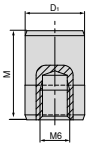
for width mm	D_1 mm	D_2 mm
65	12	8

128

MNG – indexing bolt

▲ MNG – Mechanical Zero-point Clamping System

MNG



D_1 mm	M mm	80 899 ...
12	18	51500

MNG – Clamping Screw Set for T-slot

▲ MNG – Mechanical Zero-point Clamping System

Scope of supply:
Clamping screw and T-Nuts

MNG

for slot width mm	G	80 899 ...
12	M8	63800
12	M10	63400
14	M8	63900
14	M12	63500 [1]
16	M8	64000
16	M12	63600 [1]
18	M8	64100
18	M12	63700 [1]

1) With low head screws

MNG – Clamping set for 14 mm T-slot

▲ MNG – Mechanical Zero-point Clamping System
▲ T-nuts are modified for 63 mm slot pitch
▲ Price per 2 Pieces

MNG

for slot width mm	A mm	80 899 ...
14	63	614

MNG – Alignment/centering set for T-slots

▲ MNG – Mechanical Zero-point Clamping System
▲ A = groove spacing

Scope of supply:
1 Terminal block, 2 T-nuts, 2 screws, 2 washers for width 12 mm, without clamping strip!

MNG

A mm	for slot width mm	80 899 ...
50	12	012 [1]
50	14	014
50	16	016
50	18	018
100	12	81200
100	14	81400
100	16	81600
100	18	81800

1) For 12 mm width excluding clamping strip

MNG – Round claw

▲ MNG – Mechanical Zero-point Clamping System
▲ Two pieces contained in set
▲ Price per 2 pieces

MNG

80 899 ...
300

MNG – Replacement clamping unit

▲ MNG – Mechanical Zero-point Clamping System
▲ Three-part set
▲ for MNG round

MNG

80 899 ...
MNG 026

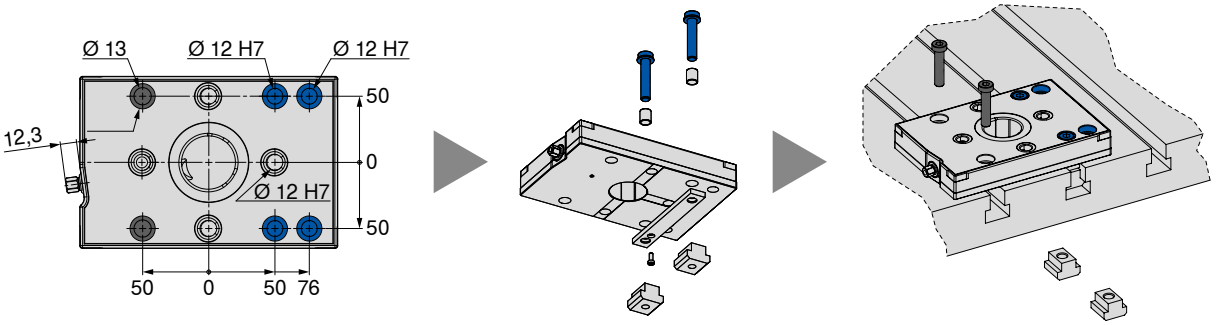
MNG clamping options

MNG – Base plate, rectangular

Mounting:

- 2 x M12 low head screws
- 1 x Alignment and centring set

→ **Page 148**
Here you will find the suitable screws.

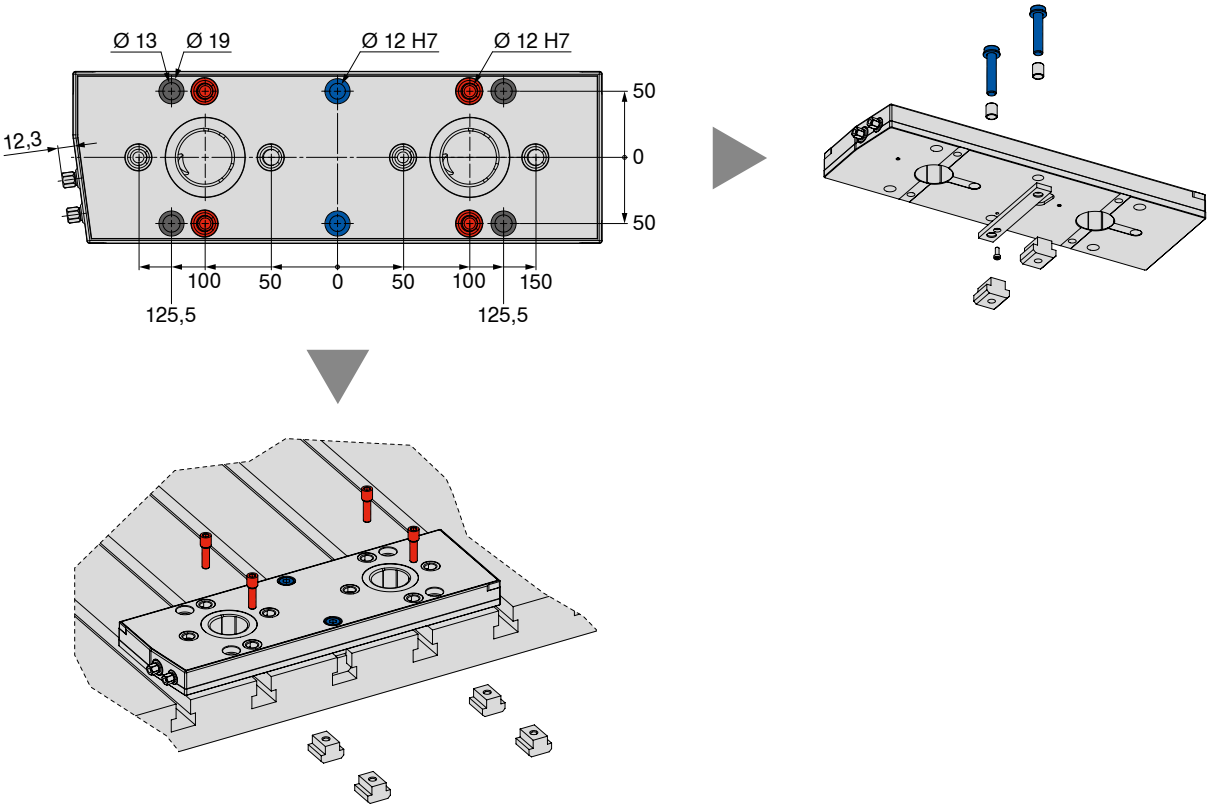


MNG – Base plate, rectangular 2-location

Mounting:

- 4 x M12 low head screws
- 1 x Alignment and centring set
- 4 x M8 MNG special screws

→ **Page 148**
Here you will find the suitable screws.



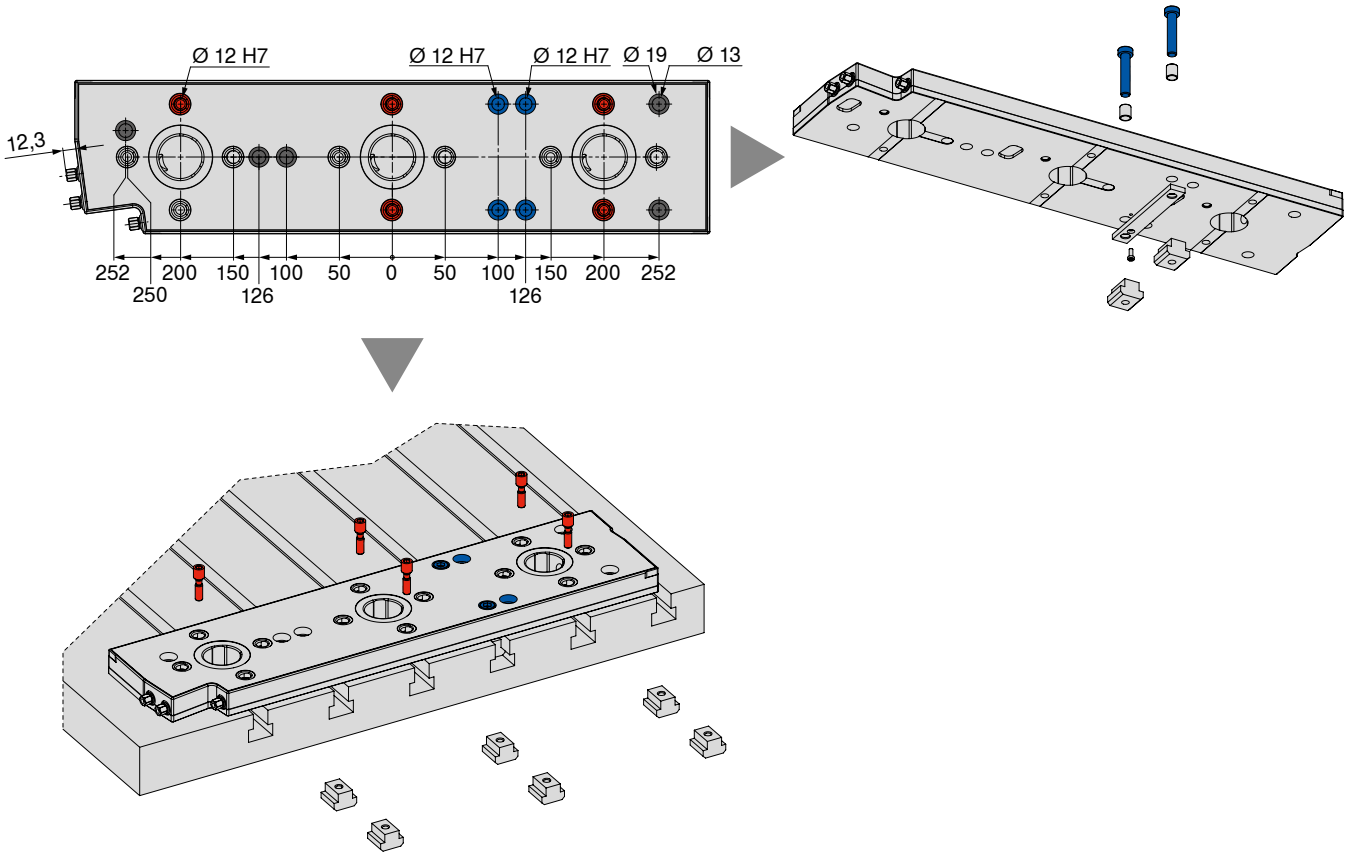
MNG clamping options

MNG – Base plate, rectangular 3-location

Mounting:

- 5 x M12 low head screws
- 1 x Alignment and centring set
- 5 x M8 MNG special screws

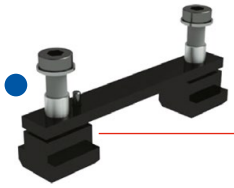
→ **Page 148**
Here you will find the suitable screws.



MNG clamping options

	T-slot table – spacing of 126 mm / 63 mm											
	12 mm			14 mm			16 mm			18 mm		
	● Alignment and centring set spacing 100 mm 80 899 81200	● Clamping set with M10 low head screws 80 899 63400	● Clamping set with M8 MNG special screws 80 899 63800	● Alignment and centring set spacing 100 mm 80 899 81400	● Clamping set with M12 low head screws 80 899 63500	● Clamping set with M8 MNG special screws 80 899 63900	● Alignment and centring set spacing 100 mm 80 899 81600	● Clamping set with M12 low head screws 80 899 63600	● Clamping set with M8 MNG special screws 80 899 64000	● Alignment and centring set spacing 100 mm 80 899 81800	● Clamping set with M12 low head screws 80 899 63700	● Clamping set with M8 MNG special screws 80 899 64100
MNG – Base plate, rectangular	1 x	2 x	––	1 x	2 x	––	1 x	2 x	––	1 x	2 x	––
MNG – Base plate, rectangular 2-location	1 x	4 x	––	1 x	4 x	––	1 x	4 x	––	1 x	4 x	––
MNG – Base plate, rectangular 3-location	1 x	4 x	2 x	1 x	4 x	2 x	1 x	4 x	2 x	1 x	4 x	2 x

	T-slot table – spacing of 100 mm / 50 mm											
	12 mm			14 mm			16 mm			18 mm		
	● Alignment and centring set spacing 100 mm 80 899 81200	● Clamping set with M10 low head screws 80 899 63400	● Clamping set with M8 MNG special screws 80 899 63800	● Alignment and centring set spacing 100 mm 80 899 81400	● Clamping set with M12 low head screws 80 899 63500	● Clamping set with M8 MNG special screws 80 899 63900	● Alignment and centring set spacing 100 mm 80 899 81600	● Clamping set with M12 low head screws 80 899 63600	● Clamping set with M8 MNG special screws 80 899 64000	● Alignment and centring set spacing 100 mm 80 899 81800	● Clamping set with M12 low head screws 80 899 63700	● Clamping set with M8 MNG special screws 80 899 64100
MNG – Base plate, rectangular	1 x	2 x	––	1 x	2 x	––	1 x	2 x	––	1 x	2 x	––
MNG – Base plate, rectangular 2-location	1 x	––	4 x	1 x	––	4 x	1 x	––	4 x	1 x	––	4 x
MNG – Base plate, rectangular 3-location	1 x	1 x	5 x	1 x	1 x	5 x	1 x	1 x	5 x	1 x	1 x	5 x



Alignment and centring set spacing 100 mm

Clamping set with M8 MNG special screws

Clamping set with M10 or M12 low head screws

M16 cylinder low head screw only base plate 6-face, 400 x 400 mm

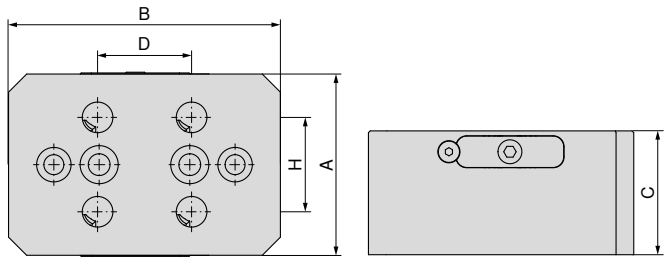
Cylinder head screw for M12 grid holes

→ **Page 145**
→ **Page 182+183**
Here you will find the articles shown above.

MNG mini – Console

- With integrated MNG mini zero point clamping system
- Order mounting bolts separately
- Material: hard-anodised aluminium

MNG mini



NEW

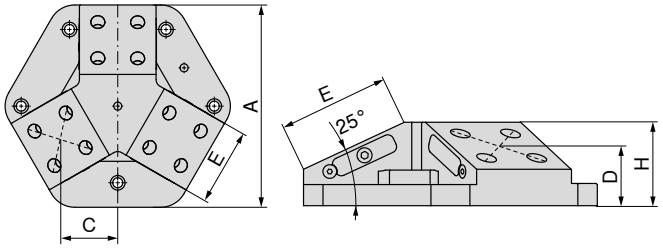
80 915 ...

A mm	B mm	C mm	D mm	H mm	
100	150	70	52	52	**57000**

MNG mini – Three-sided pyramid

- Incl. 3 x MNG mini zero point clamping systems
- Order mounting bolts separately
- Material: hard-anodised aluminium

MNG mini



NEW

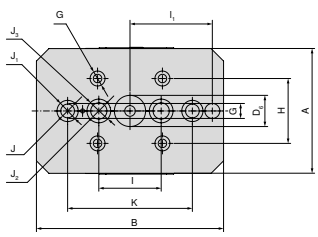
80 915 ...

A mm	C mm	D mm	E mm	H mm	
264	86,68	53,87	100	75	**58000**

Suitable for: ESG 5 – 80 L-130 / ZSG 4 – 80 L-130 / ZSG mini – 70 L-80 / ZSG mini – 70 L-100

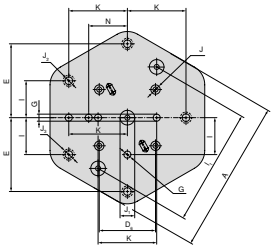
MNG mini underside dimensions

Console



A mm	B mm	$D_{6\ H7}$ mm	G_{H7} mm	H mm	I mm	$I_{1\ \pm0.015}$ mm	J mm	J_1 mm	J_2 mm	J_3 mm	$K_{\pm0.015}$ mm
100	150	25	12	52	50	66	11	17	13	19	100

Three-sided pyramid

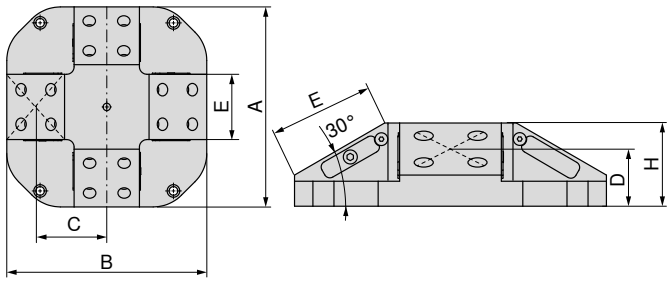


A mm	$D_{6\ \pm0.015}$ mm	E mm	G_{H7} mm	I mm	$I_{1\ \pm0.015}$ mm	J_{H7} mm	$J_{1\ H7}$ mm	J_2 mm	J_3 mm	K mm	$N_{\pm0.015}$ mm
264	96	126	12	63	200	16	25	13	19	100	66

MNG mini – Four-sided pyramid

- Incl. 4 x MNG mini zero point clamping systems
- Order mounting bolts separately
- Material: hard-anodised aluminium

MNG mini



NEW

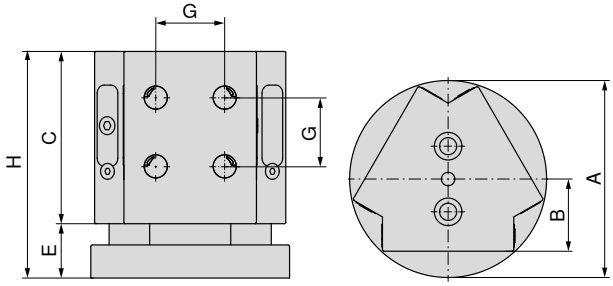
80 915 ...

A	B	C	D	E	H	
mm	mm	mm	mm	mm	mm	
300	300	106,7	55	100	80	**57500**

MNG mini – Triangular tombstone

- Incl. 3 x MNG mini zero point clamping systems
- Order mounting bolts separately
- Material: hard-anodised aluminium

MNG mini



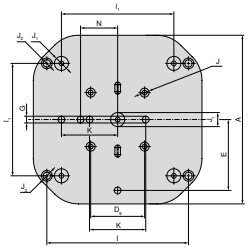
NEW

80 915 ...

A	B	C	E	G	H	
mm	mm	mm	mm	mm	mm	
148	55	130	41	52	171	**51700**

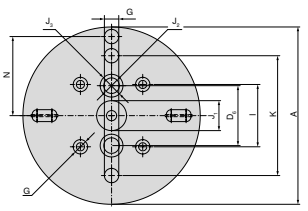
Suitable for: ESG 5 – 80 L-130 / ZSG 4 – 80 L-130 / ZSG mini – 70 L-80 / ZSG mini – 70 L-100

MNG mini underside dimensions



Four-sided pyramid

A	$D_{6\ \pm0.015}$	E	G_{H7}	I	$I_{1\ \pm0.015}$	J_{H7}	$J_{1\ H7}$	J_2	J_3	$K_{\pm0.015}$	$N_{\pm0.015}$
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
300	96	126	12	252	200	16	25	13	19	100	66



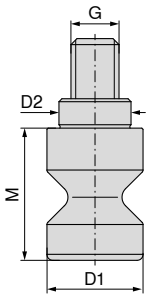
Triangular tombstone

A	D_6	G_{H7}	$I_{\pm0.015}$	$J_{1\ H7}$	J_2	J_3	$K_{\pm0.015}$	$N_{\pm0.015}$
mm	mm	mm	mm	mm	mm	mm	mm	mm
148	50	12	52	25	13	19	100	66

MNG mini mounting bolt set

Scope of supply:
Set contains four mounting bolts

MNG mini



NEW

$D_{1\ h6}$ mm	$D_{2\ h6}$ mm	M mm	G mm	TQX Nm	Clamping force kN	80 915 ...
16	12	22	M8	18	15	**51600**

Clamping Screw Set for T-slot for MNG mini

Scope of supply:
Clamping screw and T-Nuts

MNG mini

NEW

for slot width mm	G	80 915 ...
12	M10	**61200**
14	M12	**61400**
16	M12	**61600**
18	M12	**61800**

Alignment/centering set for T-slots

▲ MNG – Mechanical Zero-point Clamping System
▲ A = groove spacing

Scope of supply:
1 Terminal block, 2 T-nuts, 2 screws, 2 washers for width 12 mm, without clamping strip!

MNG mini

NEW

A mm	for slot width mm	80 915 ...
100	12	**81200**
100	14	**81400**
100	16	**81600**
100	18	**81800**

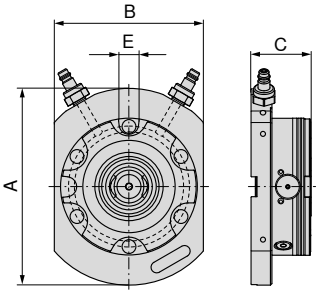
1-position clamping station

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Insertion force 8 kN
- ▲ Insertion force with turbo 28 kN
- ▲ Unlocking pressure 6 bar
- ▲ Air connection G 1/8

Scope of supply:

Clamping station, fixing clamps, sealing nipple, pneumatic plug connections, dust covers, operating instructions; without clamping bolt, without indexing bolt

PNG



80 809 ...

A	B	C	E_{H7}	WT
mm	mm	mm	mm	kg
198	150	60	20	7

01100

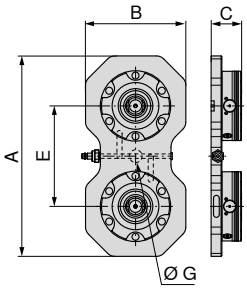
2-position clamping station, 399 x 199 mm

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Insertion force 16 kN
- ▲ Unlocking pressure 6 bar
- ▲ Air connection G 1/8

Scope of supply:

Clamping station, fixing clamps, sealing nipple, pneumatic plug connections, dust covers, operating instructions; without clamping bolt, without indexing bolt

PNG



80 809 ...

A	B	C	E	G_{H7}	WT
mm	mm	mm	mm	mm	kg
399	199	60	200	25	16,9

02100

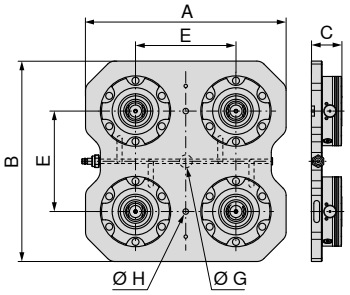
4-position clamping station, 399 x 399 mm

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Insertion force 32 kN
- ▲ Unlocking pressure 6 bar
- ▲ Air connection G 1/8

Scope of supply:

Clamping station, fixing clamps, sealing nipple, pneumatic plug connections, dust covers, operating instructions; without clamping bolt, without indexing bolt

PNG



80 809 ...

A	B	C	E	G_{H7}	H	WT
mm	mm	mm	mm	mm	mm	kg
399	399	60	200	25	11	35,7

04100

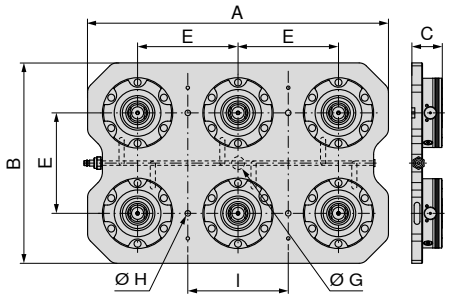
6-position clamping station, 599 x 399 mm

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Insertion force 48 kN
- ▲ Unlocking pressure 6 bar
- ▲ Air connection G 1/8

Scope of supply:

Clamping station, fixing clamps, sealing nipple, pneumatic plug connections, dust covers, operating instructions; without clamping bolt, without indexing bolt

PNG



80 809 ...

A	B	C	E	G_{H7}	H	I	WT
mm	mm	mm	mm	mm	mm	mm	kg
599	399	60	200	25	11	200	54,4

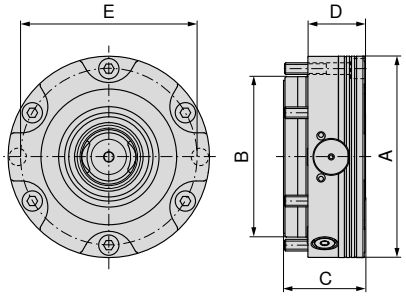
06100

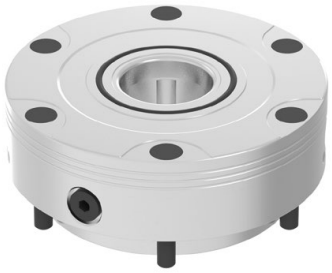
PNG – Zero point clamping module PNG.SM.138

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Insertion force 8 kN
- ▲ Insertion force with turbo 28 kN
- ▲ Unlocking pressure 6 bar
- ▲ Air connection G 1/8
- ▲ Repeatability 0.005

Scope of supply:
Clamping module, fixing screws, O-rings, cover caps, operating instructions; without clamping bolts

PNG





80 809 ...

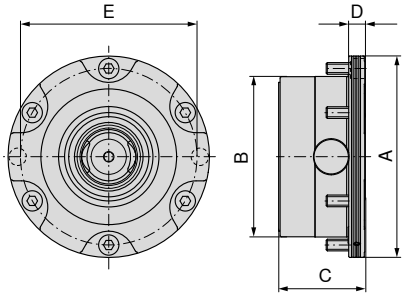
A mm	B mm	C mm	D mm	E mm	G	WT kg	
138	110	55,7	39	121	G1/8"	4,4	**10100**

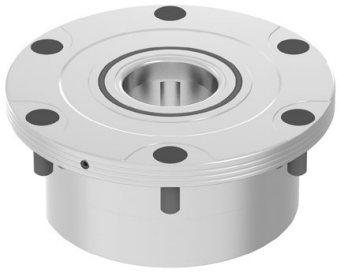
PNG – Zero point clamping system PNG.SM.T.138

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Insertion force 7 kN
- ▲ Insertion force with turbo 24 kN
- ▲ Unlocking pressure 6 bar
- ▲ Air connection G 1/8
- ▲ Repeatability 0.005

Scope of supply:
Clamping module, fixing screws, O-rings, cover caps, operating instructions; without clamping bolts

PNG





80 809 ...

A mm	B mm	C mm	D mm	E mm	G	WT kg	
138	110	59	11	121	G1/8"	3,5	**12100**

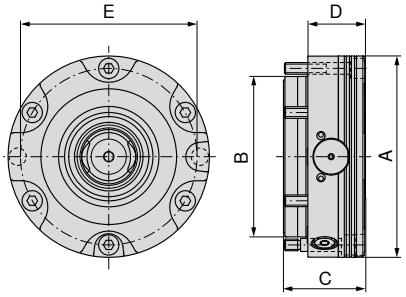
PNG – Zero point clamping module PNG.SM.V.138

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Insertion force 8 kN
- ▲ Insertion force with turbo 28 kN
- ▲ Unlocking pressure 6 bar
- ▲ Air connection G 1/8
- ▲ Repeatability 0.005

Scope of supply:

Clamping module, fixing screws, dowel screw, O-rings, cover caps, operating instructions; without clamping bolts, without indexing bolt

PNG



80 809 ...

A mm	B mm	C mm	D mm	E mm	G	WT kg	
138	110	55,7	39	121	G1/8"	4,4	**11100**

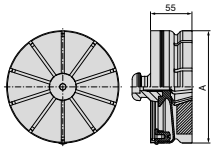
PNG – Aluminium form collet

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Max. clamping force 50 kN
- ▲ Repeatability 0.005
- ▲ Clamping stroke 0.5 mm
- ▲ Aluminium

Scope of supply:

Aluminium form collet, adjustment ring, clamping bolt, indexing bolt, operating instructions

PNG



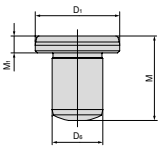
80 809 ...

A mm	WT kg	
149	1,5	**07600**

PNG – indexing bolt

- ▲ PNG – Pneumatic zero point clamping system

PNG

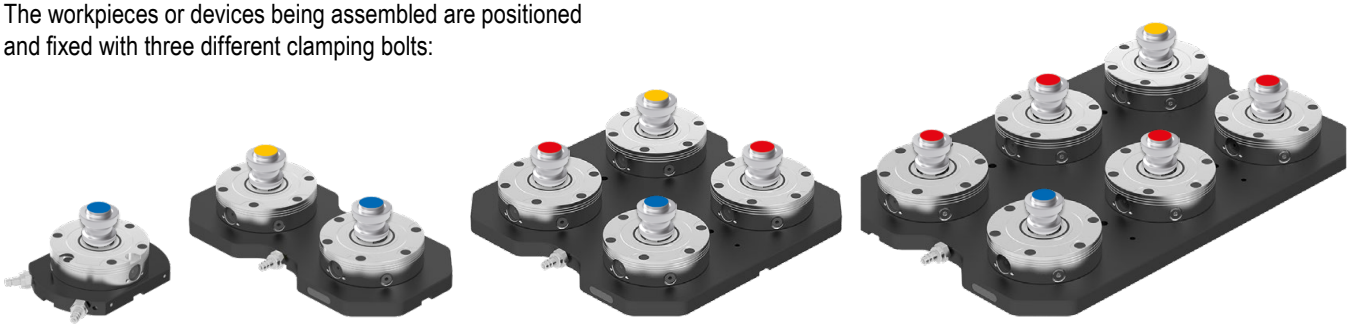


80 809 ...

$D_{1\ h5}$ mm	M mm	M_1 mm	$D_{6\ m6}$ mm	
20	20	4	12	**073**

Assembly – Clamping bolts

The workpieces or devices being assembled are positioned and fixed with three different clamping bolts:



Centring bolt
Precision-ground, used to precisely position the clamping device.

Positioning bolt
This bolt, which is also known as a diamond bolt, is only ground in an axial direction so that the system is not overloaded.

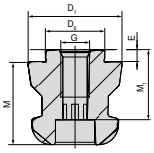
Locking bolt
Ensures that the pallets lie flat on the clamping system. Ground smaller to short taper.

PNG – clamping bolt

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Three bolt types – ZB (centring bolt), PB (positioning bolt), HB (clamping bolt)
- ▲ Precision location bolts ensuring accuracy and repeatability
- ▲ Clamping force 50 kN

Scope of supply:
Incl. M10 fixing screw

PNG

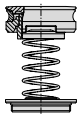


Type	$D_{6\ H6}$ mm	$D_{1\ h6}$ mm	M mm	M_1 mm	E mm	G	80 809 ...
ZB	25	40	35	27	5	M12	070
PB	25	40	35	27	5	M12	071
HB	25	40	35	27	5	M12	072

PNG – Cone seal

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Protective cover for the interchangeable interface

PNG

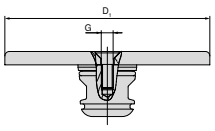


WT kg	80 809 ...
0,11	07500

PNG – protective cover

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Protective cover for the interchangeable interface

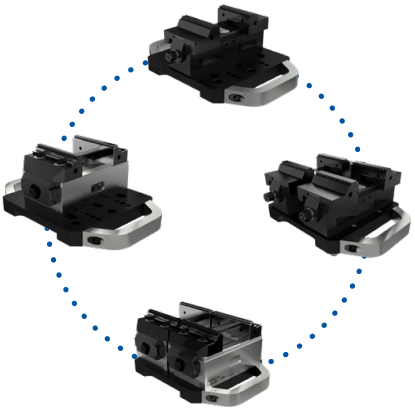
PNG



D_1 mm	G	80 809 ...
138	M8	074

Overview of multi-adapter pallets

Multi-adapter pallet 159 x 159 mm

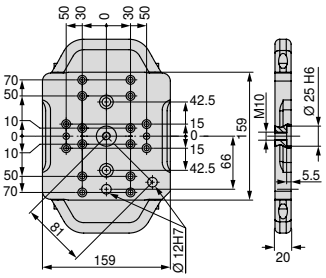


Application examples

Multi-adapter pallet 159 x 159 mm

▲ Multi-adapter pallet for mounting PNG and MNG

Scope of supply:
Incl. clamping bolts and screws
without pull studs



Size	WT kg	80 809 ...
159x159 mm	4	500

Mounting set – multi-adapter pallet, 159 x 159 mm

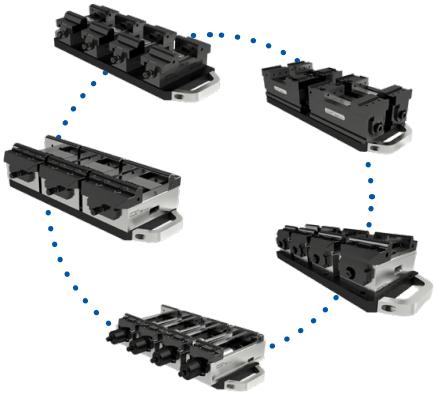
▲ price per set

for	80 878 ...
ZSG-4.80	503

17

Overview of multi-adapter pallets

Multi-adapter pallet 399 x 159 mm



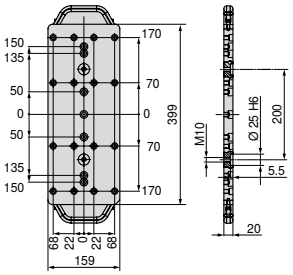
Application examples

Multi-adapter pallet 399 x 159 mm

▲ Multi-adapter pallet for mounting PNG and MNG

Scope of supply:

Incl. clamping bolts and screws
without pull studs



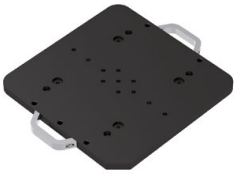
Size	WT kg	80 809 ...
399x159 mm	10	**501**

Mounting set – multi-adapter pallet 399 x 159 mm

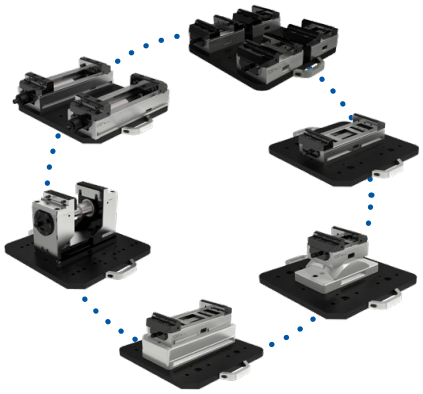
▲ price per set

for	80 884 ...
ZSG-3.65/ZSG-4.80/125L160/ESG-4.80	**503**

Overview of multi-adapter pallets



Multi-adapter pallet 399 x 399 mm

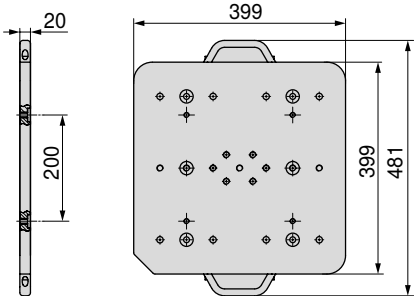


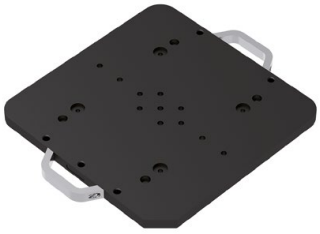
Application examples

Multi-adapter pallet 399 x 399 mm

▲ Multi-adapter pallet for mounting PNG and MNG

Scope of supply:
Incl. clamping bolts and screws
without pull studs





Size	WT kg	80 809 ...
399x399 mm	25	502

Mounting set – multi-adapter pallet 399 x 399 mm

▲ price per set

for	80 901 ...	80 898 ...	80 878 ...
ESG4.125	500		
H5G.125		500	
ZSG-4.125.L160			500
ZSG-4.125.L160.K			502
ZSG-4.125.L300			501
ZSG-4.125.L300-DK			504

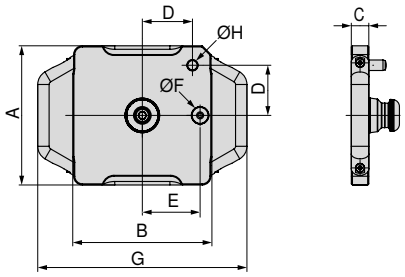
17

Steel clamping pallet, 159 x 159 mm

▲ Clamping pallet for mounting PNG
▲ Without hole pattern

Scope of supply:

Unmachined clamping pallet, PNG clamping bolt and positioning pin



80 809 ...

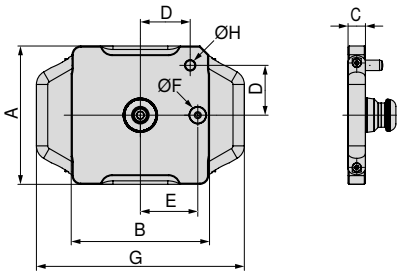
Size	A mm	B mm	C mm	D mm	E mm	F h5 mm	G mm	H m6 mm	WT kg	
159x159 mm	159	159	20	58	66	20	239	12	4,2	**080**

Aluminium clamping pallet, 159 x 159 mm

▲ Clamping pallet for mounting PNG
▲ Without hole pattern

Scope of supply:

Unmachined clamping pallet, PNG clamping bolt and positioning pin



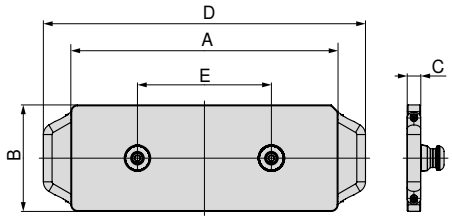
80 809 ...

Size	A mm	B mm	C mm	D mm	E mm	F h5 mm	G mm	H m6 mm	WT kg	
159x159 mm	159	159	25	58	66	20	239	12	2,2	**081**

Steel clamping pallet, 399 x 159 mm

▲ Clamping pallet for mounting PNG and MNG
▲ Without hole pattern

Scope of supply:
Unmachined clamping pallet, PNG clamping bolt and positioning pin



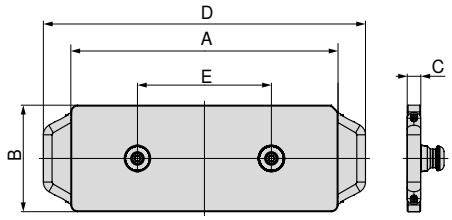
80 809 ...

Size	A	B	C	D	E	WT	
	mm	mm	mm	mm	mm	kg	
399x159 mm	399	159	20	481	200	10,6	**082**

Aluminium clamping pallet, 399 x 159 mm

▲ Clamping pallet for mounting PNG and MNG
▲ Without hole pattern

Scope of supply:
Unmachined clamping pallet, PNG clamping bolt and positioning pin



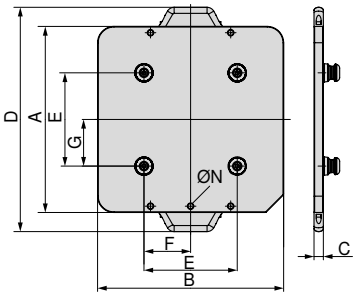
80 809 ...

Size	A	B	C	D	E	WT	
	mm	mm	mm	mm	mm	kg	
399x159 mm	399	159	25	481	200	5,1	**083**

Steel clamping pallet, 399 x 399 mm

▲ Clamping pallet for mounting PNG and MNG
▲ Without hole pattern

Scope of supply:
Unmachined clamping pallet, PNG clamping bolt and positioning pin



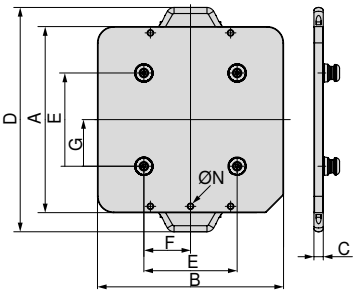
80 809 ...

Size	A	B	C	D	E	F	G	N	WT	
	mm	mm	mm	mm	mm	mm	mm		kg	
399x399 mm	399	399	20	481	200	100	100	M10	28	**084**

Aluminium clamping pallet, 399 x 399 mm

▲ Clamping pallet for mounting PNG and MNG
▲ Without hole pattern

Scope of supply:
Unmachined clamping pallet, PNG clamping bolt and positioning pin



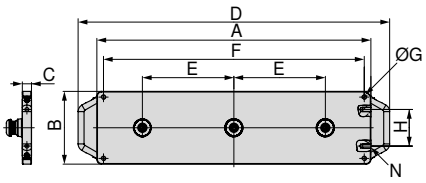
80 809 ...

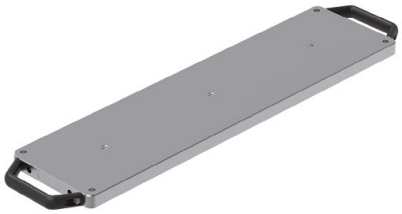
Size	A	B	C	D	E	F	G	N	WT	
	mm	mm	mm	mm	mm	mm	mm		kg	
399x399 mm	399	399	25	481	200	100	100	M10	12	**085**

Steel clamping pallet, 599 x 159 mm

▲ Clamping pallet for mounting PNG and MNG
▲ Without hole pattern

Scope of supply:
Unmachined clamping pallet, PNG clamping bolt and positioning pin





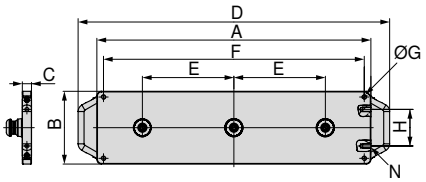
80 809 ...

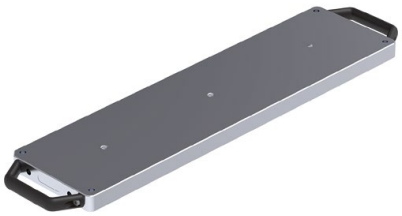
Size	A mm	B mm	C mm	D mm	E mm	F mm	G	H mm	N	WT kg	
599x159 mm	599	159	20	681	200	570	M10	80	M10	15,6	**086**

Aluminium clamping pallet, 599 x 159 mm

▲ Clamping pallet for mounting PNG and MNG
▲ Without hole pattern

Scope of supply:
Unmachined clamping pallet, PNG clamping bolt and positioning pin





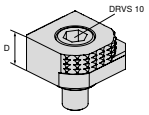
80 809 ...

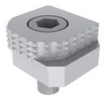
Size	A mm	B mm	C mm	D mm	E mm	F mm	G	H mm	N	WT kg	
599x159 mm	599	159	25	681	200	570	M10	80	M10	7,4	**087**

General top jaws overview

6 function indexable jaw

- ▲ 1 = Smooth, carbide coated
- ▲ 2 = Grip with 3 mm step
- ▲ 3 = Grip with 8 mm step
- ▲ 4 = Grip with 18 mm step
- ▲ 5 = Rough grip with 8 mm step
- ▲ 6 = Round grip
- ▲ M_{max} = 60 Nm
- ▲ Including fixation screws

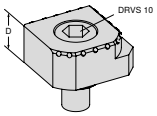


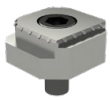


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							80 892 246	●	●	●	●			●		●	●	

6x indexable jaw, carbide grip

- ▲ 1 = Smooth
- ▲ 2 = Carbide grip
- ▲ 3 = Carbide grip with 3 mm step
- ▲ 4 = Carbide grip with 8 mm step
- ▲ 5 = Round carbide grip with 8 mm step
- ▲ 6 = Round carbide grip
- ▲ Incl. fixing screws

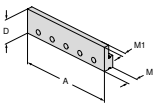




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							80 890 35300	●	●	●	●		●		●	●		

Positioning bar

- ▲ for stepped jaw with T-slot
- ▲ different clamping depths achievable through milling
- ▲ by milling the bar can be used as stop strip
- ▲ Material 1.7131 can be hardened if required
- ▲ Price per piece

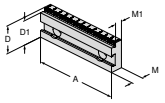


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		32				13,5	7		80 892 338	●					●					●
	125		32				13,5	7		80 892 339	●	●		●		●	●		●		●
	160		32				13,5	7		80 892 340	●			●		●	●				

General top jaws overview

Stepped jaw, grip with T-slot

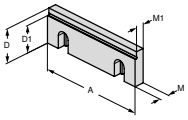
- ▲ T-slot for accommodating a positioning bar
- ▲ with 6.5 mm wide contact surface suitable for workpieces with rough edges
- ▲ laser etched graduation marks (2 mm) as a positioning aid
- ▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35	32			17,5	11,5		**80 892 341**	●					●					●
	100		35	30			17,5	11,5		**80 892 342**	●					●					●
	100		35	27			17,5	11,5		**80 892 343**	●					●					●
	125		40	37			17,5	11,5		**80 892 344**	●	●		●		●	●		●		●
	125		40	35			17,5	11,5		**80 892 345**	●	●		●		●	●		●		●
	125		40	32			17,5	11,5		**80 892 346**	●	●		●		●	●		●		●
	160		50	45			20	13,5		**80 892 348**	●			●		●	●				
	160		50	42			20	13,5		**80 892 349**	●			●		●	●				

Stepped jaw, smooth

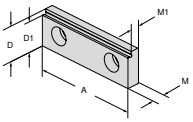
- ▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35	30			10	7,5		**80 892 21400**	●					●					●
	125		40	32			11,5	9,5		**80 892 21500**	●	●		●		●	●		●		●
	160		50	42			13,5	10,5		**80 892 21600**	●			●		●	●				

Stepped jaw, smooth

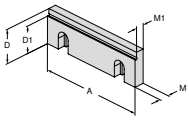
- ▲ Can be used as smooth or stepped jaw
- ▲ Jaw hardened and ground
- ▲ price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	65		22	19			8	5,5		**80 895 332**		●									

Stepped jaw, coated 5 mm

- ▲ Price per piece



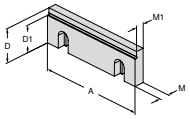
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	80		28	23			10	7,5		**80 878 31400**				●			●		●		

17

General top jaws overview

Stepped jaw, coated 5 mm

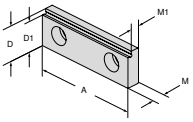
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35	30			10	7,5		**80 892 36300**	●					●					
	125		40	35			11,5	9,5		**80 892 250**	●	●		●		●	●		●		●
	160		50	45			13,5	10,5		**80 892 36400**	●			●		●	●				

Stepped jaw, 5 mm

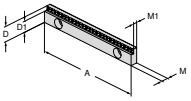
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	80		28	23			10	7,5		**80 878 830**				●			●		●		

Stepped jaw, Grip

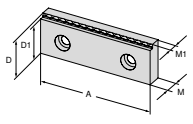
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		18	13			8	5,5		**80 898 252**		●		●					●		
	125		18	15			8	5,5		**80 898 250**		●		●					●		

Stepped jaw, grip, 3 mm

▲ Price per piece

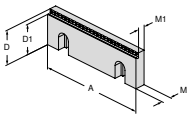


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	80		28	25			10	7		**80 906 30900**				●			●		●		

General top jaws overview

Stepped jaw, grip 3, 5 and 8 mm

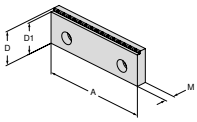
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35	27			10	7,5		80 892 29200	●					●					●
	100		35	30			10	7,5		80 892 29000	●					●					●
	100		35	32			10	7,5		80 892 29400	●					●					●
	125		40	32			11,5	9		80 892 29300	●	●		●		●	●		●		●
	125		40	35			11,5	9		80 892 29100	●	●		●		●	●		●		●
	125		40	37			11,5	9		80 892 29500	●	●		●		●	●		●		●
	160		50	42			13,5	11		80 892 29900	●			●		●	●				
	160		50	45			13,5	11		80 892 29800	●			●		●	●				
	160		50	47			13,5	11		80 892 29700	●			●		●	●				

Stepped jaw, carbide grip 3 mm

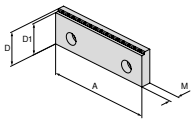
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35	32			7,5			80 892 37600	●	●		●		●	●		●		
	125		40	37			11,5			80 892 36500	●	●		●		●	●		●		
	160		50	47			13,5			80 892 37400	●	●		●		●	●		●		

Stepped jaw, carbide grip 5 mm

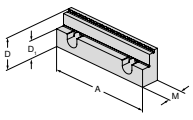
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35	30			12			80 892 37700	●	●		●		●	●		●		
	125		40	35			13,5			80 892 37500	●	●		●		●	●		●		
	160		50	45			15,5			80 892 37300	●	●		●		●	●		●		

Stepped jaw, 18 mm with 3 mm Grip Step

▲ Price per piece

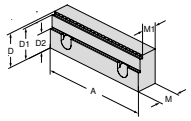


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		40	22			21,5			80 892 288	●	●		●		●	●		●		●

General top jaws overview

Stepped jaw, 18 mm with 3 mm grip step

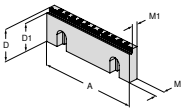
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		40	37	22		24	19		**80 907 302**	●	●		●		●	●		●		●

Stepped jaw, grip 5 mm for aluminium and plastic

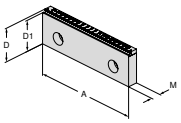
▲ Price per piece

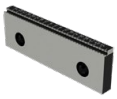


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		40	35			11,5	8		**80 892 36100**	●	●		●		●	●		●		

Stepped jaw embossed profile

▲ Price per piece
▲ suitable for LANG embossed profile





For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		40	37			11,5			**80 892 36200**	●	●		●		●	●		●		

Jaw, grip

▲ Price per piece

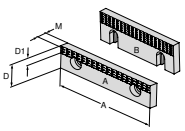
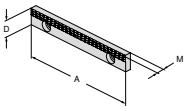


Illustration	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
A	40		22	7			7,8			**80 892 279**										●	
A	65		22	7			7,8			**80 892 280**										●	
A	90		22	7			7,8			**80 892 284**										●	
B	100		35	12			10			**80 892 21700**	●					●					●
B	125		40	14,5			11,5			**80 892 21800**	●			●		●			●		●
B	160		50	14,5			13,5			**80 892 21900**	●			●		●	●				

General top jaws overview

Top jaw, grip

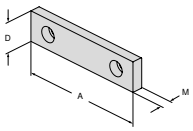
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		18				7,8			**80 898 253**	●	●		●					●		

Ground top jaw

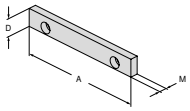
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	40		22				7,7			**80 889 401**										●	
	40		35				10			**80 889 405**										●	
	65		22				7,7			**80 889 651**										●	
	65		35				10			**80 889 655**										●	
	90		22				7,7			**80 889 901**										●	
	90		35				10			**80 889 905**										●	

Ground top jaw

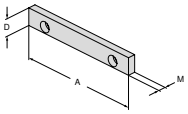
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		18				7,6			**80 898 251**	●	●		●					●		

Top jaw, carbide coated

▲ with carbide coating
▲ Price per piece

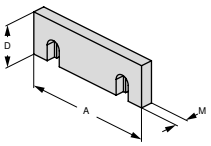


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		18				7,6			**80 898 254**	●	●		●					●		

General top jaws overview

Smooth jaw

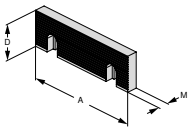
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35				10			**80 892 20400**	●					●					●
	125		40				11,5			**80 892 20500**	●			●		●	●		●		●
	160		50				13,5			**80 892 20600**	●			●		●	●				

Jaw, profiled

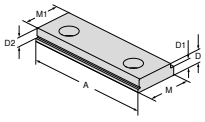
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35				10			**80 892 20700**	●					●					●
	125		40				11,5			**80 892 20800**	●			●		●	●		●		●
	160		50				13,5			**80 892 20900**	●			●		●	●				

Grip jaw, indexable

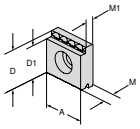
▲ For vertical and horizontal application
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	65		8	5,5	5		22	19		**80 895 340**		●					●				
	100		10,5	8	5		35	32		**80 895 343**	●					●					●

Grip jaw, indexable

▲ For vertical and horizontal application
▲ 3 point clamping
▲ Price per piece

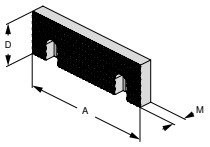


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
65	22		22	19			8	5,5		**80 895 335**		●					●				
100	35		35	32			10,5	8		**80 895 345**	●					●					

General top jaws overview

Jaw, cut

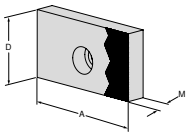
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35				11			80 892 20100	●					●					●
	125		40				12,5			80 892 20200	●			●		●	●		●		●
	160		50				14,5			80 892 20300	●			●		●	●				

Jaw, cut

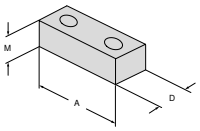
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	40		35				11			80 889 408										●	
	40		22				8			80 889 404										●	
	65		35				11			80 889 658										●	
	65		22				8			80 889 654										●	
	90		35				11			80 889 908										●	
	90		22				8			80 889 904										●	

Soft jaw, steel

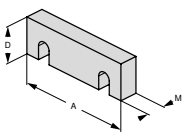
▲ Material: 16MnCr5
▲ Only for vertical application
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	40		22				20			80 895 244										●	
	65		22				20			80 895 245		●		●			●			●	
	90		22				20			80 895 246										●	

Soft jaw, steel

▲ Material: 14NiCr14
▲ for the preparation of formed jaws
▲ Price per piece

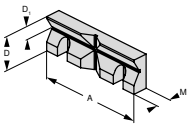


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35				16			80 892 24700	●					●					●
	125		40				20			80 892 24800	●	●		●		●	●		●		●
	160		50				20			80 892 24900	●			●		●	●				

General top jaws overview

Prismatic jaw

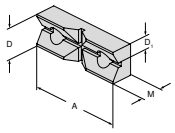
▲ with horizontal and vertical prism
▲ prism horizontally and vertically ground for parallelism
▲ Price per piece



For clamping diameter	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
11 - 41	100		35	13			15,5			**80 892 26100**	●					●					●
14 - 48	125		40	16			17,5			**80 892 26200**	●	●		●		●	●		●		●
16 - 60	160		50	20			19,5			**80 892 26300**	●			●		●	●				

Prismatic jaw

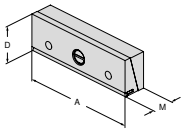
▲ with horizontal and vertical prism
▲ price per piece



For clamping diameter	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
11 - 22	65		22	11			15			**80 895 337**		●					●				

Precision pull down jaw

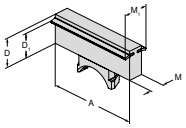
▲ Pull down jaw is only for use on the movable jaw
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35				25			**80 892 370**	●										●
	125		40				25			**80 892 371**	●	●		●		●	●		●		●
	160		50				27,5			**80 892 372**	●			●		●	●				

Adapter jaws with pull down

▲ for the types NCG, NCG2, and HDG2
▲ with reciprocal pull down feather/spring jaws
▲ price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35	28			28	45		**80 892 258**	●										
	125		40	32,5			20	35		**80 892 259**	●					●					
	160		50	42			20	35		**80 892 260**	●					●					

General top jaws overview

Multipin front jaw

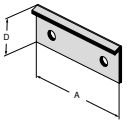
▲ Price per piece

NCG | HDG 2

A mm	D mm	80 890 ...
125	40	30200

Pull down jaw with spring plate

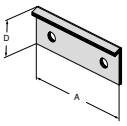
▲ for finish machining
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	80		24							80 901 309				●			●		●		
	125		35							80 901 310				●			●		●		
	160		45							80 901 311				●			●				

Pull down jaw with spring plate

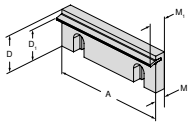
▲ for finish machining
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	65		23							80 898 923											
	100		36							80 898 924	●					●					●
	125		41							80 898 925	●					●					●
	160		51							80 898 926	●					●					

Spring leaf pull down jaw

▲ Price per piece



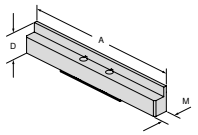
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35	28			10	18,5		80 892 22800	●					●					●
	125		40	32,5			11,5	19		80 892 22900	●			●		●	●		●		●
	160		50	42			13,5	21		80 892 23000	●			●		●	●				

17

Workpiece supports overview

Workpiece supports, offset

▲ hardened and ground
▲ held by means of spring wedge in the baseplate
▲ Price for 2 pieces



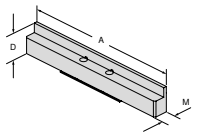
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		16				10,5			**80 890 401**	●										
	100		11				10,5			**80 890 400**	●										
	100		23				10,5			**80 890 409**	●										
	100		25,5				10,5			**80 890 411**	●										
	100		29,5				10,5			**80 890 421**	●										
	125		32,5				10,5			**80 890 395**	●										
	125		11				10,5			**80 890 390**	●										
	125		16				10,5			**80 890 391**	●										
	125		21				10,5			**80 890 392**	●										
	125		26				10,5			**80 890 393**	●										
	125		29				10,5			**80 890 394**	●										
	125		36				10,5			**80 890 396**	●										
	125		25				10,5			**80 890 422**	●										
	160		39				10,5			**80 890 454**	●										
	160		26				10,5			**80 890 452**	●										
	160		42,5				10,5			**80 890 456**	●										

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125						10,5			**80 890 399**	●										

80 890 399: Set of 7 workpiece supports of 2 pieces in a wooden box (exclusive **80 890 422**)

Workpiece supports, offset

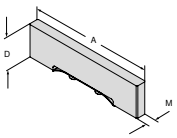
▲ Hardened and ground
▲ Held by means of clamping springs in the base plate
▲ 2 pieces contained in set
▲ Price per set



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		11				10,5			**80 901 703**				●							
	125		21				10,5			**80 901 704**				●							
	125		25				10,5			**80 901 705**				●							
	160		26				10,5			**80 901 700**				●							
	125		32,5				10,5			**80 901 706**				●							
	160		39				10,5			**80 901 701**				●							
	160		42,5				10,5			**80 901 702**				●							

Workpiece supports, offset

▲ Hardened and ground
▲ Held by means of clamping springs in the base plate
▲ Two pieces contained in set
▲ Price per set

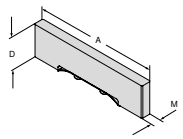


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	80		15				10,5			**80 901 707**				●							
	80		20				10,5			**80 901 708**				●							

Workpiece supports overview

Workpiece supports, offset

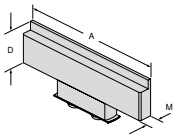
- ▲ Hardened and ground
- ▲ Held by means of clamping springs in the base plate
- ▲ Two pieces contained in set
- ▲ Price per set



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		15				10,5			**80 906 715**									●		
	125		22				10,5			**80 906 722**									●		
	125		25				10,5			**80 906 725**									●		
	125		32,5				10,5			**80 906 732**									●		

Workpiece supports

- ▲ hardened and ground
- ▲ held by spring clips in the baseplate
- ▲ Price for 2 pieces



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		16				10,5			**80 892 401**						●					
	100		25,5				10,5			**80 892 411**						●					
	100		29,5				10,5			**80 892 421**						●					
	125		11				10,5			**80 892 390**						●					
	125		16				10,5			**80 892 391**						●					
	125		21				10,5			**80 892 392**						●					
	125		26				10,5			**80 892 393**						●					
	125		29				10,5			**80 892 394**						●					
	125		32,5				10,5			**80 892 395**						●					
	125		36				10,5			**80 892 396**						●					
	160		26				10,5			**80 892 403**						●					
	160		39				10,5			**80 892 413**						●					
	160		42,5				10,5			**80 892 423**						●					

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125						10,5			**80 892 399**						●					

80 892 399: Set of 7 workpiece supports of 2 pieces in a wooden box

17

Magnet workpiece supports, set

- With clearance on the underside
- Flexible and rational clamping
- Height accuracy +/- 0.01 mm
- Quick and easy to install thanks to magnetic adhesion

Workpiece supports overview

Magnet workpiece supports, set

- Stainless spring steel
- Pressed magnets
- Delivered in set: 5 pairs of 2 pieces
- Price per set

A	D	M		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	5 / 10 / 15 / 20 / 22	2,5	**80 878 79800**			●	●			●		●		
125	8 / 12 / 15 / 20 / 22	2,5	**80 878 79700**	●		●	●		●	●		●		
125	8 / 12 / 20 / 25 / 27	2,5	**80 878 79900**	●		●	●		●	●		●		

Magnet workpiece supports, set

- Stainless spring steel
- Pressed magnets
- Delivered in set: 5 pairs of 2 pieces
- Price per set

A	D	M		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	12 / 20 / 25 / 30 / 32	2,5	**80 892 79700**	●		●			●	●				
125	12 / 25 / 30 / 35 / 37	2,5	**80 892 79800**	●		●			●	●		●		
160	15 / 30 / 40 / 45 / 47	2,5	**80 892 79900**	●		●	●		●	●				

Magnet workpiece supports, set

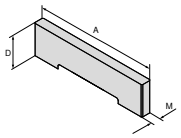
- Stainless spring steel
- Pressed magnets
- Delivered in set: 5 pairs of 2 pieces
- Price per set

A	D	M		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	9 / 22 / 27 / 32 / 34	2,5	**80 901 79900**	●		●			●	●		●		

Workpiece supports overview

Magnet workpiece supports

▲ Price per pair



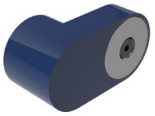
A	D	M		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	5	2,5	80 892 79600			●	●			●		●		
80	10	2,5	80 892 79500	●		●	●		●	●		●		
80	15	2,5	80 892 79400			●	●			●		●		
80	20	2,5	80 892 79300			●	●		●	●		●		
80	22	2,5	80 892 79200			●	●			●		●		
100	12	2,5	80 892 79100	●		●			●	●				
100	20	2,5	80 892 79000	●		●			●	●				
100	25	2,5	80 892 78900	●		●			●	●				
100	27	2,5	80 892 78800	●		●			●	●				
100	29	2,5	80 892 78700	●		●			●	●				
100	30	2,5	80 892 78600	●		●			●	●				
100	31	2,5	80 892 78500	●		●			●	●				
100	32	2,5	80 892 78400	●		●			●	●				
125	8	2,5	80 892 78300	●		●			●	●		●		
125	9	2,5	80 892 78200	●		●			●	●		●		
125	10	2,5	80 892 78100	●		●			●	●		●		
125	12	2,5	80 892 78000	●		●			●	●		●		
125	15	2,5	80 892 77900	●		●			●	●		●		
125	20	2,5	80 892 77800	●		●			●	●		●		
125	22	2,5	80 892 77700	●		●			●	●		●		
125	23	2,5	80 892 77600	●		●			●	●		●		
125	25	2,5	80 892 77500	●		●			●	●		●		
125	27	2,5	80 892 77400	●		●			●	●		●		
125	30	2,5	80 892 77300	●		●			●	●		●		
125	31	2,5	80 892 77200	●		●			●	●		●		
125	32	2,5	80 892 77100	●		●			●	●		●		
125	33	2,5	80 892 77000	●		●			●	●		●		
125	34	2,5	80 892 76900	●		●			●	●		●		
125	35	2,5	80 892 76800	●		●			●	●		●		
125	36	2,5	80 892 76700	●		●			●	●		●		
125	37	2,5	80 892 76600	●		●			●	●		●		
160	15	2,5	80 892 76500	●		●			●	●				
160	22	2,5	80 892 76400	●		●			●	●				
160	30	2,5	80 892 76300	●		●			●	●				
160	37	2,5	80 892 76200	●		●			●	●				
160	40	2,5	80 892 76100	●		●			●	●				
160	41	2,5	80 892 76000	●		●			●	●				
160	42	2,5	80 892 75900	●		●			●	●				
160	43	2,5	80 892 75800	●		●			●	●				
160	44	2,5	80 892 75700	●		●			●	●				
160	45	2,5	80 892 75600	●		●			●	●				
160	46	2,5	80 892 75500	●		●			●	●				
160	47	2,5	80 892 75400	●		●			●	●				

Workpiece support, magnetic

Scope of supply:
Including stop pin 50 mm/100 mm

for width mm	Size	80 892 ...
80/100/125/160	60x15	23800
80/100/125/160	115x15	23900

Extension for workpiece support, magnetic



for width mm	Size	80 892 ...
80/100/125/160	68x30 mm	25400

17

Accessories General Overview

Alignment and centering kit for T-slots

▲ Price per piece

H5G -Z | ESG 4 | DSG 4

l mm	for slot width mm	80 897 ...
100	14	114
100	16	116
100	18	118

Alignment and centring set

▲ Price per piece

ESG 4 | DSG 4

l mm	for slot width mm	80 906 ...
80	12	812
80	14	814
80	16	816
80	18	818

Clamping Screw Set for T-slot for MNG

▲ Price for 2 pieces

ESG 4 | ZSG 4 | DSG 4

for width mm	G	80 899 ...
12	M10	312
14	M12	314
16	M12	316
18	M12	318

Workpiece stop

NCG | H5G | HDG 2 | DSG 4 | ESG 4 | ZSG 4

80 892 ... 400

Workpiece stop

ESG 4 | ZSG 4 | DSG 4

80 895 ... 010

Workpiece stop

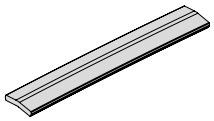
ESG 4 | ZSG 4

80 884 ... 400

Accessories General Overview

Replacement spring plates

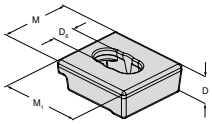
▲ price per piece
▲ for pull down and intermediate jaws



for width mm	80 892 ...
100	430
125	431
160	432

Clamping claws

▲ Price for 2 pieces



D mm	D6 mm	M mm	M1 mm	80 890 ...
20	16	50	57	315

Clamping levers overview

Clamping Handle with Joint

▲ without socket

Torque in Nm	Square drive	DRVS		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
	1/2"		**80 891 600**				●			●						

Torque Wrench

▲ without socket

Torque in Nm	Square drive	DRVS		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
10 - 100	1/2"		**80 884 502**				●		●	●	●	●				
20 - 200	1/2"		**80 884 504**			●	●		●	●	●					

Torque key

▲ without socket

Torque in Nm	Square drive	DRVS		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
5 - 50	3/8"		**80 884 402**								●		●		●	

Control set

▲ Torque key incl. socket, screwdriver A/F10 and 1/2" extension

Torque in Nm	Square drive	DRVS		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
8 - 50	3/8"	10	**80 899 410**												●	

Clamping levers overview

Socket

▲ Suitable for 1/2" or 3/8" square drive

Torque in Nm	Square drive	DRVS		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
	3/8"	5	**80 877 105**													
	3/8"	6	**80 877 10600**													●
	3/8"	8	**80 877 108**										●		●	
	1/2"	8	**80 877 208**													
	1/2"	10	**80 877 210**													
	1/2"	14	**80 877 214**			●										

Socket

▲ Suitable for 1/2" or 3/8" square drive

Torque in Nm	Square drive	DRVS		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
	3/8"	7	**80 875 107**													
	3/8"	11	**80 875 11100**								●					
	3/8"	12	**80 875 112**				●			●		●				
	1/2"	12	**80 875 212**				●			●		●				
	1/2"	14	**80 875 214**				●			●		●				

Screws Overview

Clamping screw for top jaws

▲ DIN EN ISO 4762 (1998-02)

For vice width	G	J_{17}		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
	M8x12		80 892 296	●	●				●	●						
	M6x8		80 895 013								●		●			

Clamping screw with shallow head for top jaws

▲ see DIN7984 (1985-05)

For vice width	G	J_{17}		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
	M8x10		80 889 950	●	●				●	●						

Clamping screw for system jaws

▲ Price per piece

For vice width	G	J_{17}		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
	M12x20		80 890 630	●	●											
	M12x40		80 890 632	●	●											

Allen cap screw

▲ DIN 912

For vice width	G	J_{17}		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
	M12x45		80 899 124												●	

Dowel screws

▲ Price for 2 pieces

For vice width	G	J_{17}		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
100	M12x38	12	80 890 313	●			●									
125 / 160	M16x55	16	80 890 314	●												

Screws Overview

Dowel screw

▲ Price for 2 pieces

For vice width	G	J_{17}		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
125	M12x45	12	**80 895 019**		●	●	●			●		●			●	

Clamping screw and T-Nuts

▲ For mounting the clamping claw
▲ Price per 2 pieces

For slot width	G	J_{17}		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
12	M10		**80 890 308**	●	●		●		●	●		●	●			
14	M12		**80 890 309**	●	●		●		●	●		●	●			
16	M14		**80 890 310**	●	●		●		●	●		●	●			
18	M16		**80 890 311**	●	●		●		●	●		●	●			

Clamping screws for round clamps, T-Nut

▲ incl. nut and washer
▲ Price per 2 Pieces

For slot width	G	J_{17}		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
12	M10		**80 899 112**										●		●	
14	M12		**80 899 114**										●		●	
16	M12		**80 899 116**										●		●	
18	M12		**80 899 118**										●		●	

Tenon incl. screw

▲ Price per 2 pieces

For slot width	G	J_{17}		NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG2	ZSG 4	ZSG mini	DSG4	Verso	HSG	MNG	MNG mini
12	M6		**80 898 412**	●	●		●		●			●				
14	M6		**80 898 414**	●	●		●		●			●				
16	M6		**80 898 416**	●	●		●		●			●				
18	M6		**80 898 418**	●	●		●		●			●				

Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

Extended Material Examples for the Cutting Data Tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB
		P.1.3		Tempered	840 N/mm² / 250 HB
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB
		P.1.5		Tempered	1010 N/mm² / 300 HB
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB
		P.2.2		Tempered	930 N/mm² / 275 HB
		P.2.3		Tempered	1010 N/mm² / 300 HB
		P.2.4		Tempered	1200 N/mm² / 375 HB
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB
		M.2.1	Austenitic	Tempered	300 HB
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB
		K.2.2	Pearlitic		845 N/mm² / 250 HB
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB
		K.3.2	Pearlitic		780 N/mm² / 230 HB
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB
		S.1.2		Age-hardened	950 N/mm² / 280 HB
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB
		S.2.2		Age-hardened	1180 N/mm² / 350 HB
		S.2.3		Cast	1080 N/mm² / 320 HB
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB
		S.3.3	Beta alloys		1400 N/mm² / 410 HB
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC
		H.1.2		Hardened and tempered	56–60 HRC
		H.1.3		Hardened and tempered	61–65 HRC
		H.1.4		Hardened and tempered	66–70 HRC
	Chilled iron	H.2.1		Cast	400 HB
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²
		O.3.1	Graphite		

*** Tensile strength**

On the following 16 pages you will find an extension of the material examples to our usual indexes with additional international standards.

Overview of standards:

DIN

Deutsche **I**ndustrie **N**orm (German Standard)

AFNOR

Association **F**rancaise de **N**ormalisation (French Standard)

UNI

Unificazione **I**taliana (Italian Standard)

ČSN

Czechoslovakian Standard

BS

British **S**tandards

SIS

Standardiseringen **i** **S**verige (Swedish Standard)

UNE

Spanish Standard

JIS

Japanese **I**ndustrial **S**tandard

GOST / ГОСТ

Soviet Standard

UNS

Unified **N**umbering **S**ystem

USA

Under **USA** several American standards are summarized

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
P	P.1.1	1.5423	16 Mo 5		16 Mo 5		1503-245-420					G 45200	4520
		1.0037	St 37-2	E 24-2		11 343				STKM 12 C			
		1.0044	St 44-2	E 28-2	Fe 430 B FN	11 443	4360-43 B	1412		SM 41 B			A 570 Gr. 40
		1.0116	St 37-3	E 24-3; E 24-4	Fe 360 D FF	11 378	4360-40 C	1312; 1313			St 3 kp; ps; sp		A 573 Gr. 58
		1.0144	St 44-3	E 28-3; E 28-4	Fe 430 D FF	11 448	4360-43 C	1412; 1414		SM 41 C	St 4 kp; ps; sp		A 573 Gr. 70
		1.0301	C 10	AF 34 C 10; XC 10	C 10	12 010	045 M 10			S 10 C	10	G 10100	1010
		1.0401	C 15	AF3 7 C 12; XC 18	C 15; C 16	12 020	080 M 15	1350	F-111			G 10170	1015
		1.0402	C 22	AF 42 C 20	C 20; C 21	12 024	050 A 20	1450	F-112		20	G 10200	1020
		1.0406	C 25	AF 50 C 30	C 25	12 030	070 M 26						1025
		1.0570	St 52-3	E 36-3; E 36-4	Fe 510 B; C; D	11 523	4360-50 B	2132		SM 50 YA	17 GS		
		1.1121	Ck 10	XC 10	C 10	12 010	045 M 10	1265	F-1510	S 10 C; S 9 CK	08; 10	G 10100	1010
		1.1133	20 Mn 5	20 M 5	G 22 Mn 3	42 2714	120 M 19			SMnC 420		G 10220	1022; 1518
		1.1141	Ck 15	XC 15; XC 18	C 15; C 16	12 020	080 M 15	1370	F-1511	S 15 C; S 15 CK	15	G 10170	1015
		1.1151	Ck 22	XC 25; XC 18	C 20		050 A 20			S 20 C; S 20 CK	20		1023
		1.1158	Ck 25	XC 25	C 25	12 030	070 M 26			S 25 C	25	G 10250	1025
	P.1.2	1.0050	St 50-2	A 50-2	Fe 490	11 500	4360-50 B	2172		SS 50	BSt 5 ps; sp		A 570 Gr. 50
		1.0060	St 60-2	A 60-2	Fe 590; Fe 60-2	11 600	4360-SSE; SSC			SM 58	St 6 ps; sp		
		1.0406	C 25	AF 50 C 30	C 25	12 030	070 M 26						1025
		1.0420	GS-38										
		1.0446	GS-45										
		1.0481	17 Mn 4			11 748							
		1.0501	C 35	AF 55 C 35	C 35	12 040	060 A 35	1550	F-113		35	G 10350	1035
		1.0503	C 45	AF 65 C 45	C 45	12 050	080 M 46	1650	F-114		45	G 10430	1045
		1.0511	C 40	AF 60 C 40	C 40	12 041							1040
		1.0528	C 30			12 031							
		1.0540	C 50			12 051							
		1.0552	GS-52										
		1.0558	GS-60										
		1.0619	GS-C 25										
		1.0711	9 S 20		CF 9 S 22		220 M 07	220 M 07		SUM 21	SUM 21	G 12120	1212
		1.0715	9 SMn 28	S 250	CF 9 SMn 28	11 109	230 M 07	1912	F-211 / F-2111	SUM 22		G 12130	1213
		1.0718	9 SMnPb 28	S 250 Pb	CF 9 SMnPb 28			1914	F-212 / F-2112	SUM 22 L		G 12134	12 L 13
		1.0721	10 S 20	10 F 1	CF 10 S 20	10 110	210 M 15		F-2121				1108
		1.0722	10 SPb 20	10 PbF 2	CF 10 SPb 20				F-2122				11 L 08
		1.0723	15 S 20				210 A 15	1922		SUM 32			
		1.0736	9 SMn 36	S 300	CF 9 SMn 36		240 M 07		F-2113			G 12150	1215
		1.0737	9 SMnPb 36	S 300 Pb	CF 9 SMnPb 36			1926	F-2114			G 12144	12 L 14
		1.1118	GS-24 Mn 6			42 2714							
		1.1120	GS-20 Mn 5										
		1.1131	GS-16 Mn 5										
		1.1138	GS-21 Mn 5										
		1.1142	GS-Ck 16										
		1.1151	Ck 22	XC 25; XC 18	C 20		050 A 20			S 20 C; S 20 CK	20		1023
		1.1155	GS-Ck 25										
		1.1158	Ck 25	XC 25	C 25	12 030	070 M 26			S 25 C	25	G 10250	1025
		1.1178	Ck 30										
		1.1181	Ck 35	XC 38 H1:XC 32	C 35	12 040	080 M 36	1572		S 35 C	35	G 10340	1035
		1.1186	Ck 40	XC 42 H1	C 40	12 041	080 M 40			S 40 C	40		1040
		1.1191	Ck 45	XC 42	C 45	12 050	080 M 46	1672		S 45 C	45	G 10420	1045
		1.1206	Ck 50	XC 48 H1		12 051	080 M 50				50		1050
		1.1730	C 45 W	Y3 42		19 083							

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
P	P.1.3	1.0501	C 35	AF 55 C 35	C 35	12 040	060 A 35	1550	F-113		35	G 10350	1035
		1.0503	C 45	AF 65 C 45	C 45	12 050	080 M 46	1650	F-114		45	G 10430	1045
		1.0511	C 40	AF 60 C 40	C 40	12 041							1040
		1.0528	C 30			12 031							
		1.0540	C 50			12 051							
		1.0726	35 S 20	35 MF 4		11 140	212 M 36	1957	F-210.G			G 11400	1140
		1.0727	45 S 20	45 MF 4			212 M 44	1973				G 11460	1146
		1.0728	60 S 20	60 MF 4									
		1.1178	Ck 30										
		1.1181	Ck 35	XC 38 H1:XC 32	C 35	12 040	080 M 36	1572		S 35 C	35	G 10340	1035
		1.1186	Ck 40	XC 42 H1	C 40	12 041	080 M 40			S 40 C	40		1040
		1.1191	Ck 45	XC 42	C 45	12 050	080 M 46	1672		S 45 C	45	G 10420	1045
		1.1206	Ck 50	XC 48 H1		12 051	080 M 50				50		1050
	P.1.4	1.0535	C 55	AF 70 C55	C 55	12 060	070 M 55	1655			55		1055
		1.0601	C 60	CC 55	C 60	12 061	080 A 62				60	G 10600	1060
		1.0757	46 SPb 20										
		1.1203	Ck 55	XC 55	C50	12 060	070 M 55			S 55 C	55		1055
		1.1221	Ck 60	XC 60	C60	12 061	080 A 62	1665; 1678		S 58 C	60; 60G	G 10640	1060
		1.1248	Ck 75	XC 75	C 75	12 081	060 A 78	1774; 1778			75	G 10780	1078; 1080
		1.1274	Ck 101	XC 100			060 A 96	1870		SUP 4		G 10950	1095
		1.1520	C 70 W1										
		1.1525	C 80 W1	Y1 90; Y1 80	C 80 KU						U8A	T 72301	W 108
		1.1545+G502	C 105 W1	Y1 105	C 100 KU			1880			U10A	T 72301	W 110
		1.1620	C 70 W2			19 132							
		1.1625	C 80 W2		C 80 KU	19 152	BW 1 B			SKC 3; SK 5; SK 6	U8; 80	T 72301	W 1
		1.1645	C 105 W2	Y2 105	C 100 KU	19 191				SK 3	U10	T 72301	
		1.1663	C 125 W	Y2 120	C 120 KU					SK 2	U13	T 72301	W 112
		1.1673	C 135 W	Y2 140	C 140 KU					SK 1			
		1.1740	C 60 W	Y3 55		19 103				SK 7			
		1.1750	C 75 W				BW 1A				75		W 1
		1.1820	C 55 W										
		1.1830	C 85 W	Y3 90						SK 5			
	P.1.5	1.0535	C 55	AF 70 C55	C 55	12 060	070 M 55	1655			55		1055
		1.0601	C 60	CC 55	C 60	12 061	080 A 62				60	G 10600	1060
		1.1203	Ck 55	XC 55	C50	12 060	070 M 55			S 55 C	55		1055
		1.1221	Ck 60	XC 60	C60	12 061	080 A 62	1665; 1678		S 58 C	60; 60G	G 10640	1060
		1.1231	Ck 67	XC 68	C 70	12 071	060 A 67	1770			70	G 10700	1070
		1.1274	Ck 101	XC 100			060 A 96	1870		SUP 4		G 10950	1095
		1.1520	C 70 W1										
	P.2.1	1.2162	21 MnCr 5	20 NC 5		19 487				SCR 420 H			
		1.2210	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202	L 2
		1.2323	GS-48 CrMoV 6 7			19 512							
		1.2341	X 6 CrMo 4										
		1.2369	81 CrMov 42 16										
		1.2516	120 WV 4	110 WC 20	110 W 4 KU	19 711	BF 1						
		1.2542	45 WCrV 7		45 WCrV 8 KU	19 732	BS 1	2710				T 41901	S 1
		1.2550	60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735							
		1.2711	54 NiCrMoV 6	55 NCDV 6		19 662							
		1.2735	15 NiCr 14	10 NC 12		16 240				SNC 22		T 51606	
		1.2762	75 CrMoNiW 6 7										
		1.2842	90 MnCrV 8	90 MV 8	90 MnVCr 8 KU	19 314	BO 2					T 31502	O 2

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
P	P.2.1	1.5015	GS-8 Mn 7										
		1.5122	37 MnSi 4			13 240							
		1.5415	15 Mo 3	15 D 3	16 Mo 3	15 020	1501-240	2912					A 204 Gr. A
		1.5419	GS-22 Mo 4										
		1.5621	GS-10 Ni 6										
		1.5622	14 Ni 6	16 N 6	14 Ni 6								A 350-LF 5
		1.5633	GS-24 Ni 8										
		1.5638	GS-10 Ni 14										
		1.5732	14 NiCr 10	14 NC 11	16 NiCr 11				F-1540	SNC 415 (H)			3415
		1.5752	14 NiCr 14	12 NC 15		16 240	655 M 13		F-1540	SNC 815 (H)		G 33106	3310; 9314
		1.5919	15 CrNi 6	16 NC 6	16 CrNi 4	16 220	S 107						
		1.5920	18 CrNi 8	20 NC 6		13 231							
		1.6221	GS-13 MnNi 6 4										
		1.6523	21 NiCrMo 2	20 NCD 2	20 NiCrMo 2		805 M 20	2506	F-1522	SNCM 220 (H)		G 86170	8620
		1.6587	17 CrNiMo 6	18 NCD 6	18 NiCrMo 7		820 A 16						
		1.6750	GS-20 NiCrMo 3 7										
		1.7003	38 Cr 2	38 C 2	38 Cr 2								
		1.7006	46 Cr 2	42 C 2	45 Cr 2								5045
		1.7012	13 Cr 2										
		1.7015	15 Cr 3	12 C 3		14 120	523 M 15			SCr 415 (H)	15Ch	G 50150	5015
		1.7020	32 Cr 2										
		1.7030	28 Cr 4				530 A 30				30Ch		5130
		1.7033	34 Cr 4	32 C 4	34 Cr 4 (KB)		530 A 32			SCr 430 (H)	35Ch	G 51320	5132
		1.7131	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17	2511	F-1516 / F-1517	SCR 415	18ChG	G 51170	5115
		1.7139	16 MnCrS 5						F-150D				
		1.7147	20 MnCr 5	20 MC 5	20 MnCr 5	14 221				SMnC 420 (H)	18ChG	G 51200	5120
		1.7149	20 MnCrS 5						F-1551				
		1.7218	25 CrMo 4	25 CD 4 S	25 CrMo 4 (KB)	15 130	1717 CDS 110	2225		SCM 420; SCM 430	30ChM	G 41300	4130
		1.7219	GS-26 CrMo 4										
		1.7220	34 CrMo 4	35 CD 4	35 CrMo 4	15 131	708 A 37	2234		SCM 432; SCCrM 3	AS38ChGM	G 41350	4135; 4137
		1.7262	15 CrMo 5	12 CD 4	12 CrMo 4					SCM 415 (H)			
		1.7264	20 CrMo 5	18 CD 4						SCM 421			
		1.7271	23 CrMoB 3 3										
		1.7311	20 CrMo 2						F-1523				
		1.7321	20 MoCr 4	20 CD 4									
		1.7335	13 CrMo 4 4	15 CD 3.5	14 CrMo 4 5	15 121	1501-620 Gr. 27	2216			12ChM; 15ChM		A 182-F11; F12
		1.7337	16 CrMo 4 4	15 CD 4.5	14 CrMo 4 5		1501-620 Gr. 27	2216			15ChM		A 387 Gr. 12 Cl. 2
		1.7357	GS-17 CrMo 5 5										
		1.7363	GS-12 CrMo 19 5										
		1.7377	GS-17 CrMo 9 10										
		1.7379	GS-18 CrMo 9 10										
		1.7380	10 CrMo 9 10	10 CD 9.10	12 CrMo 9 10		1501-622 Gr. 31; 45	2218				J 21890	A 182-F22
		1.7715	14 MoV 6 3				1503-660-440						
		1.7725	GS-30 CrMoV 6 4										
		1.8504	34 CrAl 6			14 340							
		1.8506	34 CrAlS 5									K 23745	
		1.8521	15 CrMoV 5 9										
		1.0904	55 Si 7	55 S 7	55 Si 8		250 A 53	2085; 2090			55S2		9255
	P.2.2	1.2067	100 Cr 6	Y 100 C 6			BL 3					T 61203	L 3
		1.2101	62 SiMnCr 4										
		1.2103	58 SiCr 8			19 452							

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P	P.2.2	1.2108	90 CrSi 5P										
		1.2162	21 MnCr 5	20 NC 5		19 487				SCR 420 H			
		1.2210	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202	L 2
		1.2311	40 CrMnMo 7			19 520							
		1.2312	40 CrMnMoS 8 6	40 CMD 8 + S									
		1.2323	GS-48 CrMoV 6 7			19 512							
		1.2330	35 CrMo 4	34 CD 4	35 CrMo 4		708 A 37	2234			35 HM	T 51620	4135
		1.2332	47 CrMo 4	42 CD 4	40 CrMo 4		708 M 40	2244					4142
		1.2419	105 WCr 6	105 WC 13	107 WCr 5 KU					SKS 31	ChWG		
		1.2510	100 MnCrW 4	90 MWCV 5	95 MnWCr 5 KU	19 314	BO 1	2140	F-5220	SKS 3		T 31501	O 1
		1.2542	45 WCrV 7		45 WCrV 8 KU	19 732	BS 1	2710				T 41901	S 1
		1.2550	60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735							
		1.2711	54 NiCrMoV 6	55 NCDV 6		19 662							
		1.2713	55 NiCrMoV 6	55 NCDV 7		19 662			F-520.S	SKT 4	5ChNM	T 61206	L 6
		1.2721	50 NiCr 13										
		1.2738	40 CrMnNiMo 8						F-5303				
		1.2826	60 MnSiCr 4										
		1.2833	100 V 1	Y1 105 V	102 V 2 KU	19 356	BW 2			SKS 43		T 72302	W 210
		1.2842	90 MnCrV 8	90 MV 8	90 MnVCr 8 KU	19 314	BO 2					T 31502	O 2
		1.3505	100 Cr 6	100 C 6	100 Cr 6	14 100	534 A 99	2258	F-131 / F-1310	SUJ 2	SchCh 15	G 52986	52100
		1.3520	100 CrMn 6			14 209							
		1.3561	44 Cr 2										
		1.3563	43 CrMo 4										
		1.5120	38 MnSi 4										
		1.5121	46 MnSi 4										
		1.5122	37 MnSi 5			13 240							
		1.5131	50 MnSi 4										
		1.5141	53 MnSi 4										
		1.5223	42 MnV 7			13 242							
		1.5710	36 NiCr 6	35 NC 6		16 240	640 A 35			SNC 236			3135
		1.5736	36 NiCr 10	30 NC 11	35 NiCr 9					SNC 631 (H)			3435
		1.5755	31 NiCr 14	18 NC 13		14 440	653 M 31			SNC 836			
		1.6511	36 CrNiMo 4	40 NCD 3	38 NiCrMo 4 (KB)	16 341	816 M 40				40 ChN2MA	G 98400	9840
		1.6513	28 NiCrMo 4										
		1.6546	40 NiCrMo 2 2	40 NCD 2	40 NiCrMo 2 (KB)		311-Type 7			SNCM 240	38ChGNM	G 87400	8740
		1.6565	40 NiCrMo 6				311-Type 6			SNCM 439	40Ch2N2MA		4340
		1.6570	GS-30 NiCrMo 8 5										
		1.6580	30 CrNiMo 8	30 CND 8	30 NiCrMo 8		823 M 30		F-1272	SNCM 431			
		1.6582	34 CrNiMo 6	35 NCD 6	35 NiCrMo 6 (KW)	16 342	817 M 40	2541	F-128 / F-1270	SNCM 447	38Ch2N2MA		4340
		1.6746	32 NiCrMo 14 5	35 NCD 14			830 M 31						
		1.6781	GS-18 NiCrMo 12 6										
		1.7003	38 Cr 2	38 C 2	38 Cr 2								
		1.7006	46 Cr 2	42 C 2	45 Cr 2								5045
		1.7030	28 Cr 4				530 A 30				30Ch		5130
		1.7033	34 Cr 4	32 C 4	34 Cr 4 (KB)		530 A 32			SCr 430 (H)	35Ch	G 51320	5132
		1.7034	37 Cr 4	38 C 4	38 Cr 4	14 140	530 A 36			SCr 435 H	40Ch		5135
		1.7035	41 Cr 4	42 C 4	41 Cr 4		530 M 40			SCr 440 (H)	40Ch	G 51400	5140
		1.7045	42 Cr 4	42 C 4 TS	41 Cr 4		530 A 40	2245		SCr 440	40Ch		5140
		1.7103	67 SiCr 5										
		1.7131	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17	2511	F-1516 / F-1517	SCR 415	18ChG	G 51170	5115
		1.7139	16 MnCrS 5						F-150D				

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P	P.2.2	1.7147	20 MnCr 5	20 MC 5	20 MnCr 5	14 221				SMnC 420 (H)	18ChG	G 51200	5120
		1.7149	20 MnCrS 5						F-1551				
		1.7176	55 Cr 3	55 C 3	55 Cr 3		527 A 60	2253	F-1431	SUP 9 (A)	50ChGA	G 51550	5155
		1.7218	25 CrMo 4	25 CD 4 S	25 CrMo 4 (KB)	15 130	1717 CDS 110	2225		SCM 420; SCM 430	30ChM	G 41300	4130
		1.7220	34 CrMo 4	35 CD 4	35 CrMo 4	15 131	708 A 37	2234		SCM 432; SCCrM 3	AS38ChGM	G 41350	4135; 4137
		1.7223	41 CrMo 4	42 CD 4 TS	41 CrMo 4		708 M 40	2244		SCM 440	40 ChFA	G 41420	4142; 4140
		1.7225	42 CrMo 4	42 CD 4	42 CrMo 4	15 142	708 M 40	2244		SCM 440 (H)		G 41400	4142; 4140
		1.7228	50 CrMo 4	50 CR MO4			708 A 47			SCM 445 (H)	50ChFA	G 41470	4150
		1.7323	20 MoCrS 4	20 CD 4 S									
		1.7325	25 MoCr 4	25 CD 4									
		1.7326	25 MoCrS 4	25 CD 4 S									
		1.7361	32 CrMo 12	30 CD 12	32 CrMo 12	15 230	722 M 24	2240	F-124A				
		1.7707	30 CrMoV 9			15 330							
		1.7709	21 CrMoV 5 7										
		1.7725	GS-30 CrMoV 6 4										
		1.7735	14 CrMoV 6 9	15 CDV 6									
		1.8159	50 CrV 4	50 CV 4	51 CrV 4	15 260	735 A 50	2230	F-143 / F-1430	SUP 10	50ChGFA	G 61500	6150
		1.8161	58 CrV 4			15 261							
		1.8507	34 CrAlMo 5	30 CAD 6.12	34 CrAlMo 7		905 M 31		F-1741			K 23545	A 355 Cl. D
		1.8509	41 CrAlMo 7	40 CAD 6.12	41 CrAlMo 7	15 340	905 M 39	2940	F-1740	SACM 645	38ChMJuA	K 24065	A 355 Cl. A
		1.8515	31 CrMo 12	30 CD 12	31 CrMo 12		722 M 24	2240	F-1712				
		1.8519	31 CrMoV 9						F-1721				
		1.8523	39 CrMoV 13 9		36 CrMoV 13 9		897 M 39						
		1.8550	34 CrAlNi 7									K 52440	
		1.0904	55 Si 7	55 S 7	55 Si 8		250 A 53	2085; 2090			55S2		9255
		1.1157	40 Mn 4	35 M 5			150 M 36				40G	G 10390	1039
		1.1165	30 Mn 5	35 M 5		13 141	120 M 36			SMn 433 H; SCMn 2	30GSL		1330
		1.1167	36 Mn 5	40 M 5		42 2715	150 M 36	2120		SMn 438 (H); SCMn 3	35G2; 35GL	G 13350	1335
		1.1170	28 Mn 6	20 M 5	C 28 Mn	13 141	150 M 28			SCMn 1	30G		1330
	P.2.3	1.2744	57 NiCrMoV 7 7										
		1.7131	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17		F-1516 / F-1517	SCR 415	18ChG	G 51170	5115
		1.7755	GS-35 CrMoV 10 4										
	P.2.4	1.2714	56 NiCrMoV 7			19 663							
		1.3505	100 Cr 6	100 C 6	100 Cr 6	14 100	534 A 99	2258	F-131 / F-1310	SUJ 2	SchCh 15	G 52986	52100
		1.7225	42 CrMo 4	42 CD 4	42 CrMo 4	15 142	708 M 40	2244		SCM 440 (H)		G 41400	4142; 4140
	P.3.1	1.2080	X 210 Cr 12	Z 200 C 12	X 210 Cr 13 KU	19 436	BD 3			SKD 1	Ch12	T 30403	D 3
		1.2201	G-X 165 CrV 12			19 572							
		1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811	H 11
		1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	X 100 CrMoV 5 1 KU	19 571	BA 2	2260	F-5227	SKD 12		T 30102	A 2
		1.2365	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810	H 10
		1.2367	X 38 CrMoV 5 3										
		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrVMo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402	D 2
		1.2436	X 210 CrW 12	Z 200 CW 12	X 215 CrW 12 1 KU	19 437		2312	F-5213	SKD 2			
		1.2567	X 30 WCrV 5 3	Z 32 WCV 5	X 30 WCrV 5 3 KU	19 720				SKD 4			
		1.2581	X 30 WCrV 9 3	Z 30 WCV 9	X 30 WCrV 9 3 KU	19 721	BH 21			SKD 5	3Ch2W8F	T 20821	H 21
		1.2601	X 165 CrMoV 12		X 165 CrMoW 12 KU	19 572		2310					
		1.2606	G-X 37 CrMoW 5 1										
		1.2764	X 19 NiCrMo 4										
		1.2767	X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655							
		1.2880	G-X 165 CrCoMo 12										
		1.2885	X 32 CrMoCoV 3 3 3	30 DCKV 28									

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P	P.3.1	1.3302	S 12-1-4			19 810							
		1.3318	S 12-1-2			19 802							
		1.3333	S 3-3-2		HS 3-3-2	19 820							
		1.3343	S 6-5-2	Z 85 WDCV 06-05-04-0	HS 6-5-2	19 830	BM 2	2722	F-5603	SKH 9; SKH 51	R6AM5	T 11302	M 2
		1.3346	S 2-9-1	Z 85 DCWV 08-04-02-0	HS 1-8-1		BM 1				H41	T 11301	H 41; M 1
		1.4943	X 4 NiCrTi 25 15	Z 6 NCTDV 25.15 B			HR 251; HR 52; HR 51			SUH 660			
		1.5662	G-X 8 Ni 9										
		1.5680	12 Ni 19	Z 18 N 5									2515
	P.3.2	1.2080	X 210 Cr 12	Z 200 C 12	X 210 Cr 13 KU	19 436	BD 3			SKD 1	Ch12	T 30403	D 3
		1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811	H 11
		1.2344	X 40 CrMoV 5 1	Z 40 CDV 5	X 40 CrMo 5 1 1 KU	19 554	BH 13	2242	F-5318	SKD 61	4Ch5MF1S	T 20813	H 13
		1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	X 100 CrMoV 5 1 KU	19 571	BA 2	2260	F-5227	SKD 12		T 30102	A 2
		1.2365	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810	H 10
		1.2367	X 38 CrMoV 5 3										
		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrVMo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402	D 2
		1.2567	X 30 WCrV 5 3	Z 32 WCV 5	X 30 WCrV 5 3 KU	19 720				SKD 4			
		1.2581	X 30 WCrV 9 3	Z 30 WCV 9	X 30 WCrV 9 3 KU	19 721	BH 21			SKD 5	3Ch2W8F	T 20821	H 21
		1.2606	G-X 37 CrMoW 5 1										
		1.2709	X 2 NiCoMoTi 18 9 5										
		1.2764	X 19 NiCrMo 4										
		1.2767	X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655							
		1.2885	X 32 CrMoCoV 3 3 3	30 DCKV 28									
		1.3207	S 10-4-3-10	Z 130 WKCDV 10-10-04	HS 10-4-3-10	19 861	BT 42		F-5553	SKH 57			
		1.3243	S 6-5-2-5	Z 85 WDKCV 06-05-05	HS 6-5-2-5	19 852		2723	F-5613	SKH 55	R6M5K5		
		1.3246	S 7-4-2-5	Z 110 WKCDV 07-05-04	HS 7-4-2-5	19 851						T 11341	M 41
		1.3247	S 2-10-1-8	Z 110 DKCWV 09-08-04	HS 2-9-1-8		BM 42			SKH 51		T 11342	M 42
		1.3249	S 2-9-2-8				BM 34					T 11333	M 33; M 34
		1.3255	S 18-1-2-5	Z 80 WKCV 18-05-04-0	HS 18-1-1-5	19 855	BT 4			SKH 3		T 12004	T 4
		1.3265	S 18-1-2-10		HS 18-0-1-10	19 860	BT 5			SKH 4 A		T 12005	T 5
		1.3344	S 6-5-3	Z 120 WDCV 06-05-04	HS 6-5-3		BM 4			SKH 52; SKH 53		T 11323	M 3 Cl. 2
		1.3348	S 2-9-2	Z 100 DCWV 09-04-02	HS 2-9-2			2782				T 11307	M 7
		1.3401	G-X 120 Mn 12	Z 120 M 12	XG 120 Mn 12		Z 120 M 12			SCMnH 1	110G13L		A 128 (A)
		1.5860	14 NiCr 18			16 523							
		1.5864	35 NiCr 18			16 640			F-122				
	P.3.3	1.6359	X 2 NiCrMo 18 8 5	Maraging 250								K 92890	
	P.4.1	1.2083	X 42 Cr 13	Z 40 C 14	X 41 Cr 13 KU	19 435			F-5263	SUS 420 J 2			
		1.2316	X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU								
		1.3543	X 102 CrMo 17	Z 100 CD 17									
		1.4001	G-X 7 Cr 13	Z 8 C 13 FF		17 020			F-8401				
		1.4002	X 6 CrAl 13	Z 6 CA 13	X 6 CrAl 13		405 S 17	2302	F-3111	SUS 405		S 40500	405
		1.4005	X 12 CrS 13	Z 12 CF 13	X 12 CrS 13		416 S 21	2380		SUS 416		S 41600	416
		1.4006	X 10 Cr 13	Z 12 C 13	X 12 Cr 13	17 021	410 S 21	2302	F-3401	SUS 410	12Ch13	S 41000	410; CA-15
		1.4008	G-X 8 CrNi 13	Z 12 CN 13 M		42 2904							
		1.4016	X 6 Cr 17	Z 8 C 17	X 8 Cr 17	17 040	430 S 15	2320	F-3113	SUS 430	12Ch17	S 43000	430
		1.4021	X 20 Cr 13	Z 20 C 13	X 20 Cr 13	17 022	420 S 37	2303	F-3402	SUS 420 J 1	20Ch13	S 42000	420
		1.4024	X 15 Cr 13	Z 13 C 13		17 021	420 S 29			SUS 410 J 1			
		1.4027	G-X 20 Cr 14	Z 20 C 13 M		42 2906	420 C 29			SCS 2	20Ch13L		
		1.4028	X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13		
		1.4031	X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13		
		1.4034	X 46 Cr 13	Z 40 C 14	X 40 Cr 14	17 029	420 S 45		F-3405		40Ch13		
		1.4085	G-X 70 Cr 29										

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P	P.4.1	1.4104	X 14 CrMoS 17	Z 10 CF 17	X 10 CrS 17	17 140		2383	F-3403	SUS 430 F		S 43020	430 F
		1.4105	X 4 CrMoS 18						F-3114				
		1.4106	X 2 CrMoSiS 18 2 1										
		1.4107	G-X 8 CrNi 12			42 2904							
		1.4109	X 65 CrMo 14										
		1.4112	X 90 CrMoV 18									S 44003	
		1.4113	X 6 CrMo 17	Z 8 CD 17.01	X 8 CrMo 17		434 S 17	2325	F-3116	SUS 434		S 43400	434
		1.4116	X 45 CrMoV 15						F-3422				
		1.4122	G-X 35 CrMo 17			17 137							
		1.4125	X 105 CrMo 17	Z 100 CD 17	X 105 CrMo 17					SUS 440 C		S 44004	440 C
		1.4136	G-X 70 CrMo 29 2										
		1.4405	G-X 5 CrNiMo 16 5										
		1.4407	G-X 5 CrNiMo 13 4										
		1.4510	X 6 CrTi 17	Z 8 CT 17	X 6 CrTi 17					SUS 430 LX	08Ch17T	S 43036	XM 8; 430 Ti
		1.4511	X 8 CrNb 17	Z 8 CNb 17	X 6 CrNb 17				F-3122	SUS 430 LX			
		1.4512	X 5 CrTi 12	Z 6 CT 12	X 6 CrTi 12		409 S 19		F-3121	SUH 409		S 40900	409
		1.4528	X 105 CrCoMo 18 2										
		1.4540	G-X 4 CrNiCuNb 16 4										
		1.4724	X 10 CrAl 13	Z 10 C 13	X 10 CrAl 12	17 125	403 S 17		F-3152		10Ch13SJu		
		1.4742	X 10 CrAl 18	Z 10 CAS 18	X 8 Cr 17		430 S 15		F-3153	SUS 430; SUH21			430
		1.4761	G-X 120 CrSi 23										
		1.4762	X 10 CrAl 24	Z 10 CAS 24	X 16 Cr 26	17 153			F-3154			S 44600	446
		1.4931	G-X 22 CrMoV 12 1										
		1.4962	X 12 CrNiWTi 16 3										
		1.6982	G-X 3 CrNi 13 4										
	P.4.2	1.2316	X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU								
		1.4000	X 6 Cr 13	Z 6 C 13	X 6 Cr 13	17 020	403 S 17	2301		SUS 403	08Ch13	S 40300	403
		1.4021	X 20 Cr 13	Z 20 C 13	X 20 Cr 13	17 022	420 S 37	2303	F-3402	SUS 420 J 1	20Ch13	S 42000	420
		1.4024	X 15 Cr 13	Z 13 C 13		17 021	420 S 29			SUS 410 J 1			
		1.4028	X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13		
		1.4031	X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13		
		1.4034	X 46 Cr 13	Z 40 C 14	X 40 Cr 14	17 029	420 S 45		F-3405		40Ch13		
		1.4057	X 20 CrNi 17 2	Z 15 CN 16.02	X 16 CrNi 16	17 145	431 S 29	2321	F-3427	SUS 431	20Ch17N2	S 43100	431
		1.4059	G-X 22 CrNi 17										
		1.4086	G-X 120 Cr 29										
		1.4108	X 100 CrMo 13										
		1.4112	X 90 CrMoV 18									S 44003	
		1.4116	X 45 CrMoV 15						F-3422				
		1.4120	G-X 20 CrMo 13										
		1.4122	G-X 35 CrMo 17			17 137							
		1.4138	G-X 120 CrMo 29 2										
		1.4313	X 5 CrNi 13 4	Z 5 CN 13.4	X 6 CrNi 13 04		425 C 11	2385		SCS 5			CA 6-NM
		1.4340	G-X 40 CrNi 27 4										
		1.4464	G-X 40 CrNiMo 27 5										
		1.4542	X 7 CrNiCu 16 4 4	Z7 CNU 17 04 04 (17-4PH)						SCS 24; SUS 630		S 17400	630
		1.4545	X 5 CrNiCu 15-5	E-Z5 CNU 15 05 (15-5PH)									
		1.4710	G-X 30 CrSi 6										
		1.4718	X 45 CrSi 9 3	Z 45 CS 9	X 45 CrSi 8	17 115	401 S 45		F-3220	SUH 1	40Ch9S2	S 65007	HNV 3
		1.4729	G-X 40 CrSi 13										
		1.4740	G-X 40 CrSi 17										
		1.4743	G-X 160 CrSi 18										

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P	P.4.2	1.4745	G-X 40 CrSi 23										
		1.4747	X 80 CrNiSi 20	Z 80 CSN 20.02	X 80 CrSiNi 20		443 S 65			SUH 4		S 65006	HNV 6
		1.4776	G-X 40 CrSi 29										
		1.4823	G-X 40 CrNiSi 27 4										
		1.4923	X 22 CrMoV 12 1			17 134	762						
		1.4928	G-X 12 CrNiMoCoVN 12										
		1.4935	X 20 CrMoWV 12 1									S 42200	
M	M.1.1	1.3941	G-X 4 CrNi 18 13										
		1.3944	G-X 5 CrNi 18 11										
		1.3952	G-X 4 CrNiMoN 18 14										
		1.3953	G-X 2 CrNiMo 18 15										
		1.3955	G-X 12 CrNi 18 11										
		1.3959	G-X 10 CrNiNb 16 13										
		1.4301	X 5 CrNi 18 10	Z6 CN 18-09	X 5 CrNi 18 10	17 240	304 S 15	2332; 2333	F-3504	SUS 304	08Ch18N10	S 30400	304; 304 H
		1.4303	X 5 CrNi 18 12	Z 8 CN 18.12	X 8 CrNi 19 10		305 S 19			SUS 305	06Ch18N11	S 30500	308; 305
		1.4305	X 10 CrNiS 18 9	Z8 CNF 18-03	X 10 CrNi 18 09	17 243	303 S 21	2346		SUS 303		S 30300	303
		1.4306	X 2 CrNi 19 11	Z3 CN 18-10	X 2 CrNi 18 11	17 249	304 S 12	2352; 2333	F-3503	SCS 19	03Ch18N11	S 30403	304 L
		1.4308	G-X 6 CrNi 18 9	Z 6 CN 18.10 M		42 2930	304 C 15	2333	F-8411	SCS 13	07Ch18N9L		CF-8
		1.4311	X 2 CrNiN 18 10	Z 2 CN 18 .10	X 2 CrNiN 18 11	17 249	304 S 62	2371		SUS 304 LN		S 30453	304 LN
		1.4312	G-X 10 CrNi 18 8			42 2931							
		1.4401	X 5 CrNiMo 18 10	Z6 CND 17 12 02	X 5 CrNiMo 17 12	17 346	316 S 16	2347	F-3543	SUS 316		S 31600	316
		1.4404	X 2 CrNiMo 17 13 2	Z3 CND 17 12 02	X 2 CrNiMo 17 12	17 349	316 S 11	2348	F-3533	SUS 316 L		S 31603	316 L
		1.4406	X 2 CrNiMoN 17 12 2	Z 2 CND 17.12 Az	X 2 CrNiMoN 17 12		316 S 61			SUS 316 LN		S 31653	316 LN
		1.4408	G-X 6 CrNiMo 18 10			42 2940			F-8414				
		1.4413	G-X 4 CrNiMo 13-4										
		1.4429	X 2 CrNiMoN 17 13 3	Z3 CND 17 11 03 Az	X 2 CrNiMoN 17 13		316 S 62	2375		SUS 316 LN		S 31653	316 LN
		1.4435	X 2 CrNiMo 18 14 3	Z 2 CND 17.13	X 2 CrNiMo 17 13		316 S 12	2353		SCS 16; SUS 316 L	03Ch17N 14M2	S 31603	316 L
		1.4436	X 5 CrNiMo 17 13 3	Z 6 CND 17.12	X 5 CrNiMo 17 13		316 S 16	2343		SUS 316		S 31600	316
		1.4437	G-X 6 CrNiMo 18 12			42 2940							
		1.4438	X 2 CrNiMo 18 16 4	Z 2 CND 19.15	X 2 CrNiMo 18 15		317 S 12	2367		SUS 317 L		S 31703	317 L
		1.4439	G-X 3 CrNiMo 17 13 5						F-3544				
		1.4446	G-X 2 CrNiMo 17 13 4										
		1.4448	G-X 6 CrNiMo 17 13										
		1.4449	X 3 CrNiMo 18 12 3										
		1.4507	X 2 CrNiMOCuN 25 6 3	Z3 CNDU 25 07 Az (Uranus 52 N)								S 32750	F61
		1.4541	X 6 CrNiTi 18 10	Z 6 CNT 18.10	X 6 CrNiTi 18 11	17 248	321 S 12	2337		SUS 321	12Ch18N 10T	S 32100	321
		1.4546	X 5 CrNiNb 18 10		X 6 CrNiNb 18 11		347 S 18					S 34800	348
		1.4550	X 6 CrNiNb 18 10	Z10 CNNb 18-10	X 6 CrNiNb 18 11	17 245	347 S 17	2338	F-3552 / F-3524	SUS 347	08Ch18N 12B	S 34700	347
		1.4552	G-X 5 CrNiNb 18 9			42 2933			F-8413				
		1.4571	X 6 CrNiMoTi 17 12 2	Z 6 CNT 17.12	X 6 CrNiMoTi 17 12	17 348	320 S 31	2350	F-3535		10Ch17N13M2T	S 31635	316 Ti
		1.4573	X 10 CrNiMoTi 18 12		X 6 CrNiMoTi 17 13		320 S 33				10Ch17N13M3T	S 31635	316 Ti
		1.4580	X 6 CrNiMoNb 17 12 2	Z 6 CNDNb 17.12	X 6 CrNiMoNb 17 12		318 S 17		F-3536		08Ch16N13M2B	S 31640	316 Cb
		1.4581	G-X 5 CrNiMoNb 18 10	Z 4 CNDNb 18.12 M	GX 6 CrMoNb 20 11	42 2941	318 C 17			SCS 22			
		1.4583	X 10 CrNiMoNb 18 12		X 6 CrNiMoNb 17 13								318
		1.4821	X 15 CrNiSi 25-4	Z20 CNS 25 04									
		1.4825	G-X 25 CrNiSi 18 9			42 2932							
		1.4826	G-X 40 CrNiSi 22 9			42 2934							
		1.4828	X 15 CrNiSi 20 12	Z 15 CNS 20.12		17 251	309 S 24		F-3312	SUH 309	20Ch20N 14S2	S 30900	309
		1.4832	G-X 25 CrNiSi 20 14										
		1.4876	X 10 NiCrAlTi 32 20	Z10 NCAT 32-21 (Incoloy 800)		17 358	NA 15 (H)		F-3314	NCF 800			B 163
		1.4878	X 12 CrNiTi 18 9	Z 6 CNT 18.12 (B)	X 6 CrNiTi 18 11	17 246	321 S 20	2337		SUS 321	12Ch18N 10T		321

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M	M.1.1	1.4968	G-X 7 CrNiNb 16 13										
		1.4988	G-X 8 CrNiMoVNb 16 1										
		1.6901	G-X 8 CrNi 18 10										
		1.6902	G-X 6 CrNi 18 10										
		1.6905	G-X 5 CrNiNb 18 10										
	M.2.1	1.3964	G-X 4 CrNiMnMoN 19 1										
		1.4310	X 12 CrNi 17 7	Z 12 CN 17.07	X 12 CrNi 17 07		301 S 21			SUS 301		S 30100	301
		1.4465	G-X 2 CrNiMoN 25 25										
		1.4536	G-X 2 NiCrMoCuN 25 2										
		1.4539	X 1 NiCrMoCu 25 20 5	Z2 NCDU 25 20 (Uranus B6)								N 08904	904L
		1.4547	X 1 CrNiMoCuN 20 18 17	Z1 CNDU 20 18 06 Az (254 SMO)									F44
		1.4568	X 7 CrNiAl 17 7										17-7 PH
		1.4837	G-X 40 CrNiSi 25 12			42 2936							
		1.4840	G-X 15 CrNi 25 20										
		1.4841	X 15 CrNiSi 25 20	Z 15 CNS 25.20	X 16 CrNiSi 25 20	17 255			F-3310	SUH 310	20Ch25N 20S2	S 31000	314; 310
		1.4845	X 12 CrNi 25 21	Z 12 CN 25.20	X 6 CrNi 26 20	17 255	310 S24	2361		SUH 310;		S 31008	310 S
		1.4848	G-X 40 CrNiSi 25 20		GX 40 CrNi 26 20	42 2952							
		1.4849	G-X 40 NiCrSiNb 38 1										
		1.4852	G-X 40 NiCrNb 35 25										
		1.4855	G-X 30 CrNiSiNb 24 2										
		1.4857	G-X 40 NiCrSi 35 25										
		1.4864	X 12 NiCrSi 36 16	Z 12 NCS 37.18		17 253	NA 17		F-3313	SUH 330		N 08330	330
		1.4865	G-X 40 NiCrSi 38 18		GX 50 NiCr 39 19		330 C 40			SCH 15; SCH 16			
		1.4871	X 53 CrMnNiN 21 9	Z 52 CMN 21.09	X 53 CrMnNiN 21 9		349 S 54		F-3217	SUH 35; SUH 36	55Ch20G9AN4	S 63008	EV 8
		1.4873	X 45 CrNiW 18 9	Z 35 CNWS 20.09	X 45 CrNiW 18 9		331 S 40			SUH 31			
	M.3.1	1.4339	G-X 32 CrNi 28 10										
		1.4347	G-X 8 CrNi 26 7										
		1.4410	X 2 CrNiMoN 25 7 4	Z2 CND 25 07 04 Az					F-3552				F53
		1.4460	X 8 CrNiMo 27 5	Z5 CND 25 05 AZ				2324		SUS 329 J 1		S 32900	329 LN
		1.4462	X 2 CrNiMoN 22 5 3	Z2 CND 22 05 03 AZ (Uranus 45 N)		17 381			F-3308			S 31803	329 A (F51)
		1.4463	G-X 6 CrNiMo 24 8 2										
		1.4501	X 2 CrNiMoCuWN 25 7 4	Z2 CNDUW 25 07 04 Az (Zeron 100)								S 32760	F55
		1.4815	G-X 8 CrNi 19 10										
		1.4822	G-X 40 CrNi 24 5										
K	K.1.1	0.6010	GG-10	Ft 10 D	G 10	42 2410		01 10-00		FC 10	Sc 10		A48-20 B
		0.6015	GG-15	Ft 15 D	G 15	42 2415	Grade 150	01 15-00	FG-15	FC 15	Sc 15		A48-25 B
		0.6020	GG-20	Ft 20 D	G 20	42 2420	Grade 220	01 20-00	FG-20	FC 20	Sc 20		A48-30 B
		0.6025	GG-25	Ft 25 D	G 25	42 2425	Grade 260	01 25-00	FG-25	FC 25	Sc 25		A48-40 B
	K.1.2	0.6030	GG-30	Ft 30 D	G 30	42 2430	Grade 300	01 30-00	FG-30	FC 30	Sc 30		A48-45 B
		0.6035	GG-35	Ft 35 D	G 35	42 2435	Grade 350	01 35-00	FG-35	FC 35	Sc 35		A48-50 B
		0.6040	GG-40	Ft 40 D		42 2440	Grade 400	01 40-00			Sc 40		A48-60 B
		0.6652	GGL-NiMn 13 7	L- NM 13 7			L-NiMn 13 7						
		0.6655	GGL-NiCuCr 15 6 2	L-NUC 15 6 2			L-NiCuCr 15 6 2						A 436 Type 1
		0.6656	GGL-NiCuCr 15 6 3	L-NUC 15 6 3			L-NiCuCr 15 6 3						A 436 Type 1b
		0.6660	GGL-NiCr 20 2	L-NC 20 2			L-NiCr 20 2	05 23-00					A 436 Type 2
		0.6661	GGL-NiCr 20 3	L-NC 20 3			L-NiCr 20 3						A 436 Type 2b
		0.6667	GGL-NiSiCr 20 5 3	L-NSC 20 5 3			L-NiSiCr 20 5 3						
		0.6676	GGL-NiCr 30 3	L-NC 30 3			L-NiCr 30 3						A 436 Type 3
		0.6680	GGL-NiSiCr 30 5 5	L-NSC 30 5 5			L-NiSiCr 30 5 5						A 436 Type 4
	K.2.1	0.7033	GGG-35.3			42 2303							
		0.7040	GGG-40	FGS 400-12	GS 400-12	42 2304	SNG 420/12	0717-02	FGE 38-17	FCD 40	VC 42-12		60 40 18

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K	K.2.1	0.7043	GGG-40.3	FGS 370-17	GSO 42/17	42 2314	SNG 370/17	0717-15			VC 42-12		
		0.7050	GGG-50	FGS 500-7	GS 500/7	42 2305	SNG 500/7	0727-02	FGE 50-7	FCD 50	VC 50-2		65-45-12
		0.7060	GGG-60	FGS 600-3	GS 600/3	42 2306	SNG 600/3	0732-03		FCD 60	VC 60-2		80-55-06
	K.2.2	0.7070	GGG-70	FGS 700-2	GS 700-2	42 2307	SNG 700/2	0737-01	FGS 70-2	FCD 70	VC 70-2		100-70-03
		0.7080	GGG-80	FGS 800-2	GS 800-2	42 2308	SNG 800/2				VC 80-2		120-90-02
		0.7652	GGG-NiMn 13 7	S-NM 13 7			S-NiMn 13 7						
		0.7660	GGG-NiCr 20 2	S-NC 20 2			S-NiCr 20 2						A 439 Type D-2
		0.7661	GGG-NiCr 20 3	S-NC 20 3			S-NiCr 20 3						A 439 Type D-2B
		0.7665	GGG-NiSiCr 20 5 2	S-NSC 20 5 2			S-NiSiCr 20 5 2						
		0.7670	GGG-Ni 22	S-N 22			S-Ni 22						A 439 Type D-2C
		0.7673	GGG-NiMn 23 4	S-NM 23 4			S-NiMn 23 4						A 439 Type D-2M
		0.7676	GGG-NiCr 30 3	S-NC 30 3			S-NiCr 30 3						A 439 Type D-3
		0.7677	GGG-NiCr 30 1	S-NC 30 1			S-NiCr 30 1						A 439 Type D-3A
		0.7680	GGG-NiSiCr 30 5 5	S-NSC 30 5 5			S-NiSiCr 30 5 5						A 439 Type D-4
		0.7683	GGG-Ni 35	S-N 35			S-Ni 35						A 439 Type D-5
		0.7685	GGG-NiCr 35 3	S-NC 35 3			S-NiCr 35 3						A 439 Type D-5B
		0.8065	GTW-65										
	K.3.1	0.8035	GTW-35-04			42 2536			GTW 35				
		0.8040	GTW-40-05			42 2540							
		0.8045	GTW-45-07										
		0.8055	GTW-55										
		0.8135	GTS-35-10	MN 35-10		42 2533	B 340/12		GTS 35				
		0.8145	GTS-45-06			42 2545	P 440/7		GTS 45				
		0.8155	GTS-55-04	MP 50-5		42 2555	P 510/4		GTS 55				
		0.8165	GTS-65-02	MP 60-3			P 570/3		GTS 65				
	K.3.2	0.8170	GTS-70-02	IP 70-2			P 690/2		GTS 70				
N	N.1.1	3.3307	Al99.85Mg0.5										
		3.3308	Al99,9Mg0,5										
		3.3315	AlMg1	5005 (AlMg1)					L-3350				
		3.3316	AlMg1.5										
		3.3317	Al99.85Mg1										
		3.3318	Al99.9Mg1										
		3.3326	AlMg1.8										
		3.3523	AlMg2.5										
		3.3525	AlMg2Mn0.3										
		3.3527	AlMg2Mn0.8										
		3.3535	AlMg3	5754									
		3.3537	AlMg2.7Mn										
		3.3555	AlMg5	5056 A									
		3.3561	G-AlMg5										
		3.3591	G-AlMg10										
		3.0205	Al99	1200 (A4)	9001/1	42 4009			L-3001				
		3.0255	Al99.5	1050 A	9001/2	42 4004			L-3051				
		3.0275	Al99.7	1070 A		42 4003			L-3071				
		3.0285	Al99.8	1080 A (A8)		42 4002			L-3081				
		3.0305	Al99.9										
		3.0505	AlMn0.5Mg0.5										
		3.0506	AlMn0.6										
		3.0515	AlMn1			42 4432			L-3810				
		3.0517	AlMnCu										
		3.0525	AlMn1Mg0.5	3005									

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N	N.1.1	3.0526	AlMn1Mg1										
		3.0615	AlMgSiPb										
		3.0915	AlFeSi										
	N.1.2	3.2307	Al99.85MgSi										
		3.2315	AlMgSi1	6082	9006/4	42 4400							6082
		3.3206	AlMgSi0,5	6060 (AGS)		42 4401			L-3441				6063
		3.3208	Al99.9MgSi										
		3.3210	AlMgSi0.7	6005 A									
		3.3211	AlMg1SiCu	6061									
		3.3345	AlMg4.5										
		3.3545	AlMg4Mn	5086 (AG4MC)	9005/5				L-3322				5083
		3.3547	AlMg4,5Mn0,7	5083 (AlMg5Mn0,7)			N8		L-3321	A 5083			A95083
		3.3549	AlMg5Mn										
		3.4335	AlZn4,5Mg1	7020 (AZ5G)	9007/1	42 4441			L-3741				7020
		3.4337	Al99.8ZnMg										
		3.4345	AlZnMgCu0.5										
		3.4365	AlZnMgCu1.5	7075 (AZ5GU)		42 4222			L-3710				7075
		2.1086	G-CuSn10Zn										
		3.1255	AlCuSiMn	2014	9002/3								2014
		3.1305	AlCu2.5Mg0.5										
		3.1325	AlCuMg1	2017 A (AU4G)					L-3120				2017 A
		3.1355	AlCuMg2	2024 (AU4G1)	9002/4	42 4203			L-3140				2024
		3.1645	AlCuMgPb	2030 (AU4PB)		42 4254			L-3121				
		3.1655	AlCuBiPb	2011 (AU5PbBi)	9002/5				L-3192				2011
		MFK											
	N.2.1	3.2581	G-AlSi12			42 4330							
		3.2583	G-AlSi12(Cu)			42 4330							
		3.3261	G-AlMg5Si			42 4515							
		3.3292	GD-AlMg9			42 4519							
		3.3541	G-AlMg3										
		3.3543	G-AlMg3(Cu)										
	N.2.2	3.2134	G-AlSi5Cu1Mg										
		3.2151	G-AlSi6Cu4			42 4357							
		3.2161	G-AlSi8Cu3										
		3.2341	G-AlSi5Mg										
		3.2371	G-AlSi7Mg			42 4334							
		3.2373	G-AlSi9Mg			42 4331							
		3.2381	G-AlSi10Mg			42 4331							
		3.2383	G-AlSi10Mg(Cu)			42 4331							
		3.3241	G-AlMg3Si										
		3.1371	G-AlCu4TiMg										
		3.1841	G-AlCu4Ti										
	N.3.1	2.0040	OF-Cu			42 3000							
		2.0060	E-Cu57			42 3001							
		2.0065	E-Cu58			42 3001							
		2.0070	SE-Cu										
		2.0076	SW-Cu										
		2.0090	SF-Cu			42 3003							
		2.0220	CuZn5			42 3200							
		2.0230	CuZn10			42 3201							
		2.0240	CuZn15			42 3202							

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
N	N.3.1	2.0250	CuZn20			42 3203							
		2.0261	CuZn28										
		2.0265	CuZn30			42 3210							
		2.0280	CuZn33			42 3212							
		2.0321	CuZn37		C2700	42 3213							
		2.0335	CuZn36										
		2.0360	CuZn40			42 3220							
		2.0460	CuZn20Al2										
		2.0470	CuZn28Sn1										
		2.0510	CuZn37Al1			42 3231							
		2.0530	CuZn38Sn1			42 3237							
		2.0730	CuNi12Zn24										
		2.0740	CuNi18Zn20										
		2.0830	CuNi25										
		2.0842	CuNi44Mn1										
		2.0853	CuNi1.5Si										
		2.0855	CuNi2Si			42 3054							
		2.0857	CuNi3Si										
		2.0872	CuNi10Fe1Mn										
		2.0875	CuNi9Sn2										
		2.0882	CuNi30Mn1Fe										
		2.0883	CuNi30Fe2Mn2										
		2.0918	CuAl5As										
		2.0920	CuAl8										
		2.0932	CuAl8Fe3										
		2.0936	CuAl10Fe3Mn2										
		2.0960	CuAl9Mn2										
		2.0966	CuAl10Ni5Fe4										
		2.0971	CuAl9Ni3Fe2										
		2.1016	CuSn4										
		2.1020	CuSn6										
		2.1030	CuSn8										
		2.1080	CuSn6Zn6										
		2.1191	CuAg0.1P										
		2.1203	CuAg0.1										
		2.1245	CuBe1.7										
		2.1247	CuBe2										
		2.1293	CuCrZr			42 3039							
		2.1310	CuFe2P										
		2.1522	CuSi2Mn										
		2.1525	CuSi3Mn										
		Ampco 16	CuAl10Fe3										
		Ampco 18	CuAl10.5Fe3.5										
		Ampco 8	CuAl6.5Fe2.5Sn										
			Ampco 8-16										
	N.3.2	2.0331	CuZn36Pb1.5			42 3214							
		2.0332	CuZn37Pb0.5										
		2.0372	CuZn39Pb0.5			42 3221							
		2.0540	CuZn35Ni2										
		2.0550	CuZn40Al2										
		2.0561	CuZn40Al1			42 3231							

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N	N.3.2	2.0572	CuZn40Mn1			42 3234							
		2.0580	CuZn40Mn1Pb										
		2.0780	CuNi12Zn30Pb1										
		2.0790	CuNi18Zn19Pb1										
		2.1498	CuSP										
		2.1504	NiAlBz										
		2.1546	CuTeP										
		Ampco 12	CuAl9Fe3										
		Ampco 20	CuAl11Fe4										
	N.3.3	2.0371	CuZn38Pb1.5			42 3222							
		2.0375	CuZn36Pb3										
		2.0380	CuZn39Pb2			42 3223							
		2.0401	CuZn39Pb3										
		2.0402	CuZn40Pb2			42 3223							
		2.0410	CuZn44Pb2										
		2.0490	CuZn31Si1										
		2.0500	CuZn23Al6Mn4Fe3										
		2.0771	CuNi7Zn39Mn5Pb3										
		2.0978	CuAl11Ni6Fe5										
		2.1093	G-CuSn6ZnNi										
		2.1096	G-CuSn5ZnPb										
		2.1285	CuCo2Be										
		Ampco 21	CuAl13Fe4.5										
		Ampco 22	CuAl14Fe5										
		Ampco 25											
		Ampco 26											
			Ampco 18-26										
	N.4.1	3.5101	G-MgZn4SE1Zr1										
		3.5102	G-MgZn5Th2Zr1										
		3.5103	G-MgSE3Zn2Zr1										
		3.5105	G-MgTh3Zn2Zr1										
		3.5106	G-MgAg3Se2Zr1										
		3.5200	MgMn2										
		3.5312	MgAl3Zn										
		3.5470	GD-MgAl4Si1										
		3.5612	GD-MgAl6Zn1										
		3.5662	G-MgAl6										
		3.5812	G-MgAl8Zn1			42 4911							
		3.5912	GD-MgAl9Zn1			42 4911							
S	S.1.2	1.4980	X 5 NiCrTi 26 15									S66286	
	S.2.1	1.3924	Ni54										
		1.3926	RNi12			42 3484							
		1.3927	RNi8			42 3484							
		2.4360	NiCu30Fe	Monel 400		42 3431							
		2.4610	NiMo16Cr16Ti	Hastelloy C-4									
		2.4617	NiMo28	Hastelloy B-2									
		2.4630	NiCr20Ti	Nimonic 75			HR 5						
		2.4668	NiCr19Fe18Nb5Mg	Inconel 718									
		2.4812	NiCr17Mo17FeW	Hastelloy C									
		2.4819	NiMo16Cr15W	Hastelloy C-276									
		2.4851	NiCr23Fe, Inconel 601	Inconel 601									

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
S	S.2.1	2.4856	NiCr22Mo9Nb	Inconel 625									
		2.4858	NiCr21Mo				NA 16			NCF 825		N 08825	
		2.4951	NiCr20Ti	Nimonic 75			HR 5						
		2.4964	CoCr20W15Ni										
		2.4989	CoCr20NiW										
	S.2.2	2.4375	NiCu30Al	Monel K 500									
		2.4631	NiCr20TiAl	Nimonic 80 A			HR 401; 601			NCF 80 A		N 07080	
		2.4634	NiCo20Cr15MoAlTi	Nimonic 105									
		2.4640	NiCr15Fe	Inconel 600									
		2.4654	NiCr20Co13Mo4Ti4Al	Waspaloy									
		2.4662	NiCr13Mo6Ti3	Nimonic 901									
		2.4668	NiCr19Fe18Nb5Mg	Inconel 718									
		2.4816	NiCr15Fe	Inconel 600			NA 14			NCF 600		N 06600	
		2.4952	NiCr20TiAl	Nimonic 80 A									
		2.4973	NiCr19Co11MoTi										
		2.4983	NiCr18Co18MoAlTi	Udimet 500									
	S.2.3	2.4670	G-NiCr13Al6MoNb	Nimocast 713									
		2.4674	NiCo15Cr10MoAlTi	Nimocast PK 24									
		2.4979	CoCr28MoNi										
	S.3.1	3.7024	Ti99,5										
		3.7025	Ti99,8										
		3.7034	Ti99,7										
		3.7055	Ti99,4										
		3.7064	Ti99,2										
		3.7124	TiCu2										
	S.3.2	3.7114	TiAl5Sn2										
		3.7144	TiAl6Sn2Zr4Mo2										
		3.7154	TiAl6Zr5										
		3.7165	TiAl6V4	T-A 6 V			TA 10 – TA 13					R 56400	
		3.7174	TiAl6V6Sn2										
		3.7184	TiAl4Mo4Sn2				TA 45 – TA 51						
H	H.1.1	1.2311	40 CrMnMo 7			19 520							
		1.2312	40 CrMnMoS 8 6	40 CMD 8 + S									
		1.2316	X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU								
		1.2365	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810	H 10
		1.2567	X 30 WCrV 5 3	Z 32 WCV 5	X 30 WCrV 5 3 KU	19 720				SKD 4			
		1.2581	X 30 WCrV 9 3	Z 30 WCV 9	X 30 WCrV 9 3 KU	19 721	BH 21			SKD 5	3Ch2W8F	T 20821	H 21
		1.2738	40 CrMnNiMo 8						F-5303				
		1.2885	X 32 CrMoCoV 3 3 3	30 DCKV 28									
		1.4028	X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13		
		1.4031	X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13		
		1.4034	X 46 Cr 13	Z 40 C 14	X 40 Cr 14	17 029	420 S 45		F-3405		40Ch13		
		1.4112	X 90 CrMoV 18									S 44003	
		1.5122	37 MnSi 4			13 240							
		1.6358	X 2 NiCoMoTi 18 9 5										
		1.6582	34 CrNiMo 6	35 NCD 6	35 NiCrMo 6 (KW)	16 342	817 M 40	2541	F-128 / F-1270	SNCM 447	38Ch2N2MA		4340
		1.7003	38 Cr 2	38 C 2	38 Cr 2								
		1.7006	46 Cr 2	42 C 2	45 Cr 2								5045
		1.7030	28 Cr 4				530 A 30				30Ch		5130
		1.7176	55 Cr 3	55 C 3	55 Cr 3		527 A 60	2253	F-1431	SUP 9 (A)	50ChGA	G 51550	5155
		1.0961	60 SiCr 7	60 SC 7	60 SiCr 8					SUP 7			9262

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
H	H.1.1	1.1248	Ck 75	XC 75	C 75	12 081	060 A 78	1774; 1778			75	G 10780	1078; 1080
		1.1273	90 Mn 4										
	H.1.2	1.2083	X 42 Cr 13	Z 40 C 14	X 41 Cr 13 KU	19 435			F-5263	SUS 420 J 2			
		1.2323	GS-48 CrMoV 6 7										
		1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811	H 11
		1.2367	X 38 CrMoV 5 3										
		1.2510	100 MnCrW 4	90 MWCV 5	95 MnWCr 5 KU	19 314	BO 1	2140	F-5220	SKS 3		T 31501	O 1
		1.2542	45 WCrV 7		45 WCrV 8 KU	19 732	BS 1	2710				T 41901	S 1
		1.2550	60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735							
		1.2606	G-X 37 CrMoW 5 1										
		1.2711	54 NiCrMoV 6	55 NCDV 6		19 662							
		1.2713	55 NiCrMoV 6	55 NCDV 7		19 662			F-520.S	SKT 4	5ChNM	T 61206	L 6
		1.2764	X 19 NiCrMo 4										
		1.2767	X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655							
		1.4109	X 65 CrMo 14										
		1.4112	X 90 CrMoV 18									S 44003	
		1.1157	40 Mn 4	35 M 5			150 M 36				40G	G 10390	1039
		1.1231	Ck 67	XC 68	C 70	12 071	060 A 67	1770			70	G 10700	1070
		1.1274	Ck 101	XC 100			060 A 96	1870		SUP 4		G 10950	1095
	H.1.3	1.2080	X 210 Cr 12	Z 200 C 12	X 210 Cr 13 KU	19 436	BD 3			SKD 1	Ch12	T 30403	D 3
		1.2101	62 SiMnCr 4										
		1.2162	21 MnCr 5	20 NC 5		19 487				SCR 420 H			
		1.2201	G-X 165 CrV 12										
		1.2210	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202	L 2
		1.2341	X 6 CrMo 4										
		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrVMo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402	D 2
		1.2419	105 WCr 6	105 WC 13	107 WCr 5 KU					SKS 31	ChWG		
		1.2601	X 165 CrMoV 12		X 165 CrMoW 12 KU	19 572		2310					
		1.2721	50 NiCr 13										
		1.2735	15 NiCr 14	10 NC 12		16 240				SNC 22		T 51606	
		1.2833	100 V 1	Y1 105 V	102 V 2 KU	19 356	BW 2			SKS 43		T 72302	W 210
		1.2842	90 MnCrV 8	90 MV 8	90 MnVCr 8 KU	19 314	BO 2					T 31502	O 2
		1.3505	100 Cr 6	100 C 6	100 Cr 6	14 100	534 A 99	2258	F-131 / F-1310	SUJ 2	SchCh 15	G 52986	52100
		1.4112	X 90 CrMoV 18									S 44003	
		1.4125	X 105 CrMo 17	Z 100 CD 17	X 105 CrMo 17					SUS 440 C		S 44004	440 C
		1.8161	58 CrV 4			15 261							
		1.1520	C 70 W1										
	H.1.4	1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	X 100 CrMoV 5 1 KU	19 571	BA 2	2260	F-5227	SKD 12		T 30102	A 2
		1.2436	X 210 CrW 12	Z 200 CW 12	X 215 CrW 12 1 KU	19 437		2312	F-5213	SKD 2			
		1.2880	G-X 165 CrCoMo 12										
		1.3202	S 12-1-4-5			19 858						T 12015	T15
		1.3207	S 10-4-3-10	Z 130 WKCDV 10-10-04	HS 10-4-3-10	19 861	BT 42		F-5553	SKH 57			
		1.3243	S 6-5-2-5	Z 85 WDKCV 06-05-05	HS 6-5-2-5	19 852		2723	F-5613	SKH 55	R6M5K5		
		1.3246	S 7-4-2-5	Z 110 WKCDV 07-05-04	HS 7-4-2-5	19 851						T 11341	M 41
		1.3247	S 2-10-1-8	Z 110 DKCWV 09-08-04	HS 2-9-1-8		BM 42			SKH 51		T 11342	M 42
		1.3249	S 2-9-2-8				BM 34					T 11333	M 33; M 34
		1.3257	S 18-1-2-15										
		1.3333	S 3-3-2		HS 3-3-2	19 820							
		1.3343	S 6-5-2	Z 85 WDCV 06-05-04-0	HS 6-5-2	19 830	BM 2	2722	F-5603	SKH 9; SKH 51	R6AM5	T 11302	M 2
		1.3344	S 6-5-3	Z 120 WDCV 06-05-04	HS 6-5-3		BM 4			SKH 52; SKH 53		T 11323	M 3 Cl. 2
		1.3346	S 2-9-1	Z 85 DCWV 08-04-02-0	HS 1-8-1		BM 1				H41	T 11301	H 41; M 1

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H	H.1.4	1.3348	S 2-9-2	Z 100 DCWV 09-04-02	HS 2-9-2			2782				T 11307	M 7
		1.3355	S 18-0-1	Z 80 WCV 18-04-01	HS 18-0-1	19 824	BT 1			SKH 2	R18	T 12001	T 1
		1.1654	C 110 W										
	H.3.1	0.9620	G-X 260 NiCr 4 2				Grade 2 A	0512-00					A 532 I B NiCr-LC
		0.9625	G-X 330 NiCr 4 2				Grade 2 B	0513-00					A 532 I A NiCr-HC
		0.9630	G-X 300 CrNiSi 9 5 2				Grade 2 C; D; E	0457-00					A 532 I D Ni-HiCr
		0.9635	G-X 330 CrMo 15 3				Grade 3 A; B						A 532 II C 15% CrMo-
		0.9640	G-X 300 CrMoNi 15 2				Grade 3 A; B						
		0.9645	G-X 260 CrMoNi 20 2				Grade 3 C						A 532 II D 20% CrMo-
		0.9650	G-X 260 Cr 27				Grade 3 D	0466-00					A 532 III A 25% Cr
		0.9655	G-X 300 CrMo 27 1				Grade 3 E						A 532 III A 25% Cr
O	O.1.1	EP											
		MF											
		PF											
		UP											
	O.1.2	PA											
		PC											
		PE											
		PI											
		PMMA											
		POM											
		PP											
		PS											
		PTFE											
		PVC											
	O.2.1	AFK											
	O.2.2	CFK											
		GFK											
	O.3.1	Graphit											

ISO designation system

ISO attribute	Feature Description
A	
ADJRG	Adjustment range
ADJRGR	Adjustment range radial
ALP	Clearance angle axial
AN	Clearance angle major
APMX	Depth of cut maximum
B	
B	Shank width
BD	Body diameter
BD_1	Body diameter, 1st cutting step
BD_2	Body diameter, 2nd cutting step
BD_3	Body diameter, 3rd cutting step
BD_4	Body diameter, 4th cutting step
BDRED	Body diameter, reduced
BDX	Body diameter maximum
BHTA	Body half taper angle
BLQ	Balance quality code
BN	Face land width
BS	Trailing edge length
BTED	Body taper end diameter
C	
CDX	Cutting depth maximum
CF	Central flat
CHW	Corner chamfer width
CHWTL	Flank chamfer width left hand
CLDIS_1	Centre line distance 1
CLDIS_2	Centre line distance 2
CLDIS_3	Centre line distance 3
CND	Coolant entry diameter
CNT	Coolant entry, thread size
CODX	Parting off diameter, max.
CRE	Spot radius
CRKS	Pull stud thread size
CW	Cutting width
CXD	Coolant exit diameter
D	
D1	Fixing hole diameter
DAXN	Axial groove outside diameter minimum
DAXX	Axial groove outside diameter maximum
DC	Cutting diameter
DC_1	Cutting diameter, 1st cutting step
DC_2	Cutting diameter, 2nd cutting step
DCD	Cutting diameter drilling part
DCINTF	Interference cutting diameter
DCN	Cutting diameter minimum
DCONMS	Mounting spigot diameter
DCONWS	Connection diameter workpiece side
DCONWS_1	Connection diameter workpiece side – 1
DCONWS_2	Connection diameter workpiece side – 2
DCSKX	Countersunk diameter, max
DCX	Cutting diameter maximum
DF	Flange diameter
DFC	Functional diameter
DHUB	Hub diameter
DLN	Diameter lock nut
DMIN	Minimum bore diameter
DN	Neck Diameter
DRVS	Drive size

ISO attribute	Feature Description
G	
GAN	Insert rake angle
GB	Face land angle
H	
H	Shank height
HDD	Head diameter
HDW	Head width
HF	Functional height
HLN	Lock nut height
HSUP	Support height
I	
IC	Inscribed circle diameter
IDNR	Identifying order number
IH	Insert hand
INSL	Insert length
K	
KAPR	Tool cutting edge angle
KCH	Corner chamfer angle
L	
L	Cutting edge length
L_1	Cutting edge length 1
L_2	Cutting edge length 2
L_3	Cutting edge length 3
LB	Body length
LB_1	Body length 1
LB_2	Body length 2
LCF	Length chip flute
LCOL	Collet length
LDRED	Reduced body diameter length
LE	Cutting edge effective length
LF	Functional length
LF_1	Functional length 1
LF_2	Functional length 2
LF_3	Functional length 3
LFSF	Distance to face
LH	Head length
LPCON	Connection protruding length
LPR	Protruding length
LS	Shank length
LSC	Clamping length machine side
LSCN	Clamping length minimum machine side
LSCX	Clamping length maximum machine side
LTA	Length tool assembly
LU	Usable length
M	
MXC	Clamping force maximum
N	
NOF	Flute count
NT	Tooth count
O	
OAH	Overall height
OAL	Overall length
OAW	Overall width

Continued on next page

ISO designation system

ISO attribute	Feature Description
P	
PDPT	Profile depth insert
PDX	Profile distance ex
PDY	Profile distance ey
PHD	Premachined hole diameter
PL	Point length
PLGL	Plug length
PNA	Profile included angle
PRFA	Profile angle
PRFRAD	Profile radius
PRFRAD1	Profile radius 1
PRFRAD2	Profile radius 2
PRFRAD3	Profile radius 3
PSIR	Tool lead angle
R	
RA	Relief angle
RADH	Radial height
RADW	Radial width
RADWOF	Radial offset width
RAL	Relief angle lh
RAR	Relief angle rh
RCSK	Radius countersunk
RE	Corner radius
RE_1	Corner radius 1
RE_2	Corner radius 2
RE_3	Corner radius 3
REL	Corner radius left hand
RETL	Flank radius left hand
RETR	Flank radius right hand
RHCDL	Radial height chamfer distance lower
RHCDU	Radial height chamfer distance upper
RPMX	Rotational speed maximum
S	
S	Insert thickness
S1	Insert thickness total
SD	Step distance
SDL	Step diameter length
SDL_1	Step diameter length 1
SDL_2	Step diameter length 2
SZID	Nominal size
T	
TD	Thread diameter
TDIN	Thread diameter, inch measure
THID	Thread designation inside
THL	Thread cutting part length
THOD	Thread designation outside
THSZMS	Connection thread nominal size
THSZWS	Connection thread nominal size workpiece side
TP	Thread pitch
TPI	Threads per inch
TQX	Torque maximum

ISO attribute	Feature Description
W	
W1	Insert width
WF	Functional width
WF2	Functional width 2
WT	Weight of item
Z	
ZEFF	Face effective cutting edge count
ZEFP	Peripheral effective cutting edge count
ZNF	Face mounted insert count
ZNP	Peripheral mounted insert count

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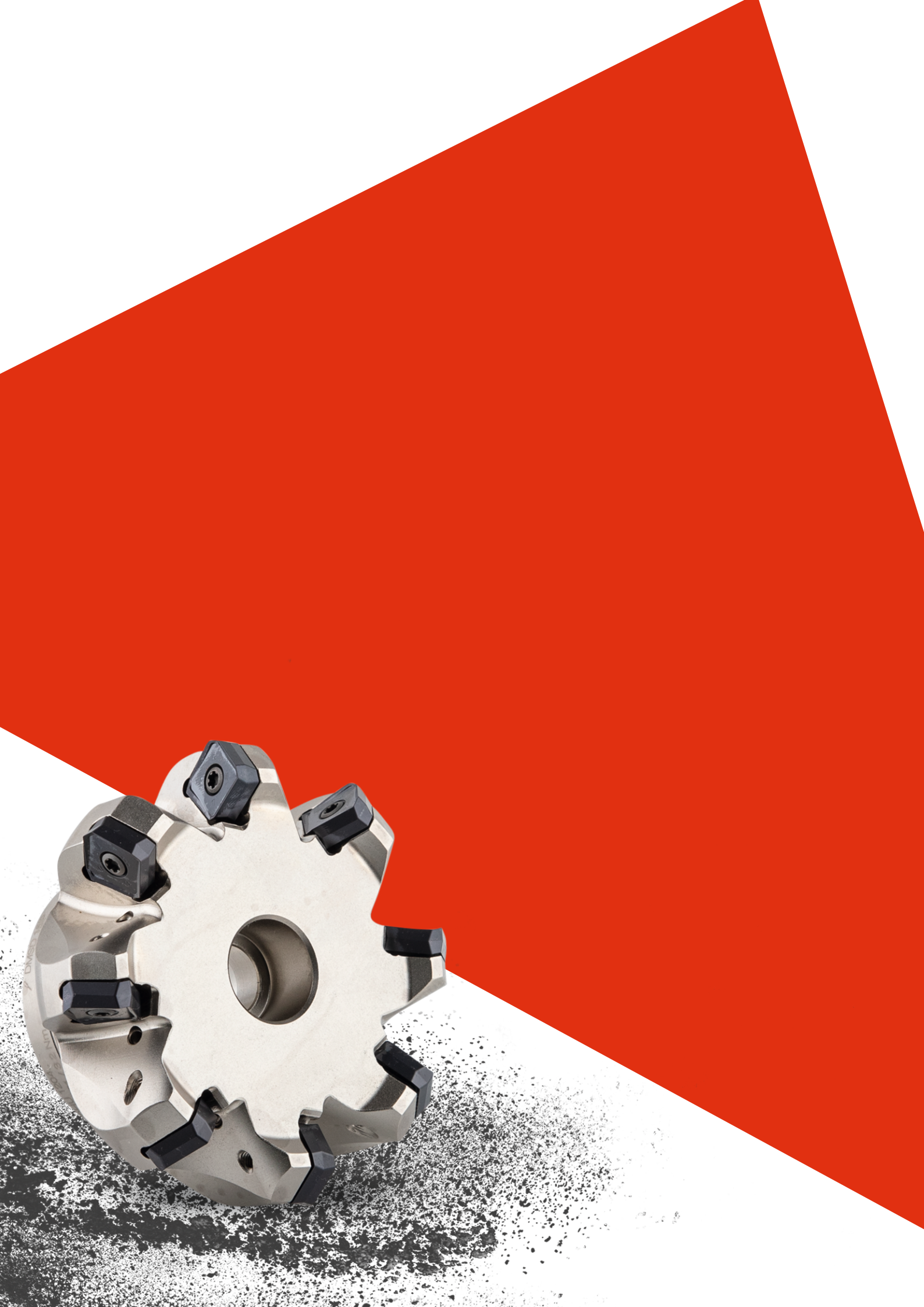

CERATIZIT is a high-technology engineering group specialised in cutting tools and hard material solutions.

Tooling a Sustainable Future

ceratizit.com

CERATIZIT GROUP

UP2DATE

The cool way to machine titanium alloys

MaxiMill – 211-DC with DirectCooling

Faster. Longer. Safer.

... ADDITIONAL PRODUCT HIGHLIGHTS

- **Cermet grade CTEP110-P:** Updated coating technology for cermet inserts.
- Precise **AluLine Micro** milling cutters for precise machining of small, complex aluminum components.

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Welcome!

Get in touch

Customer Service Team

https://cuttingtools.ceratizit.com
1-800-783-2280 (US) or 1-905-551-1743 (Canada)
customerservice.usa@ceratizit.com
customerservice.canada@ceratizit.com
techsupport.usa@ceratizit.com

On-site technical support

Your Local Technical Sales Engineer

Your customer number

Precision cooling strategy

with the additively manufactured
MaxiMill – 211-DC milling system

CERATIZIT

The ideal coolant hole location provides added value when machining titanium and other heat-resistant materials

Get operational efficiencies while maximizing process security all while running at high cutting speeds.

You can enjoy all these advantages in a single tool with the 3D-printed MaxiMill – 211-DC indexable milling system developed and manufactured by CERATIZIT. The patented shoulder mill stands out for its added value when machining titanium and other heat-resistant materials, due to an **optimum DirectCooling supply on the indexable insert flanks**. These specific materials require the most effective coolant possible to achieve an excellent machining result.

→ **from page 44**
You can find further information on the product here.

cts.ceratizit.com/us/en/maximill-211-dc

CERATIZIT

The cool way to machine titanium alloys

Optimizing the flank cooling system for machining titanium and super alloys is a top feature for the base body of the MaxiMill – 211-DC, which is why CERATIZIT designers needed to create a concept not possible with conventional machining processes. The aim was to deliver as much coolant as possible straight to the cutting edge. This called for a highly complex design that was feasible thanks to additive manufacturing.

3D-printed tool holder with ideally positioned coolant holes

Advantages/benefits

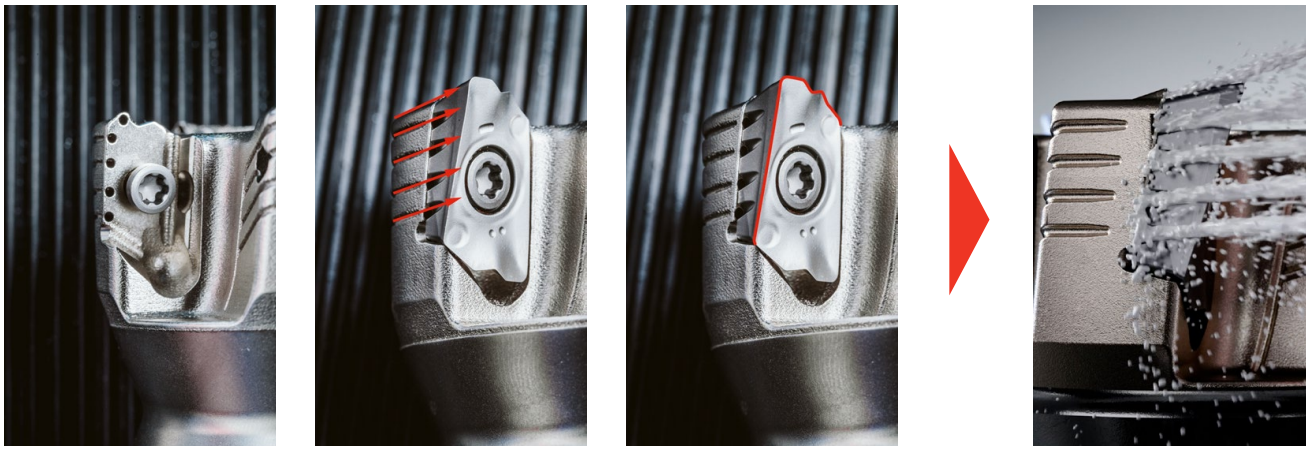
- ▲ Optimum DirectCooling supply on the indexable insert flanks
- ▲ Indexable insert geometry and coolant holes perfectly tailored to DirectCooling

Less insert wear → **Tool cost savings**

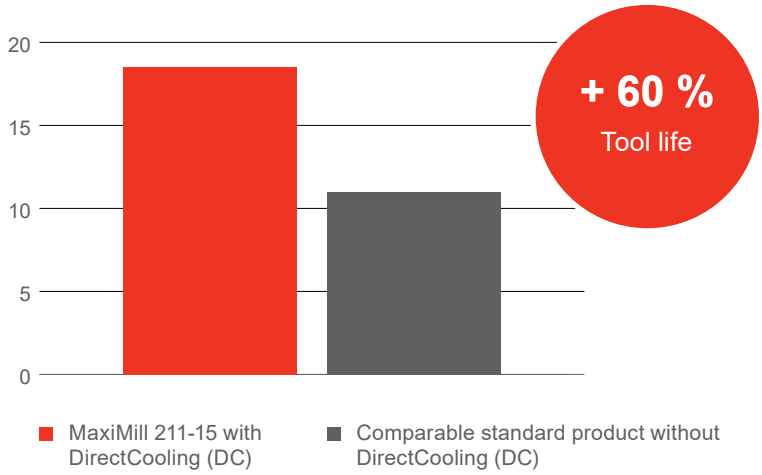
Higher machining parameters possible → **Production time optimization**

The perfect combination: an ideal coolant hole position with matching insert geometry

Produced with additive manufacturing, the base body of the milling cutter on the MaxiMill – 211-DC ensures the design possibilities required for the complexity of flank cooling. This creates the perfect combination of geometric and functional properties – the ideal coolant hole position, paired with an **insert geometry that is precisely tailored** for cooling – guaranteeing full coolant coverage on the insert cutting surface.



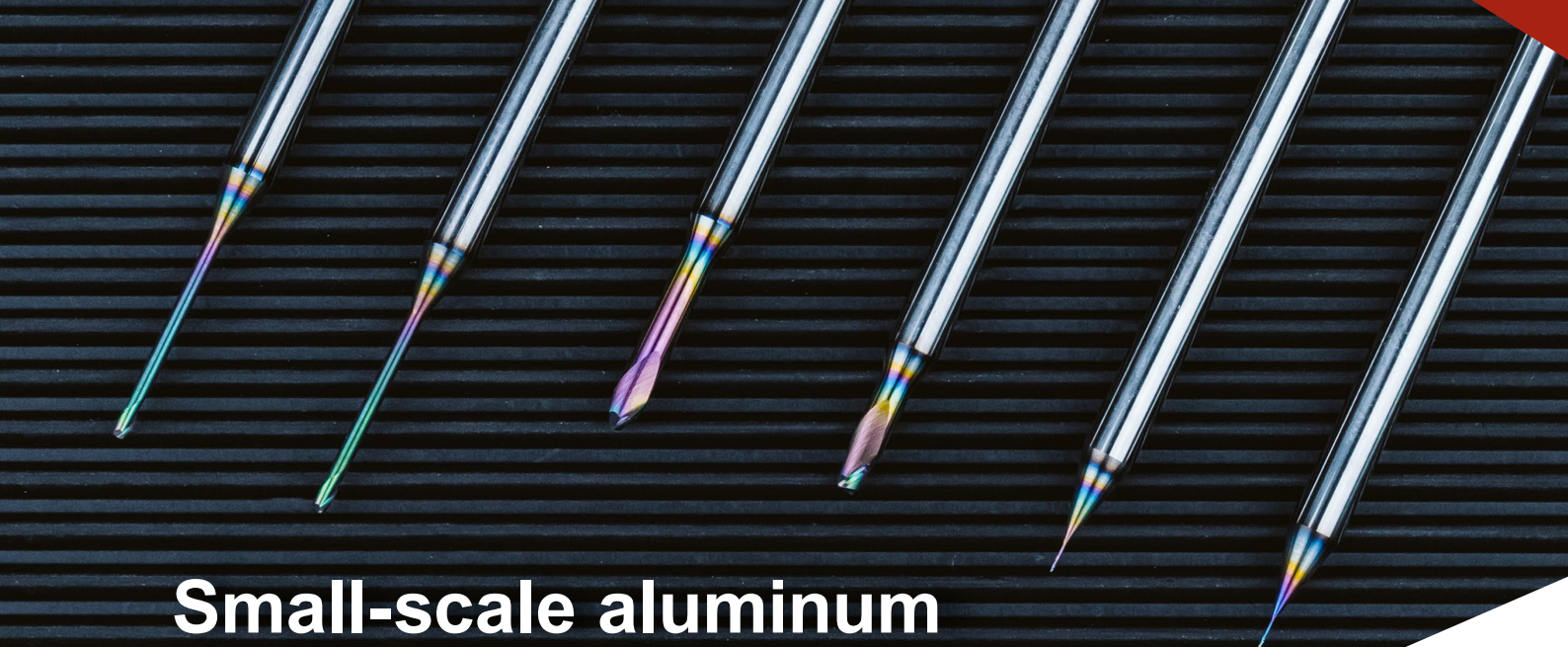
Test report: Tool life [min] compared to standard tools



Machine:	GROB G1050
Workpiece:	TiAl6V4
Tool:	MaxiMill – 211-DC
v_c:	65 m/min.
a_p:	6 mm / a_e 18 mm / f_z 0,13 mm
Coolant pressure:	80 bar

Having an increased tool life helps customers to be more sustainable when machining titanium and super alloys. What's more, they benefit from a reliable process with significantly lower tool usage.

Manuel Höfferer, Application Manager Aerospace & Defense



Small-scale aluminum machining

with AluLine – Micro

WNT

Micro cutter for complex micro components

AluLine – Micro: with DLC coating and minimal tolerances

Components are getting smaller all the time: from the medical technology sector to the latest generation of smartphones or elegant watch cases. This means that the tools used to make these components are getting smaller as well. That is why we decided to completely redesign the micro cutters in our AluLine – Micro range and adapt them to industry requirements.

→ **from page 34**
You can find further information on the product here.

cts.ceratizit.com/us/en/aluline-micro

Advantages of AluLine – Micro cutters

- Latest geometry
- Polish grinding for uniform cutting edges and optimal chip removal
- Wear-resistant, thin, and ultra-smooth DLC coating
- Outstanding price to performance ratio
- Extensive, continuous range up to overhang lengths of 12xD
- Also suitable for shrinking with a shank diameter of 4 mm
- Lowest tolerances, for maximum contour quality on the component (3 µm for a diameter of 0.2 mm)

Large portfolio of micro tools for machining aluminum

We offer a range of tool variants for AluLine – Micro:

- Radius and torus cutters are available, as well as end mills with a corner chamfer
- Various shank versions and geometries
- Diameters ranging from 0.2 mm to 3.0 mm
- Overhang lengths from 3xD to 12xD

This product range gives small part manufacturers confidence when working with materials such as aluminum alloys, copper, and other non-ferrous metals.

Corner chamfer

Full radius

Torus

Cermet cutting material grades take finish turning to the next level

CERATIZIT

Coating update for cermet CTEP110-P grade

Cermet cutting inserts are a top choice for those looking to lower their costs per part when finishing steel. These cutting inserts are more heat-resistant than their carbide counterparts, allowing higher cutting data and therefore shorter processes. These tools also offer dimensional accuracy with long tool life, especially with our DRAGONSKIN coating with insert wear detection.

→ **from page 14**
You can find further information on the product here.

cts.ceratizit.com/us/en/cermet-inserts

Why choose cermet?

Cermet offers a number of advantages over carbide in specific applications. This allows very high cutting speeds and long tool life to be achieved, with optimally smooth component surfaces.

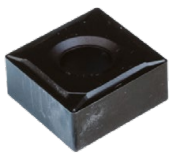
Efficient production can be achieved with CERATIZIT cermet inserts.

Advantages of the CTEP110-P cermet inserts with a new coating include:

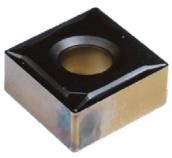
- ▲ Unique multilayer CVD coating
- ▲ Gold-colored indicator layer for insert detection
- ▲ Improved texture and grain of TiCN & Al_2O_3 layers
- ▲ Special post-treatment process
- ▲ Optimized chip breakers
- ▲ Perfect match between chip breakers and grade

Ability to know when to change a tool before it breaks

The new coating with insert wear detection means a quick glance at the cutting edge can help to identify wear. This enables you to get maximum use of each insert cutting edge as well as help to prevent untimely tool breakages.



Earlier versions of this insert with coating did not have insert wear detection



The CTEP110-P is an updated version that includes both – a coating update as well as the insert wear detection layer

Contents

WNT	Solid carbide drills
12+13	WTX Speed VA 8xD
CERATIZIT	Indexable turning tools
14–22	**Cermet CTEP110-P indexable inserts**
23–25	ISO turning inserts
CERATIZIT	Grooving tools
30–33	GX35 system
WNT	Solid carbide milling cutters
34–42	**AluLine – Micro cutter**

Cermet indexable inserts
CTEP110-P

CERATIZIT Indexable milling tools

44–47 **MaxiMill – 211-DC**

CERATIZIT Adapters and accessories

48–53 HyPower – high pressure chuck

54–56 Shell mill adapter with reduced flange diameter

57–60 Cylindrical shank adapter (Weldon)

61 BMT tool holders

WNT Workpiece clamping

62 **CentriClamp – ZSG mini – clamping tower**

63 MNG mini – 4-sided clamping tower

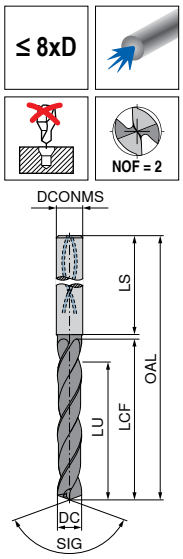
64 Verso system jaws

Shoulder milling system
MaxiMill – 211-DC

To the products

WTX – High Speed Drill, DIN 6537

- ▲ For corrosion and acid-resistant steels
- ▲ Developed for high cutting speeds
- ▲ Three guide lands for low friction



NEW

Speed VA

Ti800

SIG 135°

Solid carbide

10 701 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
3.0	6	72	34	29	36	03000
3.1	6	72	34	29	36	03100
3.2	6	72	34	29	36	03200
3.3	6	72	34	29	36	03300
3.4	6	72	34	29	36	03400
3.5	6	72	34	29	36	03500
3.6	6	72	34	29	36	03600
3.7	6	72	34	29	36	03700
3.8	6	81	43	36	36	03800
3.9	6	81	43	36	36	03900
4.0	6	81	43	36	36	04000
4.1	6	81	43	36	36	04100
4.2	6	81	43	36	36	04200
4.3	6	81	43	36	36	04300
4.4	6	81	43	36	36	04400
4.5	6	81	43	36	36	04500
4.6	6	81	43	36	36	04600
4.8	6	95	57	48	36	04800
5.0	6	95	57	48	36	05000
5.1	6	95	57	48	36	05100
5.2	6	95	57	48	36	05200
5.3	6	95	57	48	36	05300
5.4	6	95	57	48	36	05400
5.5	6	95	57	48	36	05500
5.6	6	95	57	48	36	05600
5.7	6	95	57	48	36	05700
5.8	6	95	57	48	36	05800
5.9	6	95	57	48	36	05900
6.0	6	95	57	48	36	06000
6.1	8	114	76	64	36	06100
6.2	8	114	76	64	36	06200
6.3	8	114	76	64	36	06300
6.4	8	114	76	64	36	06400
6.5	8	114	76	64	36	06500
6.6	8	114	76	64	36	06600
6.8	8	114	76	64	36	06800
6.9	8	114	76	64	36	06900
7.0	8	114	76	64	36	07000
7.5	8	114	76	64	36	07500
7.8	8	114	76	64	36	07800
8.0	8	114	76	64	36	08000
8.1	10	142	95	80	40	08100
8.2	10	142	95	80	40	08200
8.3	10	142	95	80	40	08300
8.5	10	142	95	80	40	08500

10 701 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
8.8	10	142	95	80	40	08800
9.0	10	142	95	80	40	09000
9.3	10	142	95	80	40	09300
9.5	10	142	95	80	40	09500
9.8	10	142	95	80	40	09800
10.0	10	142	95	80	40	10000
10.2	12	162	114	96	45	10200
10.5	12	162	114	96	45	10500
10.8	12	162	114	96	45	10800
11.0	12	162	114	96	45	11000
11.5	12	162	114	96	45	11500
11.8	12	162	114	96	45	11800
12.0	12	162	114	96	45	12000
12.2	14	178	133	112	45	12200
12.5	14	178	133	112	45	12500
12.8	14	178	133	112	45	12800
13.0	14	178	133	112	45	13000
13.5	14	178	133	112	45	13500
13.8	14	178	133	112	45	13800
14.0	14	178	133	112	45	14000
14.5	16	203	152	128	48	14500
15.0	16	203	152	128	48	15000
15.5	16	203	152	128	48	15500
16.0	16	203	152	128	48	16000
16.5	18	222	171	144	48	16500
17.0	18	222	171	144	48	17000
17.5	18	222	171	144	48	17500
18.0	18	222	171	144	48	18000

P	○
M	○
K	○
N	○
S	●
H	
O	

→ v_c Page 13

Cutting data standard values – WTX – Speed VA

	Material sub-group	Index	Tensile strength lbf/in²* / HB / HRC	10 701 ... With through coolant v_c (ft/min)	8xD Ø 3–5 f (inch/rev)	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20
P	Unalloyed steel	P.1.1	60900 lbf/in² / 125 HB	165	0,12	0,17	0,23	0,28	0,31
		P.1.2	92800 lbf/in² / 190 HB	160	0,11	0,16	0,22	0,26	0,30
		P.1.3	121800 lbf/in² / 250 HB	150	0,11	0,15	0,20	0,25	0,28
		P.1.4	132000 lbf/in² / 270 HB	145	0,10	0,15	0,19	0,24	0,27
		P.1.5	146500 lbf/in² / 300 HB	135	0,10	0,14	0,18	0,23	0,26
	Low-alloy steel	P.2.1	88500 lbf/in² / 180 HB	165	0,14	0,20	0,27	0,33	0,37
		P.2.2	134900 lbf/in² / 275 HB	150	0,13	0,18	0,24	0,30	0,34
		P.2.3	146500 lbf/in² / 300 HB	135	0,11	0,16	0,22	0,27	0,30
		P.2.4	174000 lbf/in² / 375 HB	105	0,11	0,15	0,19	0,24	0,27
	High-alloy steel and high-alloy tool steel	P.3.1	98600 lbf/in² / 200 HB	115	0,11	0,16	0,22	0,27	0,30
		P.3.2	159500 lbf/in² / 300 HB	90	0,10	0,13	0,18	0,22	0,25
		P.3.3	188500 lbf/in² / 400 HB	90	0,08	0,11	0,14	0,17	0,19
	Stainless steel	P.4.1	98600 lbf/in² / 200 HB	70	0,08	0,11	0,14	0,18	0,20
		P.4.2	117500 lbf/in² / 250 HB	70	0,08	0,11	0,14	0,18	0,20
M	Stainless steel	M.1.1	88500 lbf/in² / 200 HB	80	0,09	0,13	0,18	0,22	0,25
		M.2.1	300 HB	75	0,08	0,11	0,15	0,19	0,21
		M.3.1	113100 lbf/in² / 230 HB	75	0,08	0,11	0,15	0,19	0,21
K	Grey cast iron	K.1.1	88500 lbf/in² / 180 HB	150	0,15	0,24	0,33	0,41	0,47
		K.1.2	127600 lbf/in² / 260 HB	125	0,14	0,20	0,27	0,33	0,37
	Spherulitic graphite cast iron	K.2.1	78300 lbf/in² / 160 HB	200	0,15	0,22	0,31	0,38	0,43
		K.2.2	122600 lbf/in² / 250 HB	125	0,14	0,20	0,27	0,33	0,37
	Malleable iron	K.3.1	63800 lbf/in² / 130 HB	115	0,15	0,21	0,29	0,35	0,40
		K.3.2	113100 lbf/in² / 230 HB	100	0,12	0,17	0,23	0,28	0,32
N	Aluminum wrought alloy	N.1.1	60 HB						
		N.1.2	49300 lbf/in² / 100 HB						
	Cast aluminum alloy	N.2.1	36300 lbf/in² / 75 HB						
		N.2.2	43500 lbf/in² / 90 HB						
		N.2.3	63800 lbf/in² / 130 HB						
	Copper and copper alloys (bronze/brass)	N.3.1	54400 lbf/in² / 110 HB						
		N.3.2	43500 lbf/in² / 90 HB	145	0,14	0,20	0,27	0,33	0,37
		N.3.3	49300 lbf/in² / 100 HB						
	Magnesium alloys	N.4.1	70 HB						
S	Heat-resistant alloys	S.1.1	98600 lbf/in² / 200 HB	35	0,07	0,10	0,14	0,17	0,19
		S.1.2	137800 lbf/in² / 280 HB	25	0,05	0,07	0,10	0,12	0,14
		S.2.1	121800 lbf/in² / 250 HB	25	0,05	0,07	0,10	0,12	0,14
		S.2.2	171100 lbf/in² / 350 HB	20	0,06	0,09	0,12	0,15	0,17
		S.2.3	156600 lbf/in² / 320 HB	20	0,05	0,07	0,10	0,12	0,14
	Titanium alloys	S.3.1	5800 lbf/in²						
		S.3.2	152300 lbf/in²	35	0,08	0,11	0,15	0,18	0,20
		S.3.3	203100 lbf/in² / 410 HB	30	0,06	0,09	0,12	0,15	0,17
H	Hardened steel	H.1.1	46-55 HRC						
		H.1.2	56-60 HRC						
		H.1.3	61-65 HRC						
		H.1.4	66-70 HRC						
	Chilled iron	H.2.1	400 HB						
	Hardened cast iron	H.3.1	55 HRC						
O	Non-metal materials	O.1.1	≤ 21800 lbf/in²						
		O.1.2	≤ 14500 lbf/in²						
		O.2.1	≤ 145000 lbf/in²						
		O.2.2	≤ 145000 lbf/in²						
		O.3.1							

* Tensile Strength at Rupture (Rm)

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

CNMG

Designation	L	S	D1	IC
	mm	mm	mm	mm
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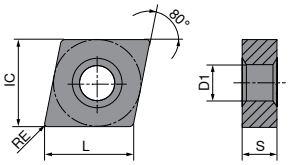
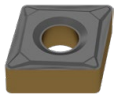
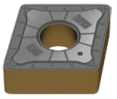


CNMG

		NEW	NEW
		-CF20	-TFQ
		CTEP110-P	CTEP110-P
		DRAGONSKIN	DRAGONSKIN
			
		F	F
		CERMET	CERMET
		CNMG	CNMG
		76 101 ...	76 110 ...
ISO	RE mm		
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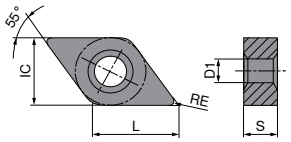
120408EN	0.8	03001	03001
120412EN	1.2		03201
P		●	●
M		○	○
K		○	○
N			
S			
H			
O			

DNMG

Designation	L	S	D1	IC
	mm	mm	mm	mm
DNMG 1104..	11.6	4.76	3.81	9.52
DNMG 1506..	15.5	6.35	5.16	12.70

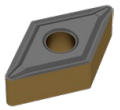


DNMG

NEW

-CF20
CTEP110-P

DRAGONSKIN



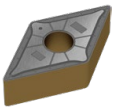
F
CERMET
DNMG

76 102 ...

NEW

-TFQ
CTEP110-P

DRAGONSKIN



F
CERMET
DNMG

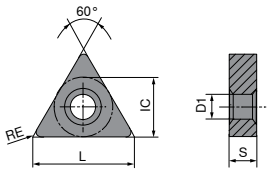
76 153 ...

ISO	RE		
	mm		
110404EN	0.4	**00401**	
110408EN	0.8	**00601**	
150604EN	0.4	**02801**	**02801**
150608EN	0.8	**03001**	**03001**
150612EN	1.2	**03201**	

P	●	●
M	○	○
K	○	○
N		
S		
H		
O		

TNMG

Designation	L	S	D1	IC
	mm	mm	mm	mm
TNMG 1604..	16.5	4.76	3.81	9.52



TNMG

NEW

-CF20
CTEP110-P

DRAGONSKIN

F
CERMET
TNMG

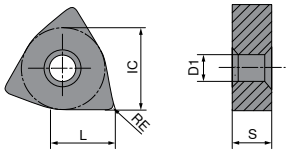
76 149 ...

ISO	RE	
	mm	
160404EN	0.4	**01601**
160408EN	0.8	**01801**
160412EN	1.2	**02001**

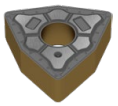
P	●
M	○
K	○
N	
S	
H	
O	

WNMG

Designation	L	S	D1	IC
	mm	mm	mm	mm
WNMG 0604..	6.5	4.76	3.81	9.52
WNMG 0804..	8.6	4.76	5.16	12.70

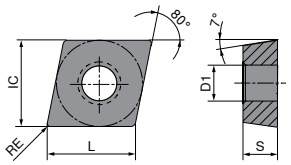


WNMG

		NEW	NEW
		-CF20	-TFQ
		CTEP110-P	CTEP110-P
		DRAGONSKIN	DRAGONSKIN
			
		F	F
		CERMET	CERMET
		WNMG	WNMG
		76 171 ...	76 177 ...
ISO	RE mm		
060404EN	0.4	00401	
060408EN	0.8	00601	00601
080404EN	0.4		01601
080408EN	0.8	01801	01801
P		●	●
M		○	○
K		○	○
N			
S			
H			
O			

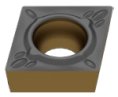
CCGT / CCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
CC.T 0602..	6.4	2.38	2.8	6.35
CC.T 09T3..	9.7	3.97	4.4	9.52
CC.T 1204..	12.9	4.76	5.5	12.70



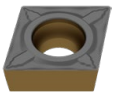
CCGT / CCMT

NEW
-CF05
CTEP110-P
DRAGONSKIN



F
CERMET
CCGT
76 247 ...

NEW
-CF55
CTEP110-P
DRAGONSKIN

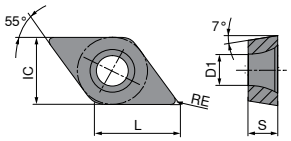


F
CERMET
CCMT
76 248 ...

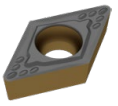
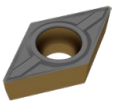
ISO	RE		
	mm		
060202EN	0.2	00201	
060204EN	0.4	00401	00401
09T302EN	0.2	01401	
09T304EN	0.4	01601	01601
09T308EN	0.8	01801	01801
120404EN	0.4	02001	02801
P		●	●
M		○	○
K		○	○
N			
S			
H			
O			

DCGT / DCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
DC.T 0702..	7.75	2.38	2.8	6.35
DC.T 11T3..	11.60	3.97	4.4	9.52

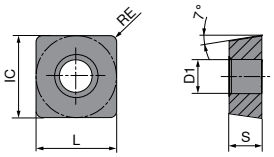


DCGT / DCMT

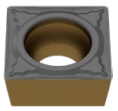
			NEW	NEW
			-CF05 CTEP110-P	-CF55 CTEP110-P
			DRAGONSKIN	DRAGONSKIN
				
			F	F
			CERMET DCGT	CERMET DCMT
			76 245 ...	76 246 ...
ISO	RE			
	mm			
070201EN	0.1		00101	
070202EN	0.2		00201	00201
070204EN	0.4		00401	00401
11T302EN	0.2		01401	
11T304EN	0.4		01601	01601
11T308EN	0.8		01801	01801
P			●	●
M			○	○
K			○	○
N				
S				
H				
O				

SCGT / SCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
SC.T 09T3..	9.52	3.97	4.4	9.52

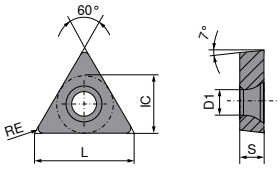


SCGT / SCMT

		NEW	NEW
		-CF05 CTEP110-P	-CF55 CTEP110-P
		DRAGONSKIN	DRAGONSKIN
			
		F	F
		CERMET SCGT	CERMET SCMT
		76 261 ...	76 260 ...
ISO	RE mm		
09T304EN	0.4	00401	00401
09T308EN	0.8	00601	00601
P		●	●
M		○	○
K		○	○
N			
S			
H			
O			

TCGT / TCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
TC.T 1102..	11.0	2.38	2.8	6.35
TC.T 16T3..	16.5	3.97	4.4	9.52



TCGT / TCMT

NEW
-CF05
CTEP110-P
DRAGONSKIN

F
CERMET
TCGT
76 272 ...

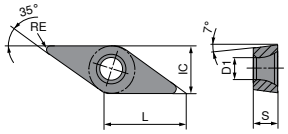
NEW
-CF55
CTEP110-P
DRAGONSKIN

F
CERMET
TCMT
76 266 ...

ISO	RE		
	mm		
110202EN	0.2	01401	
110204EN	0.4	01601	01601
110208EN	0.8	01801	
16T304EN	0.4	02801	
16T308EN	0.8		03001
P		●	●
M		○	○
K		○	○
N			
S			
H			
O			

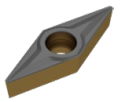
VCGT / VCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
VC.T 1103..	11.1	3.18	2.9	6.35
VC.T 1604..	16.6	4.76	4.4	9.52



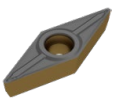
VCGT / VCMT

NEW
-CF05
CTEP110-P
DRAGONSKIN



F
CERMET
VCGT
76 276 ...

NEW
-CF55
CTEP110-P
DRAGONSKIN



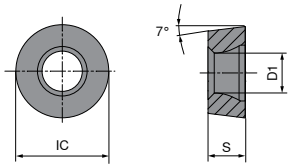
F
CERMET
VCMT
76 292 ...

ISO	RE		
	mm		
110301EN	0.1	01201	
110302EN	0.2	01401	
110304EN	0.4	01601	01601
160404EN	0.4	02801	02801
160408EN	0.8	03001	03001

P	●	●
M	○	○
K	○	○
N		
S		
H		
O		

RCMT

Designation	S mm	D1 mm	IC mm
RCMT 0803..	3.18	3.4	8



RCMT

NEW

-M23
CTCP115-P

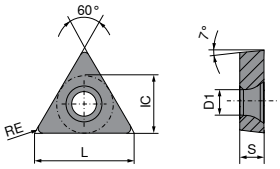
DRAGONSKIN

M
RCMT
74 121 ...

ISO	RE mm	21300
0803M0SN	4	
P		●
M		
K		○
N		
S		
H		
O		

TCGT

Designation	L mm	S mm	D1 mm	IC mm
TCGT 16T3..	16.5	3.97	4.4	9.52



TCGT

-27
CTPX715

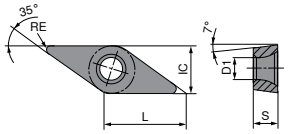
DRAGONSKIN

M
TCGT
70 276 ...

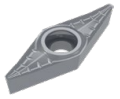
ISO	RE mm	
16T302FN	0.2	72600
P		●
M		●
K		○
N		●
S		●
H		
O		○

VCGT

Designation	L	S	D1	IC
	mm	mm	mm	mm
VCGT 1604..	16.6	4.76	4.4	9.52



VCGT

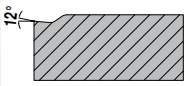
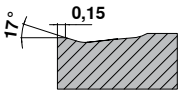
	-25P CTPX710	-27 CTPX715
	DRAGONSKIN	DRAGONSKIN
		
	M VCGT	M VCGT
	70 282 ...	70 280 ...
ISO / RE mm		
160402FN 0.2	72600	72600
160412FN 1.2		73200
P	●	●
M	●	●
K		○
N	●	●
S	●	●
H		
O		○

	Material sub-group	Index	Tensile strength lbf/in²* / HB / HRC	CTEP110-P DRAGONSKIN		CTCP115-P	CTPX710 -25P DRAGONSKIN	CTPX715 -27 DRAGONSKIN
P	Unalloyed steel	P.1.1	60900 lbf/in² / 125 HB	500	P.1.1	370	340	275
		P.1.2	92800 lbf/in² / 190 HB	440	P.1.2	315	300	235
		P.1.3	121800 lbf/in² / 250 HB	380	P.1.3	270	260	200
		P.1.4	132000 lbf/in² / 270 HB	360	P.1.4	250	250	190
		P.1.5	146500 lbf/in² / 300 HB	330	P.1.5	230	235	170
	Low-alloy steel	P.2.1	88500 lbf/in² / 180 HB	450	P.2.1	325	300	240
		P.2.2	134900 lbf/in² / 275 HB	360	P.2.2	250	250	185
		P.2.3	146500 lbf/in² / 300 HB	330	P.2.3	230	235	170
		P.2.4	174000 lbf/in² / 375 HB	250	P.2.4	170	190	125
	High-alloy steel and high-alloy tool steel	P.3.1	98600 lbf/in² / 200 HB	380	P.3.1	200	150	140
		P.3.2	159500 lbf/in² / 300 HB	310	P.3.2	140	95	80
		P.3.3	188500 lbf/in² / 400 HB	230	P.3.3	85	35	25
	Stainless steel	P.4.1	98600 lbf/in² / 200 HB	380	P.4.1	200	155	140
		P.4.2	117500 lbf/in² / 250 HB	340	P.4.2	170	130	110
M	Stainless steel	M.1.1	88500 lbf/in² / 200 HB	380	M.1.1		150	140
		M.2.1	300 HB		M.2.1		90	80
		M.3.1	113100 lbf/in² / 230 HB		M.3.1		130	120
K	Grey cast iron	K.1.1	88500 lbf/in² / 180 HB	450	K.1.1	255		200
		K.1.2	127600 lbf/in² / 260 HB	340	K.1.2	235		160
	Spherulitic graphite cast iron	K.2.1	78300 lbf/in² / 160 HB	480	K.2.1	270		190
		K.2.2	122600 lbf/in² / 250 HB	380	K.2.2	205		150
	Malleable iron	K.3.1	63800 lbf/in² / 130 HB	460	K.3.1	250		210
		K.3.2	113100 lbf/in² / 230 HB	280	K.3.2	210		180
N	Aluminum wrought alloy	N.1.1	60 HB		N.1.1		1840	1750
		N.1.2	49300 lbf/in² / 100 HB		N.1.2		1600	1500
	Cast aluminum alloy	N.2.1	36300 lbf/in² / 75 HB		N.2.1		1250	1200
		N.2.2	43500 lbf/in² / 90 HB		N.2.2		1250	1200
		N.2.3	63800 lbf/in² / 130 HB		N.2.3		750	700
	Copper and copper alloys (bronze/brass)	N.3.1	54400 lbf/in² / 110 HB		N.3.1		650	625
		N.3.2	43500 lbf/in² / 90 HB		N.3.2		630	600
		N.3.3	49300 lbf/in² / 100 HB		N.3.3		500	475
	Magnesium alloys	N.4.1	70 HB		N.4.1		340	325
S	Heat-resistant alloys	S.1.1	98600 lbf/in² / 200 HB		S.1.1		110	40
		S.1.2	137800 lbf/in² / 280 HB		S.1.2		85	30
		S.2.1	121800 lbf/in² / 250 HB		S.2.1		75	30
		S.2.2	171100 lbf/in² / 350 HB		S.2.2		45	25
		S.2.3	156600 lbf/in² / 320 HB		S.2.3		45	20
	Titanium alloys	S.3.1	5800 lbf/in²		S.3.1		100	110
		S.3.2	152300 lbf/in²		S.3.2		60	70
		S.3.3	203100 lbf/in² / 410 HB		S.3.3		45	50
H	Hardened steel	H.1.1	46-55 HRC		H.1.1			
		H.1.2	56-60 HRC		H.1.2			
		H.1.3	61-65 HRC		H.1.3			
		H.1.4	66-70 HRC		H.1.4			
	Chilled iron	H.2.1	400 HB		H.2.1			
	Hardened cast iron	H.3.1	55 HRC		H.3.1			
O	Non-metal materials	O.1.1	≤ 21800 lbf/in²		O.1.1			140
		O.1.2	≤ 14500 lbf/in²		O.1.2			
		O.2.1	≤ 145000 lbf/in²		O.2.1			150
		O.2.2	≤ 145000 lbf/in²		O.2.2			
		O.3.1			O.3.1			

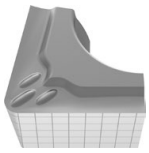
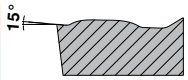
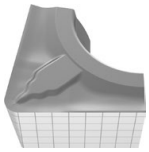
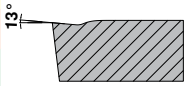
* Tensile Strength at Rupture (Rm)

Standard chip breakers / application tips

Negative

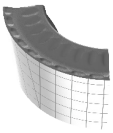
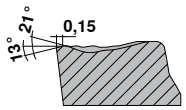
Main application	Model	Smooth cut	Interrupted cut	Interrupted cut	Cut a_p mm	Cut f mm	Geometry
Main application steel and cast iron, secondary application stainless steels	**-CF / -CF20** ▲ Finest finishing ▲ Sharp cutting edge for low cutting forces ▲ Good chip control even at small depths of cut	 **F**	**CTEP110-P / TCM10** CTEP110-P / TCM10 CTEP110-P / TCM10		 0,30–1,50	0,07–0,25	CN.. DN.. TN.. WN..
	-TFQ ▲ Wiper geometry ▲ Finishing to medium machining ▲ Very high feeds ▲ High surface quality	 **F**	**CTEP110-P / CTCP115-P** CTEP110-P CTEP110-P / CTCP115-P	**CTCP115-P / CTCP125-P** CTCP115-P / CTCP125-P	 0,50–5,00	0,10–0,60	CN.. DN.. WN..

Positive

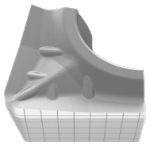
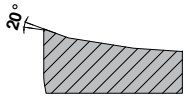
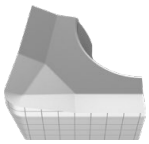
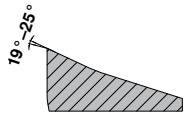
Main application	Model	Smooth cut	Interrupted cut	Interrupted cut	Cut a_p mm	Cut f mm	Geometry
Main application steel and cast iron, secondary application stainless steels and super alloys	**-CF05** ▲ Fine finishing ▲ For all common steel materials, stainless steels, and nodular iron ▲ Good chip control ▲ High surface quality	 **F**	**CTEP110-P / TCM407** CTEP110-P CTEP110-P	TCM10 / TCM407 TCM10 / TCM407	 0,20–1,30	0,06–0,25	CC.. DC.. SC.. TC.. VC..
	-CF55 ▲ Finishing to medium machining ▲ Suitable for general and stainless steels ▲ Low cutting force ▲ Good chip control ▲ High surface quality	 **F** **M**	**CTEP110-P** CTEP110-P CTEP110-P	**TCM10** / CTEP110-P CTEP110-P CTEP110-P	 0,20–1,30	0,06–0,25	CC.. DC.. SC.. TC.. VC..

Standard chip breakers / application tips

Positive

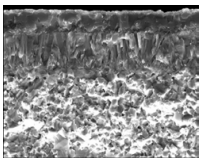
Model	Smooth cut	Interrupted cut	Interrupted cut	Cut a_p mm	Cut f mm	Geometry
Main application steel and cast iron, secondary application stainless steels and super alloys -M23 ▲ Soft cutting geometry with outstanding chip breaking abilities at low cutting depths in finish machining						
F	**CTCP115-P / CTCP125-P**	**CTCP125-P**	**CTCP125-P**			RC..
M	CTCP115-P / CTCP125-P	CTCP125-P	CTCP125-P			
				0,30–4,0	1,0–0,45	

Positive

Model				Cut a_p mm	Cut f mm	Geometry
Main application non-ferrous metals, secondary application stainless steels, steels, super alloys, cast iron -25P ▲ Sharp cutting edge ▲ Good chip control with softer aluminum alloys ▲ Low adhesion						
F	**CTPX710**	CTPX710				CC.. DC.. SC.. VC..
	CTPX710	CTPX710				
	CTPX710 / H216T	**CTPX710 / H216T**	**CTPX710 / H216T**			
	CTPX710	CTPX710				
	CTPX710	CTPX710		0,50–4,50	0,05–0,60	
-27 ▲ The universal aluminum geometry ▲ Sharp cutting edge ▲ Extremely positive rake angle ▲ Low adhesion ▲ High feeds						
M	**CTPX715**	CTPX715				CC.. DC.. RC.. SC.. TC.. VC..
	CTPX715	CTPX715				
	CTPX715 / H216T	CTPX715 / H216T				
R	**CTPX715 / H216T**	**CTPX715 / H216T**	**CTPX715 / H216T**			
	CTPX715	CTPX715				
	CTPX715 / H216T	CTPX715 / H216T	CTPX715 / H216T	1,00–10,00	0,10–0,75	

Grade description

CTEP110-P

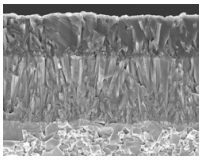


ISO | **P10** | M10 | K05

Specification:
Composition: Co/Ni 12.2%; additives 26.4%; Ti(C,N) balance | Grain size: 0.8-1.0 µm | Hardness: HV_{30} 1650 | Layer system: CVD TiCN-Al_2O_3 + TiN cover layer

Usage recommendation:
The coated cermet grade with reserves of toughness for finish machining at high cutting speeds.

CTCP115-P

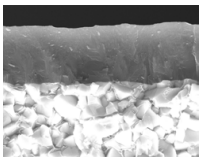


ISO | **P15** | K25

Specification:
Composition: Co 5.5%; mixed carbides 6.4%; WC balance | Grain size: 1 µm | Hardness: HV_{30}1530 | Layer system: CVD TiCN-Al_2O_3

Usage recommendation:
The wear-resistant high-performance grade for steel machining with stable conditions and a continuous cut.

CTPX710

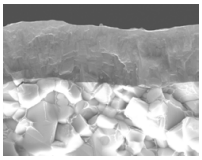


ISO | **P10 | M10** | K10 | **N10 | S15**

Specification:
Composition: Co 6.0%; WC balance | Grain size: 0.8 µm | Hardness: HV_{30}1820 | Layer system: PVD AlTiN

Usage recommendation:
The universal carbide grade for the most demanding machining requirements for multiple materials.

CTPX715



ISO | **P15 | M15** | K15 | **N15 | S20** | O10

Specification:
Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV_{30}1650 | Layer system: PVD AlTiN

Usage recommendation:
The universal carbide grade for the most demanding machining requirements for multiple materials.

C T C P 1 2 5 -P (Example)

CT
CERATIZIT

-P
Performance

Degree of hardness

05	ISO 05
10	ISO 10
15	ISO 15
20	ISO 20
25	ISO 25
30	ISO 30
35	ISO 35
40	ISO 40

Process

1	Turning
2	Milling
3	Grooving
4	Drilling
5	Thread turning
6	Other
7	Several processes

Main application - material

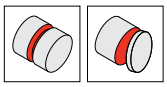
P	Steel
M	Stainless steel
K	Cast iron
N	Non-ferrous metals
S	Heat-resistant
H	Hardened steel
O	Non-metal materials
X	Universal application

Coating

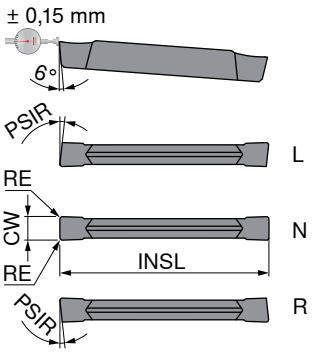
W	Carbide, uncoated
C	CVD-coated carbide
P	PVD-coated carbide
T	Cermet, uncoated
E	Cermet, coated
N	Silicon nitride, uncoated
M	Silicon nitride, coated
S	Mixed ceramic
K	Whisker ceramic
I	SiAlON
D	PCD
B	PcBN
H	HSS sintered

Grooving insert GX 35

▲ For parting and parting off



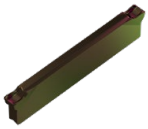
F	M	R



NEW

-M1
CTCP325

DRAGONSKIN



NEW

-M1
CTP1340

DRAGONSKIN

Designation	IH	INSL mm	CW +/-0,15 mm	RE +/-0,15 mm	PSIR °	For tool holder	70 390 ...	70 390 ...
GX 35-E3.00 L 6	L	35	3	0.2	6	-GX35	**92300**	**62300**
GX 35-E3.00 N 0.20	N	35	3	0.2		-GX35	**93300**	**63300**
GX 35-E3.00 R 6	R	35	3	0.2	6	-GX35	**94300**	**64300**
P							●	●
M							○	●
K							●	●
N								○
S							○	●
H								
O								○

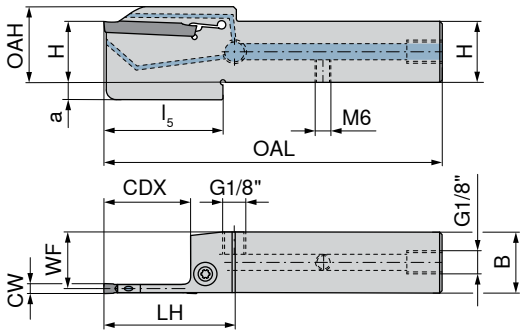
→ v_c Page 33

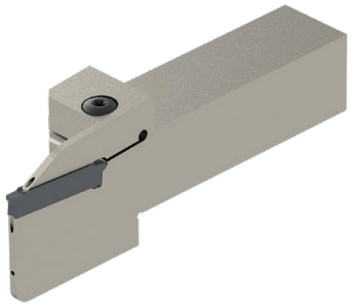
Note: Reduce feed rate value by 20-50% for R/L version.
→ **Page 33**

MonoClamp – Radial Monoholder GX-DC 35

Scope of supply:
Monoholder includes key and clamping screw

Direct Cooling





Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l_5 mm	CDX mm	a mm	For grooving inserts	NEW Left 70 869 ...	NEW Right 70 869 ...
E20 R/L 0034S3-2020X-S-DC-GX35	20	20	3	18.75	31	117	55	48	34	10	GX 35-E3.00	**32001**	**32000**
E25 R/L 0034S3-2525X-S-DC-GX35	25	25	3	23.75	36	132	55	48	34	10	GX 35-E3.00	**32501**	**32500**

Screwdriver **80 950 ...**

Clamping screw **70 950 ...**

Spare parts

For grooving inserts				
GX 35-E3.00	T20 - IP	**129**	M6x22 - 20IP	**92200**

→ **Chapter 16 Adapters and accessories**
Here you will find suitable base adapters.

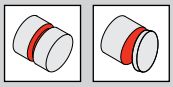
Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength lbf/in²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0.15 % C	Annealed	60900 lbf/in² / 125 HB	1.0401	1015	1.0301	1010
		P.1.2	< 0.45 % C	Annealed	92800 lbf/in² / 190 HB	1.1191	1045	1.0737	12L14
		P.1.3		Tempered	121800 lbf/in² / 250 HB	1.1191	1045	1.0503	1043
		P.1.4	< 0.75 % C	Annealed	132000 lbf/in² / 270 HB	1.1223	1060	1.0535	1055
		P.1.5		Tempered	146500 lbf/in² / 300 HB	1.1223	1060	1.1274	1095
	Low-alloy steel	P.2.1		Annealed	88500 lbf/in² / 180 HB	1.7131	5115	1.6523	8620
		P.2.2		Tempered	134900 lbf/in² / 275 HB	1.7131	5115	1.6582	4340
		P.2.3		Tempered	146500 lbf/in² / 300 HB	1.7225	4142	1.7131	5115
		P.2.4		Tempered	174000 lbf/in² / 375 HB	1.7225	4142	17223	4140
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	98600 lbf/in² / 200 HB	1.4021	420	1.2379	D2
		P.3.2		Hardened and tempered	159500 lbf/in² / 300 HB	1.2343	H11	1.3343	M2
		P.3.3		Hardened and tempered	188500 lbf/in² / 400 HB	1.2343	H11	1.2363	A2
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	98600 lbf/in² / 200 HB	1.4016	430	1.4125	440C
		P.4.2	Martensitic	Tempered	117500 lbf/in² / 250 HB	1.4112	S44003	1.4021	420
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	88500 lbf/in² / 200 HB	1.4301	304	1.4401	316
		M.2.1	Austenitic	Tempered	300 HB	1.4841	314	1.4568	17-7 PH
		M.3.1	Austenitic / ferritic (Duplex)		113100 lbf/in² / 230 HB	1.4462	S32205	1.4410	S32750
K	Grey cast iron	K.1.1	Pearlitic / ferritic		88500 lbf/in² / 180 HB	0.6010	A48-20B	0.6025	A48-40 B
		K.1.2	Pearlitic (martensitic)		127600 lbf/in² / 260 HB	0.6030	A48-45B	0.6040	A48-60 B
	Spherulitic graphite cast iron	K.2.1	Ferritic		78300 lbf/in² / 160 HB	0.7040	60-40-18	0.7050	65-45-12
		K.2.2	Pearlitic		122600 lbf/in² / 250 HB	0.7070	100-70-03	0.7660	A439 Type D2
	Malleable iron	K.3.1	Ferritic		63800 lbf/in² / 130 HB	0.8035	GTW-35-04		
		K.3.2	Pearlitic		113100 lbf/in² / 230 HB	0.8170	70003		
N	Aluminum wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	A91060	3.0255	A91060
		N.1.2	Hardenable		49300 lbf/in² / 100 HB	3.1355	2024	3.1355	2024
	Cast aluminum alloy	N.2.1	≤ 12 % Si, non-hardenable		36300 lbf/in² / 75 HB	3.2581	A04130 / A413-0	3.2581	A04130 / A413-0
		N.2.2	≤ 12 % Si, hardenable		43500 lbf/in² / 90 HB	3.2134	G-AlSi5Cu1Mg		
		N.2.3	> 12 % Si, non-hardenable		63800 lbf/in² / 130 HB		G-AlSi17Cu4Mg		
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		54400 lbf/in² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0380	C37700
		N.3.2	CuZn, CuSnZn		43500 lbf/in² / 90 HB	2.0331	CuZn15	2.0331	C34000
		N.3.3	CuSn, lead-free copper and electrolytic copper		49300 lbf/in² / 100 HB	2.0060	E-Cu57		
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn		
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	98600 lbf/in² / 200 HB	1.4864	X12NiCrSi 36-16	1.4864	330
		S.1.2			137800 lbf/in² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4980	S66286
		S.2.1	Ni or Co basis	Annealed	121800 lbf/in² / 250 HB	2.4856	Inconel 625	2.4812	Hastelloy C
		S.2.2			171100 lbf/in² / 350 HB	2.4952	Nimonic 80A	2.4668	Inconel 718
		S.2.3		Cast	156600 lbf/in² / 320 HB	2.4674	Nimocast PK24	2.4670	Nimocast 713
	Titanium alloys	S.3.1	Pure titanium		5800 lbf/in²	3.7025	Ti99,8		
		S.3.2	Alpha + beta alloys		152300 lbf/in²	3.7165	TiAl6V4		
		S.3.3	Beta alloys		203100 lbf/in² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr		
H	Hardened steel	H.1.1		Hardened and tempered	46-55 HRC				
		H.1.2		Hardened and tempered	56-60 HRC				
		H.1.3		Hardened and tempered	61-65 HRC				
		H.1.4		Hardened and tempered	66-70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 21800 lbf/in²				
		O.1.2	Plastics, thermoplastic		≤ 14500 lbf/in²				
		O.2.1	Aramid fibre-reinforced		≤ 145000 lbf/in²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 145000 lbf/in²				
		O.3.1	Graphite						

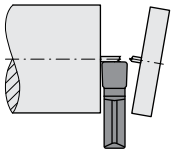
*** Tensile Strength at Rupture (Rm)**

Cutting data standard values for grooving inserts

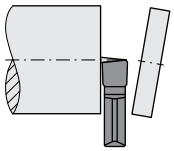
Index	GX	
	CTCP325	CTP1340
	DRAGONSKIN	
	v_c (ft/min)	
P.1.1	220	180
P.1.2	195	150
P.1.3	170	125
P.1.4	165	115
P.1.5	150	100
P.2.1	200	155
P.2.2	160	110
P.2.3	150	100
P.2.4	120	70
P.3.1	150	110
P.3.2	95	75
P.3.3	45	40
P.4.1	150	110
P.4.2	125	95
M.1.1	150	110
M.2.1	95	80
M.3.1	135	100
K.1.1	170	150
K.1.2	150	125
K.2.1	160	140
K.2.2	145	120
K.3.1	210	170
K.3.2	140	120
N.1.1		300
N.1.2		200
N.2.1		300
N.2.2		200
N.2.3		150
N.3.1		300
N.3.2		300
N.3.3		200
N.4.1		200
S.1.1	35	35
S.1.2	30	30
S.2.1	20	20
S.2.2	15	15
S.2.3	15	15
S.3.1		85
S.3.2		40
S.3.3		30
H.1.1		
H.1.2		
H.1.3		
H.1.4		
H.2.1		
H.3.1		
O.1.1		130
O.1.2		
O.2.1		105
O.2.2		
O.3.1		

Groove width CW (mm)	GX-M1  Grooving/Parting off
	Feed f (mm/U)
3	0,10–0,20

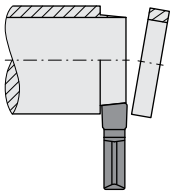
References for parting off



From Ø 5 mm on, reduce feed "f" by approximately 50 %. Do not cut across the center (risk of breakage).

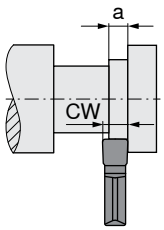


For "pip-free" parting off, use R or L inserts. To minimize lateral deflection forces, reduce the feed rate by approximately 20-50 %.

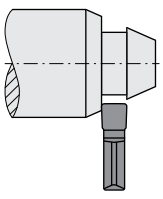


To prevent ring formation,
use R or L inserts.
Reduce feed "f" by approximately
20-50 %
because of lateral deflection.

References for grooving



When grooving with an axial displacement, the "a" width should equal at least 70 % of the "CW" groove width.



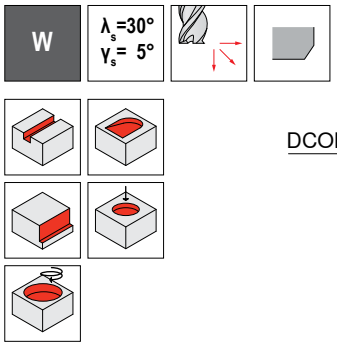
When grooving oblique surfaces, the feed must be reduced by approx.
20–50 % until fully engaged.

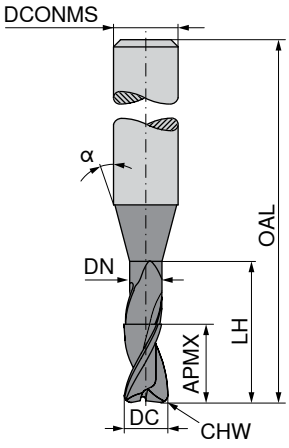
The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approximately **±20 %** according to the usage conditions.

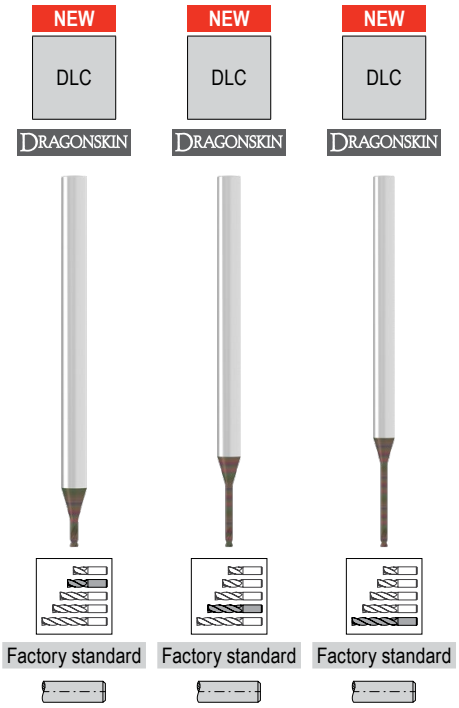
AluLine – Micro end mills

The specialist for machining non-ferrous metals

▲ T_x = maximum depth of cut







											Factory standard	Factory standard	Factory standard
											53 900 ...	53 900 ...	53 900 ...
DC $_{-0,01}$	APMX	DN	LH	OAL	LPR	α°	DCONMS $_{h5}$	T_X	CHW	ZEFP			
mm	mm	mm	mm	mm	mm		mm		mm				
0.2	0.2	0.18	0.6	45	17	15	4	3 x DC	0.02	2	**02101**		
0.2	0.2	0.18	1.0	45	17	15	4	5 x DC	0.02	2	**02201**		
0.2	0.2	0.18	1.6	45	17	15	4	8 x DC	0.02	2		**02301**	
0.2	0.2	0.18	2.0	50	22	15	4	10 x DC	0.02	2		**02401**	
0.3	0.3	0.28	0.9	45	17	15	4	3 x DC	0.03	2	**03101**		
0.3	0.3	0.28	1.5	45	17	15	4	5 x DC	0.03	2	**03201**		
0.3	0.3	0.28	2.4	50	22	15	4	8 x DC	0.03	2		**03301**	
0.3	0.3	0.28	3.0	50	22	15	4	10 x DC	0.03	2		**03401**	
0.4	0.4	0.37	1.2	45	17	15	4	3 x DC	0.04	2	**04101**		
0.4	0.4	0.37	2.0	45	17	15	4	5 x DC	0.04	2	**04201**		
0.4	0.4	0.37	3.2	50	22	15	4	8 x DC	0.04	2		**04301**	
0.4	0.4	0.37	4.0	50	22	15	4	10 x DC	0.04	2		**04401**	
0.5	0.5	0.45	1.5	45	17	15	4	3 x DC	0.05	2	**05101**		
0.5	0.5	0.45	1.5	45	17	15	3	3 x DC	0.05	2	**05100**		
0.5	0.5	0.45	2.5	45	17	15	4	5 x DC	0.05	2	**05201**		
0.5	0.5	0.45	2.5	45	17	15	3	5 x DC	0.05	2	**05200**		
0.5	0.5	0.45	4.0	45	17	15	3	8 x DC	0.05	2		**05300**	
0.5	0.5	0.45	4.0	50	22	15	4	8 x DC	0.05	2		**05301**	
0.5	0.5	0.45	5.0	50	22	15	3	10 x DC	0.05	2		**05400**	
0.5	0.5	0.45	5.0	50	22	15	4	10 x DC	0.05	2		**05401**	
0.6	0.6	0.58	2.0	45	17	15	4	3,3 x DC	0.06	2	**06101**		
0.6	0.6	0.58	3.0	50	22	15	4	5 x DC	0.06	2	**06201**		
0.6	0.6	0.58	5.0	50	22	15	4	8,3 x DC	0.06	2		**06301**	
0.6	0.6	0.58	6.0	50	22	15	4	10 x DC	0.06	2		**06401**	
0.8	0.8	0.77	2.5	45	17	15	4	3,1 x DC	0.08	2	**08101**		
0.8	0.8	0.77	4.0	50	22	15	4	5 x DC	0.08	2	**08201**		
0.8	0.8	0.77	6.5	50	22	15	4	8,1 x DC	0.08	2		**08301**	
0.8	0.8	0.77	8.0	50	22	15	4	10 x DC	0.08	2		**08401**	
1.0	1.0	0.95	3.0	45	17	15	4	3 x DC	0.10	2	**10101**		
1.0	1.0	0.95	3.0	45	17	15	3	3 x DC	0.10	2	**10100**		
1.0	1.0	0.95	5.0	45	17	15	3	5 x DC	0.10	2	**10200**		
1.0	1.0	0.95	5.0	50	22	15	4	5 x DC	0.10	2	**10201**		
1.0	1.0	0.95	8.0	50	22	15	3	8 x DC	0.10	2		**10300**	
1.0	1.0	0.95	8.0	50	22	15	4	8 x DC	0.10	2		**10301**	
1.0	1.0	0.95	10.0	50	22	15	3	10 x DC	0.10	2		**10400**	
1.0	1.0	0.95	10.0	55	27	15	4	10 x DC	0.10	2		**10401**	
1.0	1.0	0.95	12.0	55	27	15	3	12 x DC	0.10	2			**10500**
1.0	1.0	0.95	12.0	55	27	15	4	12 x DC	0.10	2			**10501**
1.2	1.2	1.15	3.0	45	17	15	4	2,5 x DC	0.10	2	**12101**		
1.2	1.2	1.15	6.0	50	22	15	4	5 x DC	0.10	2	**12201**		
1.2	1.2	1.15	10.0	55	27	15	4	8,3 x DC	0.10	2		**12301**	
1.2	1.2	1.15	12.0	55	27	15	4	10 x DC	0.10	2		**12401**	

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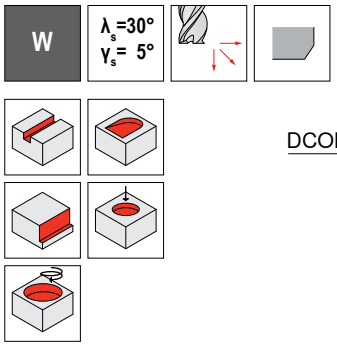
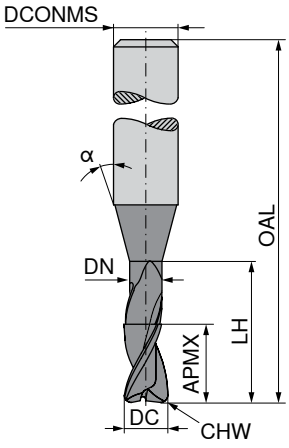
AluLine – Micro end mills

The specialist for machining non-ferrous metals

▲ T_x = maximum depth of cut





Factory standard | Factory standard | Factory standard

DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	LPR mm	α°	DCONMS h5 mm	T_x	CHW mm	ZEFP	53 900 ...	53 900 ...	53 900 ...
1.3	1.3	1.25	4.0	45	17	15	4	3,1 x DC	0.10	2	**13101**		
1.3	1.3	1.25	7.0	50	22	15	4	5,4 x DC	0.10	2		**13201**	
1.3	1.3	1.25	11.0	55	27	15	4	8,5 x DC	0.10	2		**13301**	
1.3	1.3	1.25	13.0	55	27	15	4	10 x DC	0.10	2		**13401**	
1.5	1.5	1.44	5.0	50	22	15	4	3,3 x DC	0.10	2	**15101**		
1.5	1.5	1.44	5.0	45	17	15	3	3,3 x DC	0.10	2	**15100**		
1.5	1.5	1.44	7.5	50	22	15	3	5 x DC	0.10	2	**15200**		
1.5	1.5	1.44	7.5	50	22	15	4	5 x DC	0.10	2	**15201**		
1.5	1.5	1.44	12.0	55	27	15	3	8 x DC	0.10	2		**15300**	
1.5	1.5	1.44	12.0	55	27	15	4	8 x DC	0.10	2		**15301**	
1.5	1.5	1.44	15.0	55	27	15	3	10 x DC	0.10	2		**15400**	
1.5	1.5	1.44	15.0	60	32	15	4	10 x DC	0.10	2		**15401**	
1.6	1.6	1.52	5.0	50	22	15	4	3,1 x DC	0.10	2	**16101**		
1.6	1.6	1.52	8.0	50	22	15	4	5 x DC	0.10	2	**16201**		
1.6	1.6	1.52	13.0	55	27	15	4	8,1 x DC	0.10	2		**16301**	
1.6	1.6	1.52	16.0	60	32	15	4	10 x DC	0.10	2		**16401**	
1.8	1.8	1.72	5.5	50	22	15	4	3,1 x DC	0.10	2	**18101**		
1.8	1.8	1.72	9.0	50	22	15	4	5 x DC	0.10	2	**18201**		
1.8	1.8	1.72	14.5	55	27	15	4	8,1 x DC	0.10	2		**18301**	
1.8	1.8	1.72	18.0	60	32	15	4	10 x DC	0.10	2		**18401**	
2.0	2.0	1.92	6.0	50	22	15	4	3 x DC	0.10	2	**20101**		
2.0	2.0	1.92	6.0	45	17	15	3	3 x DC	0.10	2	**20100**		
2.0	2.0	1.92	10.0	50	22	15	4	5 x DC	0.10	2	**20201**		
2.0	2.0	1.92	10.0	50	22	15	3	5 x DC	0.10	2	**20200**		
2.0	2.0	1.92	14.0	55	27	15	3	7 x DC	0.10	2		**20300**	
2.0	2.0	1.92	14.0	55	27	15	4	7 x DC	0.10	2		**20301**	
2.0	2.0	1.92	16.0	55	27	15	3	8 x DC	0.10	2		**20400**	
2.0	2.0	1.92	16.0	60	32	15	4	8 x DC	0.10	2		**20401**	
2.0	2.0	1.92	20.0	60	32	15	3	10 x DC	0.10	2		**20500**	
2.0	2.0	1.92	20.0	60	32	15	4	10 x DC	0.10	2		**20501**	
2.3	2.3	2.22	7.0	50	22	15	4	3 x DC	0.10	2	**23101**		
2.3	2.3	2.22	11.5	55	27	15	4	5 x DC	0.10	2	**23201**		
2.3	2.3	2.22	18.5	60	32	15	4	8 x DC	0.10	2		**23301**	
2.3	2.3	2.22	20.0	60	32	15	4	8,7 x DC	0.10	2		**23401**	
2.3	2.3	2.22	23.0	65	37	15	4	10 x DC	0.10	2		**23501**	
3.0	3.0	2.90	9.0	50	22	15	4	3 x DC	0.10	2	**30101**		
3.0	3.0	2.90	15.0	55	27	15	4	5 x DC	0.10	2	**30201**		
3.0	3.0	2.90	24.0	65	37	15	4	8 x DC	0.10	2		**30301**	
3.0	3.0	2.90	30.0	70	42	15	4	10 x DC	0.10	2		**30401**	
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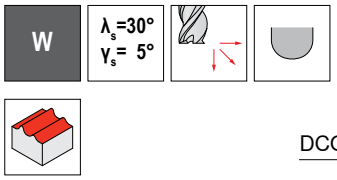
AluLine – Micro radius cutters

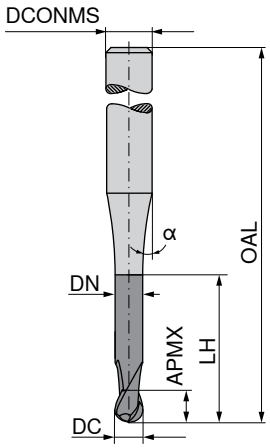
The specialist for machining non-ferrous metals

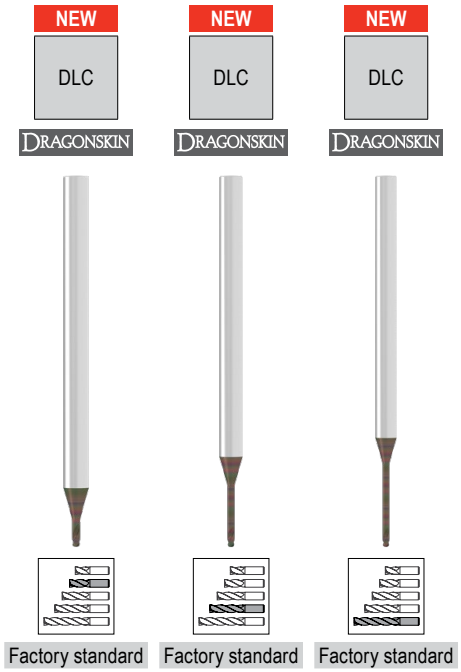
▲ Radius accuracy: ± 0,01 mm

▲ T_x = maximum engagement depth

W | λ_s=30° γ_s= 5°







Factory standard | Factory standard | Factory standard

DC $_{-0,01}$ mm	APMX mm	DN mm	LH mm	OAL mm	LPR mm	α°	DCONMS $_{h5}$ mm	T_x	ZEFP	53 903 ...	53 903 ...	53 903 ...
0.2	0.2	0.18	0.6	45	17	15	4	3 x DC	2	**02101**		
0.2	0.2	0.18	1.0	45	17	15	4	5 x DC	2	**02201**		
0.2	0.2	0.18	1.6	45	17	15	4	8 x DC	2		**02301**	
0.2	0.2	0.18	2.0	50	22	15	4	10 x DC	2		**02401**	
0.3	0.3	0.28	0.9	45	17	15	4	3 x DC	2	**03101**		
0.3	0.3	0.28	1.5	45	17	15	4	5 x DC	2	**03201**		
0.3	0.3	0.28	2.4	50	22	15	4	8 x DC	2		**03301**	
0.3	0.3	0.28	3.0	50	22	15	4	10 x DC	2		**03401**	
0.4	0.4	0.37	1.2	45	17	15	4	3 x DC	2	**04101**		
0.4	0.4	0.37	2.0	45	17	15	4	5 x DC	2	**04201**		
0.4	0.4	0.37	3.2	50	22	15	4	8 x DC	2		**04301**	
0.4	0.4	0.37	4.0	50	22	15	4	10 x DC	2		**04401**	
0.5	0.5	0.45	1.5	45	17	15	4	3 x DC	2	**05101**		
0.5	0.5	0.45	1.5	45	17	15	3	3 x DC	2	**05100**		
0.5	0.5	0.45	2.5	45	17	15	4	5 x DC	2	**05201**		
0.5	0.5	0.45	2.5	45	17	15	3	5 x DC	2	**05200**		
0.5	0.5	0.45	4.0	45	17	15	3	8 x DC	2		**05300**	
0.5	0.5	0.45	4.0	50	22	15	4	8 x DC	2		**05301**	
0.5	0.5	0.45	5.0	50	22	15	3	10 x DC	2		**05400**	
0.5	0.5	0.45	5.0	50	22	15	4	10 x DC	2		**05401**	
0.6	0.6	0.58	2.0	45	17	15	4	3,3 x DC	2	**06101**		
0.6	0.6	0.58	3.0	50	22	15	4	5 x DC	2	**06201**		
0.6	0.6	0.58	5.0	50	22	15	4	8,3 x DC	2		**06301**	
0.6	0.6	0.58	6.0	50	22	15	4	10 x DC	2		**06401**	
0.8	0.8	0.77	2.5	45	17	15	4	3,1 x DC	2	**08101**		
0.8	0.8	0.77	4.0	50	22	15	4	5 x DC	2	**08201**		
0.8	0.8	0.77	6.5	50	22	15	4	8,1 x DC	2		**08301**	
0.8	0.8	0.77	8.0	50	22	15	4	10 x DC	2		**08401**	
1.0	1.0	0.95	3.0	45	17	15	4	3 x DC	2	**10101**		
1.0	1.0	0.95	3.0	45	17	15	3	3 x DC	2	**10100**		
1.0	1.0	0.95	5.0	45	17	15	3	5 x DC	2	**10200**		
1.0	1.0	0.95	5.0	50	22	15	4	5 x DC	2	**10201**		
1.0	1.0	0.95	8.0	50	22	15	3	8 x DC	2		**10300**	
1.0	1.0	0.95	8.0	50	22	15	4	8 x DC	2		**10301**	
1.0	1.0	0.95	10.0	50	22	15	3	10 x DC	2		**10400**	
1.0	1.0	0.95	10.0	55	27	15	4	10 x DC	2		**10401**	
1.0	1.0	0.95	12.0	55	27	15	3	12 x DC	2			**10500**
1.0	1.0	0.95	12.0	55	27	15	4	12 x DC	2			**10501**
1.2	1.2	1.15	3.0	45	17	15	4	2,5 x DC	2	**12101**		
1.2	1.2	1.15	6.0	50	22	15	4	5 x DC	2	**12201**		
1.2	1.2	1.15	10.0	55	27	15	4	8,3 x DC	2		**12301**	
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→ v_c/f_z Page 40–42

AluLine – Micro radius cutters

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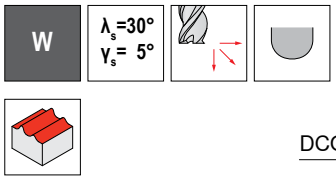
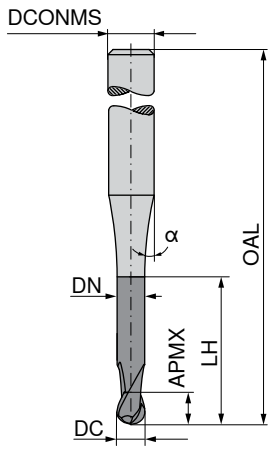
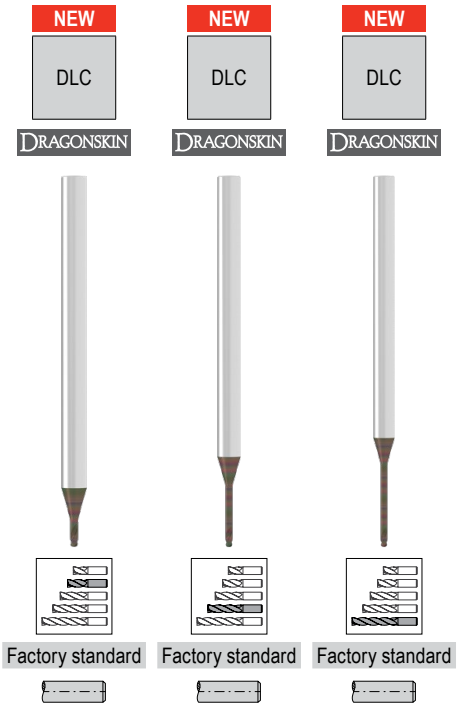
▲ Radius accuracy: ± 0,01 mm

▲ T_x = maximum engagement depth







DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	LPR mm	α°	DCONMS h5 mm	T_x	ZEFP	Factory standard 53 903 ...	Factory standard 53 903 ...	Factory standard 53 903 ...
1.2	1.2	1.15	12.0	55	27	15	4	10 x DC	2		**12401**	
1.3	1.3	1.25	4.0	45	17	15	4	3,1 x DC	2	**13101**		
1.3	1.3	1.25	7.0	50	22	15	4	5,4 x DC	2		**13201**	
1.3	1.3	1.25	11.0	55	27	15	4	8,5 x DC	2		**13301**	
1.3	1.3	1.25	13.0	55	27	15	4	10 x DC	2		**13401**	
1.5	1.5	1.44	5.0	50	22	15	4	3,3 x DC	2	**15101**		
1.5	1.5	1.44	5.0	45	17	15	3	3,3 x DC	2	**15100**		
1.5	1.5	1.44	7.5	50	22	15	3	5 x DC	2	**15200**		
1.5	1.5	1.44	7.5	50	22	15	4	5 x DC	2	**15201**		
1.5	1.5	1.44	12.0	55	27	15	3	8 x DC	2		**15400**	
1.5	1.5	1.44	12.0	55	27	15	4	8 x DC	2		**15401**	
1.5	1.5	1.44	15.0	55	27	15	3	10 x DC	2		**15300**	
1.5	1.5	1.44	15.0	60	32	15	4	10 x DC	2		**15301**	
1.6	1.6	1.52	5.0	50	22	15	4	3,1 x DC	2	**16101**		
1.6	1.6	1.52	8.0	50	22	15	4	5 x DC	2	**16201**		
1.6	1.6	1.52	13.0	55	27	15	4	8,1 x DC	2		**16301**	
1.6	1.6	1.52	16.0	60	32	15	4	10 x DC	2		**16401**	
1.8	1.8	1.72	5.5	50	22	15	4	3,1 x DC	2	**18101**		
1.8	1.8	1.72	9.0	50	22	15	4	5 x DC	2	**18201**		
1.8	1.8	1.72	14.5	55	27	15	4	8,1 x DC	2		**18301**	
1.8	1.8	1.72	18.0	60	32	15	4	10 x DC	2		**18401**	
2.0	2.0	1.92	6.0	50	22	15	4	3 x DC	2	**20101**		
2.0	2.0	1.92	6.0	45	17	15	3	3 x DC	2	**20100**		
2.0	2.0	1.92	10.0	50	22	15	4	5 x DC	2	**20201**		
2.0	2.0	1.92	10.0	50	22	15	3	5 x DC	2	**20200**		
2.0	2.0	1.92	14.0	55	27	15	3	7 x DC	2		**20300**	
2.0	2.0	1.92	14.0	55	27	15	4	7 x DC	2		**20301**	
2.0	2.0	1.92	16.0	55	27	15	3	8 x DC	2		**20400**	
2.0	2.0	1.92	16.0	60	32	15	4	8 x DC	2		**20401**	
2.0	2.0	1.92	20.0	60	32	15	3	10 x DC	2		**20500**	
2.0	2.0	1.92	20.0	60	32	15	4	10 x DC	2		**20501**	
2.3	2.3	2.22	7.0	50	22	15	4	3 x DC	2	**23101**		
2.3	2.3	2.22	11.5	55	27	15	4	5 x DC	2	**23201**		
2.3	2.3	2.22	18.5	60	32	15	4	8 x DC	2		**23301**	
2.3	2.3	2.22	20.0	60	32	15	4	8,7 x DC	2		**23401**	
2.3	2.3	2.22	23.0	65	37	15	4	10 x DC	2		**23501**	
3.0	3.0	2.90	9.0	50	22	15	4	3 x DC	2	**30101**		
3.0	3.0	2.90	15.0	55	27	15	4	5 x DC	2	**30201**		
3.0	3.0	2.90	24.0	65	37	15	4	8 x DC	2		**30301**	
3.0	3.0	2.90	30.0	70	42	15	4	10 x DC	2		**30401**	

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AluLine – Micro torus cutters

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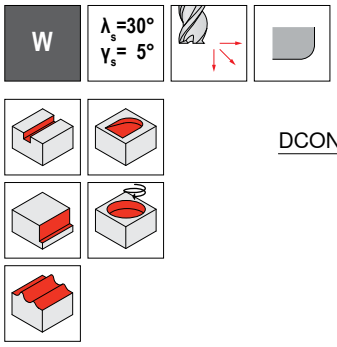
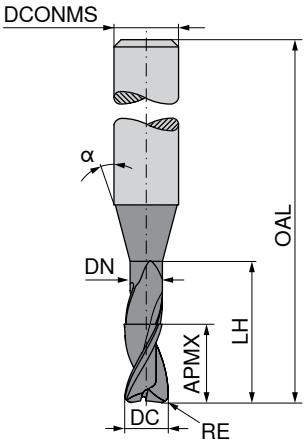
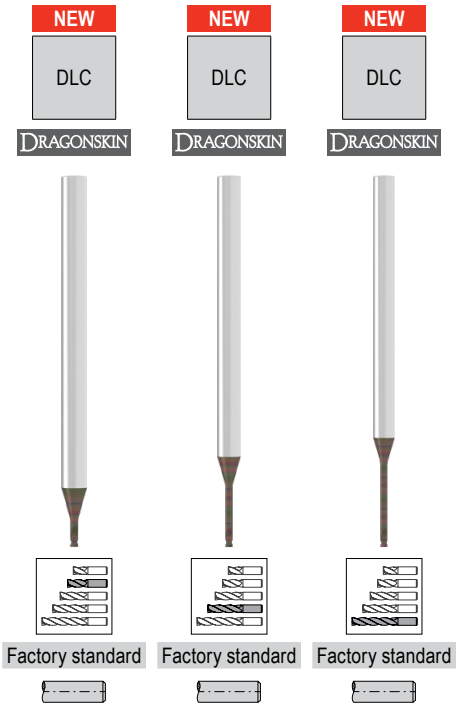
▲ T_x = maximum depth of cut







DC -0.01	RE ±0.01	APMX	DN	LH	OAL	LPR	α°	DCONMS h5	T_x	ZEFP	Factory standard 53 901 ...	Factory standard 53 901 ...	Factory standard 53 901 ...
mm	mm	mm	mm	mm	mm	mm		mm					
0.2	0.02	0.2	0.18	0.6	45	17	15	4	3 x DC	2	02101		
0.2	0.02	0.2	0.18	1.0	45	17	15	4	5 x DC	2	02201		
0.2	0.02	0.2	0.18	1.6	45	17	15	4	8 x DC	2		02301	
0.2	0.02	0.2	0.18	2.0	50	22	15	4	10 x DC	2		02401	
0.3	0.03	0.3	0.28	0.9	45	17	15	4	3 x DC	2	03101		
0.3	0.03	0.3	0.28	1.5	45	17	15	4	5 x DC	2	03201		
0.3	0.03	0.3	0.28	2.4	50	22	15	4	8 x DC	2		03301	
0.3	0.03	0.3	0.28	3.0	50	22	15	4	10 x DC	2		03401	
0.4	0.04	0.4	0.37	1.2	45	17	15	4	3 x DC	2	04101		
0.4	0.04	0.4	0.37	2.0	45	17	15	4	5 x DC	2	04201		
0.4	0.04	0.4	0.37	3.2	50	22	15	4	8 x DC	2		04301	
0.4	0.04	0.4	0.37	4.0	50	22	15	4	10 x DC	2		04401	
0.5	0.05	0.5	0.45	1.5	45	17	15	4	3 x DC	2	05101		
0.5	0.05	0.5	0.45	1.5	45	17	15	3	3 x DC	2	05100		
0.5	0.05	0.5	0.45	2.5	45	17	15	4	5 x DC	2	05201		
0.5	0.05	0.5	0.45	2.5	45	17	15	3	5 x DC	2	05200		
0.5	0.05	0.5	0.45	4.0	45	17	15	3	8 x DC	2		05300	
0.5	0.05	0.5	0.45	4.0	50	22	15	4	8 x DC	2		05301	
0.5	0.05	0.5	0.45	5.0	50	22	15	3	10 x DC	2		05400	
0.5	0.05	0.5	0.45	5.0	50	22	15	4	10 x DC	2		05401	
0.6	0.06	0.6	0.58	2.0	45	17	15	4	3,3 x DC	2	06101		
0.6	0.06	0.6	0.58	3.0	50	22	15	4	5 x DC	2	06201		
0.6	0.06	0.6	0.58	4.2	50	22	15	4	7 x DC	2		06301	
0.6	0.06	0.6	0.58	5.0	50	22	15	4	8,3 x DC	2		06401	
0.6	0.06	0.6	0.58	6.0	50	22	15	4	10 x DC	2		06501	
0.8	0.08	0.8	0.77	2.5	45	17	15	4	3,1 x DC	2	08101		
0.8	0.08	0.8	0.77	4.0	50	22	15	4	5 x DC	2	08201		
0.8	0.08	0.8	0.77	6.5	50	22	15	4	8,1 x DC	2		08301	
0.8	0.08	0.8	0.77	8.0	50	22	15	4	10 x DC	2		08401	
1.0	0.10	1.0	0.95	3.0	45	17	15	4	3 x DC	2	10101		
1.0	0.10	1.0	0.95	3.0	45	17	15	3	3 x DC	2	10100		
1.0	0.10	1.0	0.95	5.0	45	17	15	3	5 x DC	2	10200		
1.0	0.10	1.0	0.95	5.0	50	22	15	4	5 x DC	2	10201		
1.0	0.10	1.0	0.95	8.0	50	22	15	3	8 x DC	2		10300	
1.0	0.10	1.0	0.95	8.0	50	22	15	4	8 x DC	2		10301	
1.0	0.10	1.0	0.95	10.0	50	22	15	3	10 x DC	2		10400	
1.0	0.10	1.0	0.95	10.0	55	27	15	4	10 x DC	2		10401	
1.0	0.10	1.0	0.95	12.0	55	27	15	3	12 x DC	2			10500
1.0	0.10	1.0	0.95	12.0	55	27	15	4	12 x DC	2			10501
1.2	0.12	1.2	1.15	3.0	45	17	15	4	2,5 x DC	2	12101		
1.2	0.12	1.2	1.15	6.0	50	22	15	4	5 x DC	2	12201		
1.2	0.12	1.2	1.15	10.0	55	27	15	4	8,3 x DC	2		12301	

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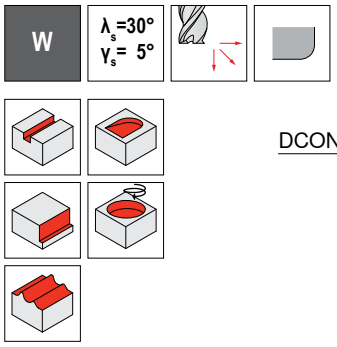
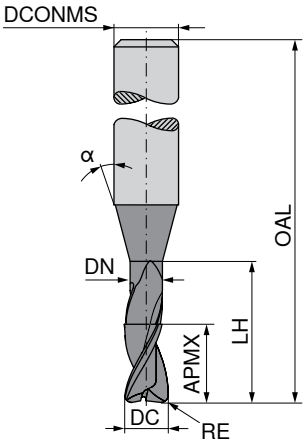
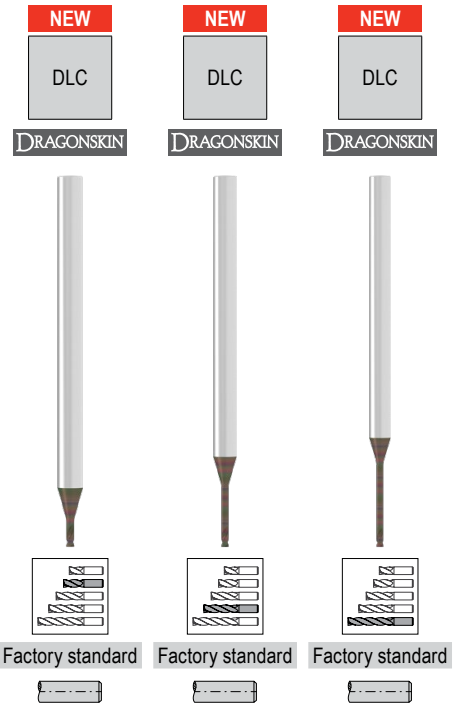
AluLine – Micro torus cutters

The specialist for machining non-ferrous metals

▲ T_x = maximum depth of cut







DC -0.01	RE ±0.01	APMX	DN	LH	OAL	LPR	α°	DCONMS h5	T_x	ZEFP	Factory standard	Factory standard	Factory standard
mm	mm	mm	mm	mm	mm	mm		mm			53 901 ...	53 901 ...	53 901 ...
1.2	0.12	1.2	1.15	12.0	55	27	15	4	10 x DC	2		12401	
1.3	0.13	1.3	1.25	4.0	45	17	15	4	3,1 x DC	2	13101		
1.3	0.13	1.3	1.25	7.0	50	22	15	4	5,4 x DC	2		13201	
1.3	0.13	1.3	1.25	11.0	55	27	15	4	8,5 x DC	2		13301	
1.3	0.13	1.3	1.25	13.0	55	27	15	4	10 x DC	2		13401	
1.5	0.15	1.5	1.44	5.0	50	22	15	4	3,3 x DC	2	15101		
1.5	0.15	1.5	1.44	5.0	45	17	15	3	3,3 x DC	2	15100		
1.5	0.15	1.5	1.44	7.5	50	22	15	3	5 x DC	2	15200		
1.5	0.15	1.5	1.44	7.5	50	22	15	4	5 x DC	2	15201		
1.5	0.15	1.5	1.44	12.0	55	27	15	3	8 x DC	2		15300	
1.5	0.15	1.5	1.44	12.0	55	27	15	4	8 x DC	2		15301	
1.5	0.15	1.5	1.44	15.0	55	27	15	3	10 x DC	2		15400	
1.5	0.15	1.5	1.44	15.0	60	32	15	4	10 x DC	2		15401	
1.6	0.16	1.6	1.52	5.0	50	22	15	4	3,1 x DC	2	16101		
1.6	0.16	1.6	1.52	8.0	50	22	15	4	5 x DC	2	16201		
1.6	0.16	1.6	1.52	13.0	55	27	15	4	8,1 x DC	2		16301	
1.6	0.16	1.6	1.52	16.0	60	32	15	4	10 x DC	2		16401	
1.8	0.18	1.8	1.72	5.5	50	22	15	4	3,1 x DC	2	18101		
1.8	0.18	1.8	1.72	9.0	50	22	15	4	5 x DC	2	18201		
1.8	0.18	1.8	1.72	14.5	55	27	15	4	8,1 x DC	2		18301	
1.8	0.18	1.8	1.72	18.0	60	32	15	4	10 x DC	2		18401	
2.0	0.20	2.0	1.92	6.0	50	22	15	4	3 x DC	2	20101		
2.0	0.20	2.0	1.92	6.0	45	17	15	3	3 x DC	2	20100		
2.0	0.20	2.0	1.92	10.0	50	22	15	4	5 x DC	2	20201		
2.0	0.20	2.0	1.92	10.0	50	22	15	3	5 x DC	2	20200		
2.0	0.20	2.0	1.92	14.0	55	27	15	3	7 x DC	2		20300	
2.0	0.20	2.0	1.92	14.0	55	27	15	4	7 x DC	2		20301	
2.0	0.20	2.0	1.92	16.0	55	27	15	3	8 x DC	2		20400	
2.0	0.20	2.0	1.92	16.0	60	32	15	4	8 x DC	2		20401	
2.0	0.20	2.0	1.92	20.0	60	32	15	3	10 x DC	2		20500	
2.0	0.20	2.0	1.92	20.0	60	32	15	4	10 x DC	2		20501	
2.3	0.23	2.3	2.22	7.0	50	22	15	4	3 x DC	2	23101		
2.3	0.23	2.3	2.22	11.5	55	27	15	4	5 x DC	2	23201		
2.3	0.23	2.3	2.22	14.0	55	27	15	4	6,1 x DC	2		23301	
2.3	0.23	2.3	2.22	18.5	60	32	15	4	8 x DC	2		23401	
2.3	0.23	2.3	2.22	20.0	60	32	15	4	8,7 x DC	2		23501	
2.3	0.23	2.3	2.22	23.0	65	37	15	4	10 x DC	2		23601	
3.0	0.30	3.0	2.90	9.0	50	22	15	4	3 x DC	2	30101		
3.0	0.30	3.0	2.90	15.0	55	27	15	4	5 x DC	2	30201		
3.0	0.30	3.0	2.90	24.0	65	37	15	4	8 x DC	2		30301	
3.0	0.30	3.0	2.90	30.0	70	42	15	4	10 x DC	2		30401	

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Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength lbf/in²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0.15 % C	Annealed	60900 lbf/in² / 125 HB	1.0401	1015	1.0301	1010
		P.1.2	< 0.45 % C	Annealed	92800 lbf/in² / 190 HB	1.1191	1045	1.0737	12L14
		P.1.3		Tempered	121800 lbf/in² / 250 HB	1.1191	1045	1.0503	1043
		P.1.4	< 0.75 % C	Annealed	132000 lbf/in² / 270 HB	1.1223	1060	1.0535	1055
		P.1.5		Tempered	146500 lbf/in² / 300 HB	1.1223	1060	1.1274	1095
	Low-alloy steel	P.2.1		Annealed	88500 lbf/in² / 180 HB	1.7131	5115	1.6523	8620
		P.2.2		Tempered	134900 lbf/in² / 275 HB	1.7131	5115	1.6582	4340
		P.2.3		Tempered	146500 lbf/in² / 300 HB	1.7225	4142	1.7131	5115
		P.2.4		Tempered	174000 lbf/in² / 375 HB	1.7225	4142	17223	4140
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	98600 lbf/in² / 200 HB	1.4021	420	1.2379	D2
		P.3.2		Hardened and tempered	159500 lbf/in² / 300 HB	1.2343	H11	1.3343	M2
		P.3.3		Hardened and tempered	188500 lbf/in² / 400 HB	1.2343	H11	1.2363	A2
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	98600 lbf/in² / 200 HB	1.4016	430	1.4125	440C
		P.4.2	Martensitic	Tempered	117500 lbf/in² / 250 HB	1.4112	S44003	1.4021	420
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	88500 lbf/in² / 200 HB	1.4301	304	1.4401	316
		M.2.1	Austenitic	Tempered	300 HB	1.4841	314	1.4568	17-7 PH
		M.3.1	Austenitic / ferritic (Duplex)		113100 lbf/in² / 230 HB	1.4462	S32205	1.4410	S32750
K	Grey cast iron	K.1.1	Pearlitic / ferritic		88500 lbf/in² / 180 HB	0.6010	A48-20B	0.6025	A48-40 B
		K.1.2	Pearlitic (martensitic)		127600 lbf/in² / 260 HB	0.6030	A48-45B	0.6040	A48-60 B
	Spherulitic graphite cast iron	K.2.1	Ferritic		78300 lbf/in² / 160 HB	0.7040	60-40-18	0.7050	65-45-12
		K.2.2	Pearlitic		122600 lbf/in² / 250 HB	0.7070	100-70-03	0.7660	A439 Type D2
	Malleable iron	K.3.1	Ferritic		63800 lbf/in² / 130 HB	0.8035	GTW-35-04		
		K.3.2	Pearlitic		113100 lbf/in² / 230 HB	0.8170	70003		
N	Aluminum wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	A91060	3.0255	A91060
		N.1.2	Hardenable		49300 lbf/in² / 100 HB	3.1355	2024	3.1355	2024
	Cast aluminum alloy	N.2.1	≤ 12 % Si, non-hardenable		36300 lbf/in² / 75 HB	3.2581	A04130 / A413-0	3.2581	A04130 / A413-0
		N.2.2	≤ 12 % Si, hardenable		43500 lbf/in² / 90 HB	3.2134	G-AlSi5Cu1Mg		
		N.2.3	> 12 % Si, non-hardenable		63800 lbf/in² / 130 HB		G-AlSi17Cu4Mg		
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		54400 lbf/in² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0380	C37700
		N.3.2	CuZn, CuSnZn		43500 lbf/in² / 90 HB	2.0331	CuZn15	2.0331	C34000
		N.3.3	CuSn, lead-free copper and electrolytic copper		49300 lbf/in² / 100 HB	2.0060	E-Cu57		
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn		
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	98600 lbf/in² / 200 HB	1.4864	X12NiCrSi 36-16	1.4864	330
		S.1.2			137800 lbf/in² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4980	S66286
		S.2.1	Ni or Co basis	Annealed	121800 lbf/in² / 250 HB	2.4856	Inconel 625	2.4812	Hastelloy C
		S.2.2			171100 lbf/in² / 350 HB	2.4952	Nimonic 80A	2.4668	Inconel 718
		S.2.3		Cast	156600 lbf/in² / 320 HB	2.4674	Nimocast PK24	2.4670	Nimocast 713
	Titanium alloys	S.3.1	Pure titanium		5800 lbf/in²	3.7025	Ti99,8		
		S.3.2	Alpha + beta alloys		152300 lbf/in²	3.7165	TiAl6V4		
		S.3.3	Beta alloys		203100 lbf/in² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr		
H	Hardened steel	H.1.1		Hardened and tempered	46-55 HRC				
		H.1.2		Hardened and tempered	56-60 HRC				
		H.1.3		Hardened and tempered	61-65 HRC				
		H.1.4		Hardened and tempered	66-70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 21800 lbf/in²				
		O.1.2	Plastics, thermoplastic		≤ 14500 lbf/in²				
		O.2.1	Aramid fibre-reinforced		≤ 145000 lbf/in²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 145000 lbf/in²				
		O.3.1	Graphite						

*** Tensile Strength at Rupture (Rm)**

Cutting data standard values – AluLine – micro cutter

Index	$T_x \leq 3xDC$			53 900 ... / 53 901 ... / 53 903 ...									● 1st choice ○ Suitable		
				Ø DC (mm) =											
	v_c (mm)	$a_{p\,max.}$ x DC	$a_{e\,max.}$ x DC	0,2	> Ø 0,2 ≤ Ø 0,4	> Ø 0,4 ≤ Ø 0,6	> Ø 0,6 ≤ Ø 0,8	> Ø 0,8 ≤ Ø 1,0	> Ø 1,0 ≤ Ø 1,2	> Ø 1,2 ≤ Ø 1,5	> Ø 1,5 ≤ Ø 2,0	> Ø 2,0 ≤ Ø 3,0	Emulsion	Compressed air	MMS
				f_z (mm)											
N.1.1	400	0,15	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.1.2	400	0,15	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.1	400	0,15	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.2	300	0,15	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.3	200	0,15	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.3.1	140	0,08	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.2	100	0,08	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.3	150	0,08	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.4.1															

Plunging angle for ramping and helical milling = 3°

Index	$T_x > 3xDC$ – 5xDC			53 900 ... / 53 901 ... / 53 903 ...									● 1st choice ○ Suitable		
				Ø DC (mm) =											
	v_c (mm)	$a_{p\,max.}$ x DC	$a_{e\,max.}$ x DC	0,2	> Ø 0,2 ≤ Ø 0,4	> Ø 0,4 ≤ Ø 0,6	> Ø 0,6 ≤ Ø 0,8	> Ø 0,8 ≤ Ø 1,0	> Ø 1,0 ≤ Ø 1,2	> Ø 1,2 ≤ Ø 1,5	> Ø 1,5 ≤ Ø 2,0	> Ø 2,0 ≤ Ø 3,0	Emulsion	Compressed air	MMS
				f_z (mm)											
N.1.1	320	0,12	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.1.2	320	0,12	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.1	320	0,12	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.2	240	0,12	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.3	160	0,12	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.3.1	110	0,064	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.2	80	0,064	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.3	120	0,064	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.4.1															

Plunging angle for ramping and helical milling = 2°

Index	$T_x > 5xDC$ – 7xDC			53 900 ... / 53 901 ... / 53 903 ...									● 1st choice ○ Suitable		
				Ø DC (mm) =											
	v_c (mm)	$a_{p\,max.}$ x DC	$a_{e\,max.}$ x DC	0,2	> Ø 0,2 ≤ Ø 0,4	> Ø 0,4 ≤ Ø 0,6	> Ø 0,6 ≤ Ø 0,8	> Ø 0,8 ≤ Ø 1,0	> Ø 1,0 ≤ Ø 1,2	> Ø 1,2 ≤ Ø 1,5	> Ø 1,5 ≤ Ø 2,0	> Ø 2,0 ≤ Ø 3,0	Emulsion	Compressed air	MMS
				f_z (mm)											
N.1.1	240	0,105	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.1.2	240	0,105	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.1	240	0,105	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.2	180	0,105	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.3	120	0,105	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.3.1	85	0,056	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.2	60	0,056	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.3	90	0,056	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.4.1															

Plunging angle for ramping and helical milling = 2°

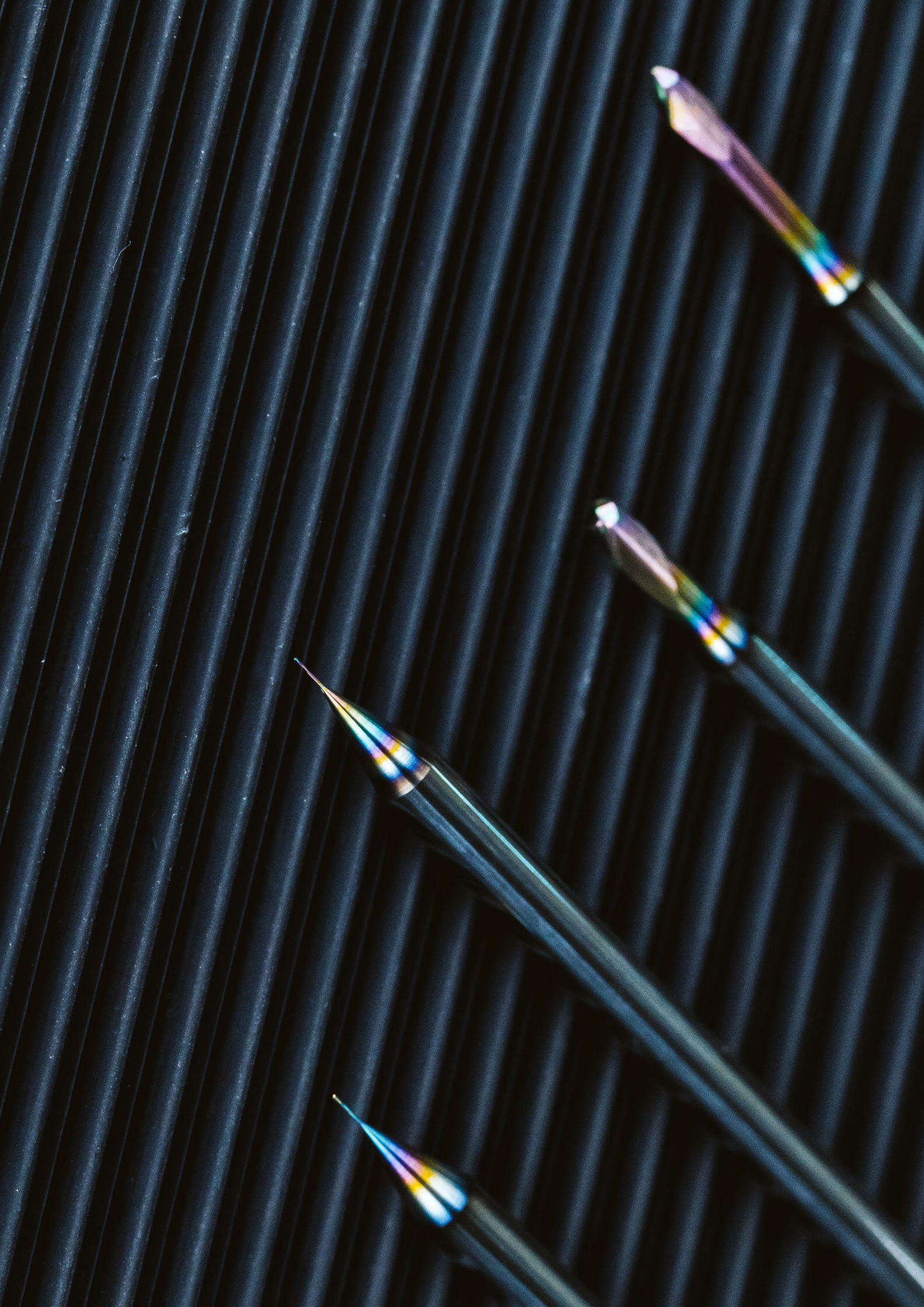
Cutting data standard values – AluLine – micro cutter

Index	T_x > 7xDC – 9xDC			53 900 ... / 53 901 ... / 53 903 ...									● 1st choice ○ Suitable		
				Ø DC (mm) =											
	v_c (mm)	$a_{p\,max.}$ x DC	$a_{e\,max.}$ x DC	0,2	> Ø 0,2 ≤ Ø 0,4	> Ø 0,4 ≤ Ø 0,6	> Ø 0,6 ≤ Ø 0,8	> Ø 0,8 ≤ Ø 1,0	> Ø 1,0 ≤ Ø 1,2	> Ø 1,2 ≤ Ø 1,5	> Ø 1,5 ≤ Ø 2,0	> Ø 2,0 ≤ Ø 3,0	Emulsion	Compressed air	MMS
				f_z (mm)											
N.1.1	**160**	**0,09**	**1,0**	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.1.2	**160**	**0,09**	**1,0**	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.1	**160**	**0,09**	**1,0**	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.2	**120**	**0,09**	**1,0**	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.3	**80**	**0,09**	**1,0**	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.3.1	**55**	**0,048**	**1,0**	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.2	**40**	**0,048**	**1,0**	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.3	**60**	**0,048**	**1,0**	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.4.1															

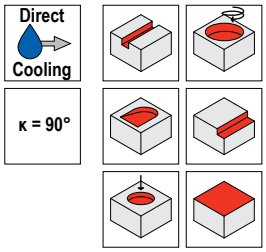
Plunging angle for ramping and helical milling = 1°

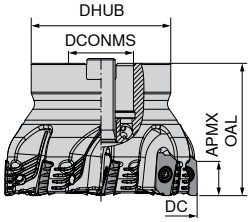
Index	T_x > 9xDC – 12xDC			53 900 ... / 53 901 ... / 53 903 ...									● 1st choice ○ Suitable		
				Ø DC (mm) =											
	v_c (mm)	$a_{p\,max.}$ x DC	$a_{e\,max.}$ x DC	0,2	> Ø 0,2 ≤ Ø 0,4	> Ø 0,4 ≤ Ø 0,6	> Ø 0,6 ≤ Ø 0,8	> Ø 0,8 ≤ Ø 1,0	> Ø 1,0 ≤ Ø 1,2	> Ø 1,2 ≤ Ø 1,5	> Ø 1,5 ≤ Ø 2,0	> Ø 2,0 ≤ Ø 3,0	Emulsion	Compressed air	MMS
				f_z (mm)											
N.1.1	**120**	**0,075**	**1,0**	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.1.2	**120**	**0,075**	**1,0**	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.1	**120**	**0,075**	**1,0**	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.2	**90**	**0,075**	**1,0**	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.3	**60**	**0,075**	**1,0**	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.3.1	**40**	**0,04**	**1,0**	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.2	**30**	**0,04**	**1,0**	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.3	**45**	**0,04**	**1,0**	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.4.1															

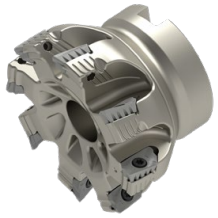
Plunging angle for ramping and helical milling = 1°



MaxiMill – 211-15-DC face mill







NEW

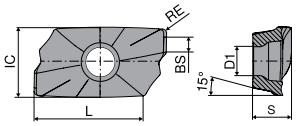
Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS H6 mm	DHUB mm	RPMX 1/min.	Tightening torque Nm	Indexable insert	50 798 ...
A211.40.R.04-15-DCA R08	40	4	14	45	16	38	18000	3,2	XDKT 1505..	**04004**
A211.40.R.04-15-DCA R40	40	4	14	45	16	38	18000	3,2	XDKT 1505..	**24004**
A211.50.R.05-15-DCA R40	50	5	14	45	22	45	15000	3,2	XDKT 1505..	**25005**
A211.50.R.05-15-DCA R08	50	5	14	45	22	45	15000	3,2	XDKT 1505..	**05005**
A211.63.R.06-15-DCA R40	63	6	14	50	22	48	14000	3,2	XDKT 1505..	**26306**
A211.63.R.06-15-DCA R08	63	6	14	50	22	48	14000	3,2	XDKT 1505..	**06306**
A211.80.R.08-15-DCA R08	80	8	14	55	27	58	12000	3,2	XDKT 1505..	**08008**
A211.80.R.08-15-DCA R40	80	8	14	55	27	58	12000	3,2	XDKT 1505..	**28008**

Spare parts DC	TORX® interchangeable blade 80 950 ...	Screwdriver 80 950 ...	Molykote 70 950 ...	Clamping screw 70 950 ...	Torque screw-driver 80 950 ...
40 - 80	**054**	**128**	**303**	**839**	**193**

The -DCA R08 cutters will accept only the XDKT 150508 insert.
The -DCA R40 will accept both the XDKT 150532 and the XDKT 150540 insert.

XDKT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDKT 150508..	9.3	4.4	14.8	1.6	5.56
XDKT 150532..	9.3	4.4	14.8	1.9	5.56
XDKT 150540..	9.3	4.4	14.8	1.2	5.56



XDKT

XDKT

		NEW	NEW
		-F40 CTCS245	-F40 CTC5240
		DRAGONSKIN	DRAGONSKIN
		F	F
		XDKT	XDKT
		51 165 ...	51 165 ...
ISO	RE mm		
150508ER	0.8	50801	10801
150532ER	3.2	53201	13201
150540ER	4.0	54001	14001
P			
M			
K			
N			
S		●	●
H			
O			

Cutting data standard values

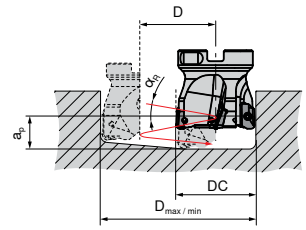
	Material sub-group	Index	Tensile strength lbf/in²* / HB / HRC	CTC5240 DRAGONSKIN		CTCS245 DRAGONSKIN	
				Cutting material **hard** (v_c↑) → **tough** (v_c↓)			
				v_c (ft/min)			
P	Unalloyed steel	P.1.1	60900 lbf/in² / 125 HB				
		P.1.2	92800 lbf/in² / 190 HB				
		P.1.3	121800 lbf/in² / 250 HB				
		P.1.4	132000 lbf/in² / 270 HB				
		P.1.5	146500 lbf/in² / 300 HB				
	Low-alloy steel	P.2.1	88500 lbf/in² / 180 HB				
		P.2.2	134900 lbf/in² / 275 HB				
		P.2.3	146500 lbf/in² / 300 HB				
		P.2.4	174000 lbf/in² / 375 HB				
	High-alloy steel and high-alloy tool steel	P.3.1	98600 lbf/in² / 200 HB				
		P.3.2	159500 lbf/in² / 300 HB				
		P.3.3	188500 lbf/in² / 400 HB				
	Stainless steel	P.4.1	98600 lbf/in² / 200 HB				
		P.4.2	117500 lbf/in² / 250 HB				
M	Stainless steel	M.1.1	88500 lbf/in² / 200 HB				
		M.2.1	300 HB				
		M.3.1	113100 lbf/in² / 230 HB				
K	Grey cast iron	K.1.1	88500 lbf/in² / 180 HB				
		K.1.2	127600 lbf/in² / 260 HB				
	Spherulitic graphite cast iron	K.2.1	78300 lbf/in² / 160 HB				
		K.2.2	122600 lbf/in² / 250 HB				
	Malleable iron	K.3.1	63800 lbf/in² / 130 HB				
		K.3.2	113100 lbf/in² / 230 HB				
N	Aluminum wrought alloy	N.1.1	60 HB				
		N.1.2	49300 lbf/in² / 100 HB				
	Cast aluminum alloy	N.2.1	36300 lbf/in² / 75 HB				
		N.2.2	43500 lbf/in² / 90 HB				
		N.2.3	63800 lbf/in² / 130 HB				
	Copper and copper alloys (bronze/brass)	N.3.1	54400 lbf/in² / 110 HB				
		N.3.2	43500 lbf/in² / 90 HB				
		N.3.3	49300 lbf/in² / 100 HB				
	Magnesium alloys	N.4.1	70 HB				
S	Heat-resistant alloys	S.1.1	98600 lbf/in² / 200 HB		80		64
		S.1.2	137800 lbf/in² / 280 HB		70		56
		S.2.1	121800 lbf/in² / 250 HB		35		28
		S.2.2	171100 lbf/in² / 350 HB		25		20
		S.2.3	156600 lbf/in² / 320 HB		30		24
	Titanium alloys	S.3.1	5800 lbf/in²		80		64
		S.3.2	152300 lbf/in²		50		40
		S.3.3	203100 lbf/in² / 410 HB		40		32
H	Hardened steel	H.1.1	46-55 HRC				
		H.1.2	56-60 HRC				
		H.1.3	61-65 HRC				
		H.1.4	66-70 HRC				
	Chilled iron	H.2.1	400 HB				
	Hardened cast iron	H.3.1	55 HRC				
O	Non-metal materials	O.1.1	≤ 21800 lbf/in²				
		O.1.2	≤ 14500 lbf/in²				
		O.2.1	≤ 145000 lbf/in²				
		O.2.2	≤ 145000 lbf/in²				
		O.3.1					

* Tensile Strength at Rupture (Rm)

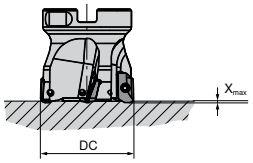
The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approximately **±20 %** according to the usage conditions.

MaxiMill 211-15 system

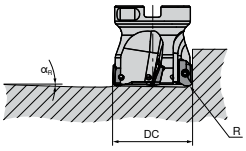
Machining strategy



1 Helical plunging



2 Axial ramping



3 Angled ramping

DC mm		1 Helical plunging RE = 0,8 mm	2 Axial ramping X_{max}	3 Angled ramping α_R
25	α_R	7,5 °	2,7 mm	9,5 °
	$D_{max.}$	48 mm		
	$D_{min.}$	37 mm		
32	α_R	5 °	2,5 mm	6,8 °
	$D_{max.}$	62 mm		
	$D_{min.}$	47 mm		
40	α_R	3,2 °	2,5 mm	5,1 °
	$D_{max.}$	78 mm		
	$D_{min.}$	63 mm		
50	α_R	2,5 °	2,5 mm	2,5 °
	$D_{max.}$	98 mm		
	$D_{min.}$	86 mm		
63	α_R	1,5 °	2,5 mm	2,5 °
	$D_{max.}$	124 mm		
	$D_{min.}$	111 mm		
80	α_R	1,3 °	2,5 mm	2,0 °
	$D_{max.}$	158 mm		
	$D_{min.}$	147 mm		
100	α_R	1,1 °	2,5 mm	1,5 °
	$D_{max.}$	198 mm		
	$D_{min.}$	190 mm		
125	α_R	0,9 °	2,5 mm	0,9 °
	$D_{max.}$	248 mm		
	$D_{min.}$	240 mm		
160	α_R	0,6 °	2,5 mm	0,7 °
	$D_{max.}$	318 mm		
	$D_{min.}$	310 mm		

Maximum speed related to overhang length n_{max} in min^{-1}			
DC mm	l_a = 2 x Ø mm	l_a = 3 x Ø mm	l_a = 5 x Ø mm
25	26560	19520	13320
32	24160	16720	9520
40	22160	14400	7200
50	20320	12320	4880
63	18640	10320	2960
80	17040	8480	
100	15680	6720	
125	14320		
160	13200		

$D_{max.}$ in inch = Largest diameter for flat bottom surface

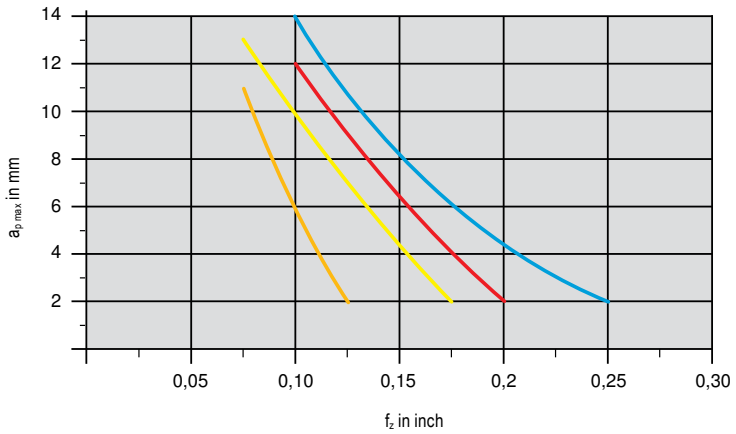
$D_{min.}$ in inch = Smallest diameter for flat bottom surface

a_p inch = D x π x tan (α_R) = Pitch

l_a in mm = Overhang length

Starting parameters

XDKT 15



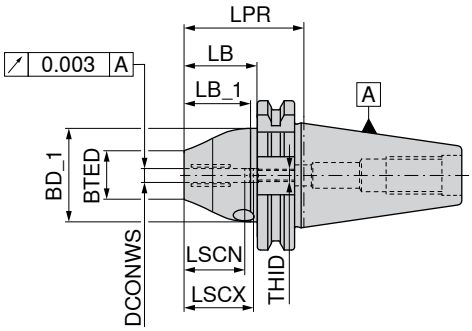
Material			Indexable insert		v_c in ft/min	Cooling
Steel	P.2.2	40CrMnMoS 8-6	XDKT150508SR-M50	CTCP230	200	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	XDKT150508SR-F50	CTPM240	100	Emulsion
Cast iron	K.1.1	EN-GJL-250 (GG25)	XDKT150508SR-R50	CTCK215	250	Dry
Heat-resistant	S.2.2	Inconel 718	XDKT150508ER-F40	CTC5240	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 46
From v_c > 1300 SFM, the tool must be balanced!

HyPower – Rough

- ▲ High pressure chuck – especially for milling
- ▲ Ideal for HSC and HPC applications
- ▲ High temperature resistance
- ▲ **By request:** Also available with Balluff chip

Scope of supply:
Base body with backstop screw and pressure screw



NEW

AD/B
G 2.5 $n_{max.}$ 25000

84 254 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
SK 40	25	110	38	57.0	65.3	90.9	57	47	M10X1	**12579**
SK 40	32	115	38	62.5	65.5	95.9	61	51	M12X1	**13279**

Clamping key T

80 397 ...

Pressure screw

83 950 ...

Backstop screw with internal cooling

83 950 ...

Spare parts DCONWS							
25	SW5	**050**	M10x12	**55000**	M10x1x13,5 - SW5	**421**
32	SW5	**050**	M10x12	**55000**	M12x1x13,5 - SW5	**422**

Accessories

→ 282

Reduction sleeve

→ 58, 60

Pull studs

→ 284

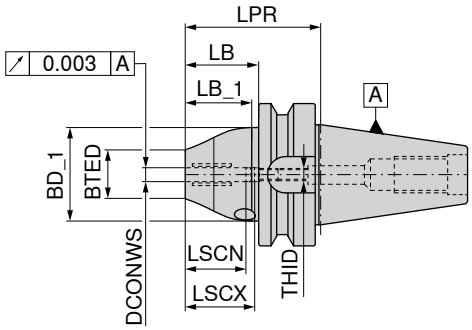
Others

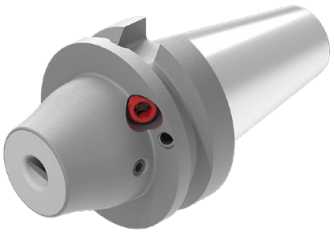
Accessories can be found in the clamping technology catalog → **Chapter 16, Adapters and accessories**

HyPower – Rough

- ▲ High pressure chuck – especially for milling
- ▲ Ideal for HSC and HPC applications
- ▲ High temperature resistance
- ▲ **By request:** Also available with Balluff chip

Scope of supply:
Base body with backstop screw and pressure screw





NEW NEW

AD
G 2.5 $n_{max.}$ 25000

AD/B
G 2.5 $n_{max.}$ 25000

Adapter	DCONWS	LPR	BTED	BD_1	LB_1	LB	LSCX	LSCN	THID	84 254 ...	84 254 ...
	mm	mm	mm	mm	mm	mm	mm	mm			
BT 30	6	54	26	46	29.0	34	37	27	M5	**10670**	
BT 30	8	54	28	46	29.0	34	37	27	M6	**10870**	
BT 30	10	54	30	50	23.5	34	41	31	M8X1	**11070**	
BT 30	12	54	32	50	23.5	34	46	36	M10X1	**11270**	
BT 30	16	69	38	55	38.5	49	49	39	M12X1	**11670**	
BT 30	20	69	38	58	38.5	49	51	41	M12X1	**12070**	
BT 40	25	100	38	57	44.6	75	57	47	M16X1		**12569**
BT 40	32	105	38	62	50.0	80	61	51	M16X1		**13269**

Clamping key T

Pressure screw

Backstop screw with internal cooling

Spare parts DCONWS						
	80 397 ...		**83 950 ...**		**83 950 ...**	
6	SW5	**050**	M10x12	**55000**	M5x12,5 - SW2,5	**418**
8	SW5	**050**	M10x12	**55000**	M6x12,5 - SW3	**419**
10	SW5	**050**	M10x12	**55000**	M8x1x13,5 - SW3	**420**
12	SW5	**050**	M10x12	**55000**	M10x1x13,5 - SW5	**421**
16	SW5	**050**	M10x12	**55000**	M12x1x13,5 - SW5	**422**
20	SW5	**050**	M10x12	**55000**	M12x1x13,5 - SW5	**422**
25	SW5	**050**	M10x12	**55000**	M16x1x13,5 - SW8	**424**
32	SW5	**050**	M10x12	**55000**	M16x1x13,5 - SW8	**424**

Accessories

→ 282
Reduction sleeve

→ 110+111
Pull studs

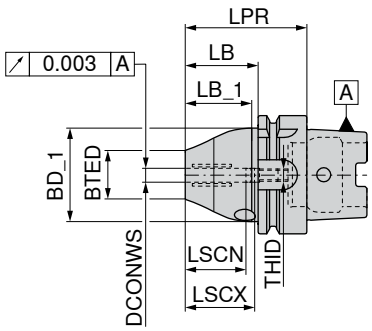
→ 284
Others

Accessories can be found in the clamping technology catalog → **Chapter 16, Adapters and accessories**

HyPower – Rough

- ▲ High pressure chuck – especially for milling
- ▲ Ideal for HSC and HPC applications
- ▲ High temperature resistance
- ▲ **By request:** Also available with Balluff chip

Scope of supply:
Base body with backstop screw and pressure screw



NEW

AD
G 2.5 $n_{max.}$ 25000

84 254 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
HSK-A 63	25	95	38	57.0	45.0	69	57	47	M10X1	**12557**
HSK-A 63	32	110	38	62.5	56.6	84	61	51	M10X1	**13257**
HSK-A 100	25	95	38	70.0	62.2	66	57	47	M10X1	**12555**
HSK-A 100	32	100	38	75.0	67.2	71	61	51	M10X1	**13255**

Clamping key T

80 397 ...

Pressure screw

83 950 ...

Backstop screw with internal cooling

83 950 ...

Spare parts DCONWS							
25	SW5	**050**	M10x12	**55000**	M10x1x13,5 - SW5	**421**
32	SW5	**050**	M10x12	**55000**	M10x1x13,5 - SW5	**421**

Accessories

→ 282

Reduction sleeve

→ 156

Coolant transfer pipes

→ 284

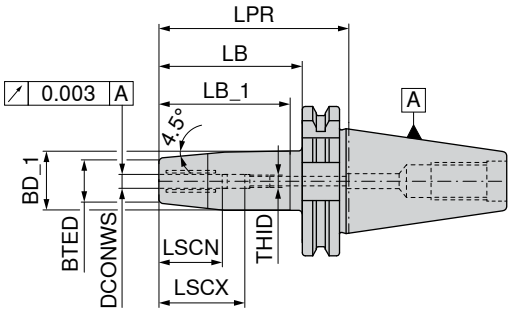
Others

Accessories can be found in the clamping technology catalog → **Chapter 16, Adapters and accessories**

HyPower – Access 4.5°

- ▲ High pressure chuck with slim contour, original dimensions of a 4.5° shrink contour
- ▲ Especially for reaming and drilling applications
- ▲ Ideal for tool and die production
- ▲ **By request:** Also available with Balluff chip

Scope of supply:
Base body with backstop screw and pressure screw



NEW

AD/B
G 2.5 $n_{max.}$ 25000

84 255 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
SK 40	6	120	21	27	48.9	100.9	37	27	M5	**20679**
SK 40	8	120	21	27	48.9	100.9	37	27	M6	**20879**
SK 40	10	120	24	32	61.6	100.9	41	31	M8X1	**21079**
SK 40	12	120	24	32	61.6	100.9	46	36	M10X1	**21279**
SK 40	16	120		34	56.2	100.9	49	39	M12X1	**21679**
SK 40	20	120	33	42	68.9	100.9	51	41	M16X1	**22079**

Clamping key T

80 397 ...

Pressure screw

83 950 ...

Backstop screw with internal cooling

83 950 ...

Spare parts DCONWS							
6	SW5	**050**	M10x12	**55000**	M5x12,5 - SW2,5	**418**
8	SW5	**050**	M10x12	**55000**	M6x12,5 - SW3	**419**
10	SW5	**050**	M10x12	**55000**	M8x1x13,5 - SW3	**420**
12	SW5	**050**	M10x12	**55000**	M10x1x13,5 - SW5	**421**
16	SW5	**050**	M10x12	**55000**	M12x1x13,5 - SW5	**422**
20	SW5	**050**	M10x12	**55000**	M16x1x13,5 - SW8	**424**

Accessories

→ 282

Reduction sleeve

→ 58, 60

Pull studs

→ 284

Others

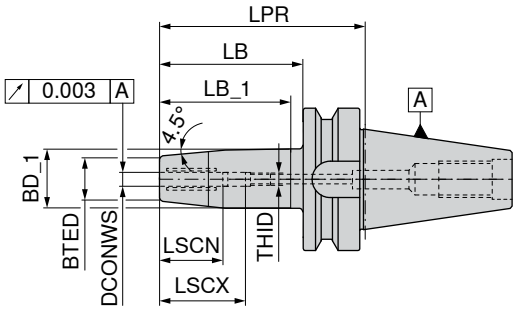
Accessories can be found in the clamping technology catalog → **Chapter 16, Adapters and accessories**

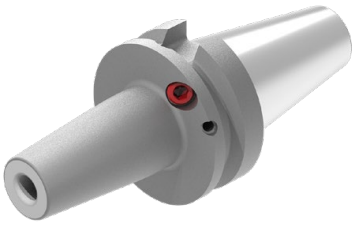
HyPower – Access 4.5°

- ▲ High pressure chuck with slim contour, original dimensions of a 4.5° shrink contour
- ▲ Especially for reaming and drilling applications
- ▲ Ideal for tool and die production
- ▲ **By request:** Also available with Balluff chip

Scope of supply:

Base body with backstop screw and pressure screw





	NEW	NEW
	AD	AD/B
	G 2.5 $n_{max.}$ 25000	G 2.5 $n_{max.}$ 25000
	84 255 ...	**84 255 ...**

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID		
BT 30	6	85	21	27	57.7	65	37	27	M5	**10670**	
BT 30	8	85	21	27	57.7	65	37	27	M6	**10870**	
BT 30	10	85	24	32	57.7	65	41	31	M8X1	**11070**	
BT 30	12	85	24	32	57.7	65	46	36	M10X1	**11270**	
BT 30	16	85	27	34	57.2	65	49	39	M10X1	**11670**	
BT 30	20	85	33	42	57.5	65	51	41	M10X1	**12070**	
BT 40	6	120	21	27	48.9	95	37	27	M5		**20669**
BT 40	8	120	21	27	48.9	95	37	27	M6		**20869**
BT 40	10	120	24	32	61.6	95	41	31	M8X1		**21069**
BT 40	12	120	24	32	61.6	95	46	36	M10X1		**21269**
BT 40	16	120	27	34	56.2	95	49	39	M12X1		**21669**
BT 40	20	120	33	42	68.9	95	51	41	M16X1		**22069**

	Clamping key T		Pressure screw		Backstop screw with internal cooling	
	80 397 ...		**83 950 ...**		**83 950 ...**	
Spare parts DCONWS						
6	SW5	**050**	M10x12	**55000**		
6	SW5	**050**	M10x12	**55000**	M5x12,5 - SW2,5	**418**
8	SW5	**050**	M10x12	**55000**		
8	SW5	**050**	M10x12	**55000**	M6x12,5 - SW3	**419**
10	SW5	**050**	M10x12	**55000**	M8x1x13,5 - SW3	**420**
10	SW5	**050**	M10x12	**55000**		
12	SW5	**050**	M10x12	**55000**	M10x1x13,5 - SW5	**421**
12	SW5	**050**	M10x12	**55000**		
16	SW5	**050**	M10x12	**55000**	M10x1x13,5 - SW5	**421**
16	SW5	**050**	M10x12	**55000**		
20	SW5	**050**	M10x12	**55000**		
20	SW5	**050**	M10x12	**55000**	M10x1x13,5 - SW5	**421**

Accessories

→ 282
Reduction sleeve

→ 110+111
Pull studs

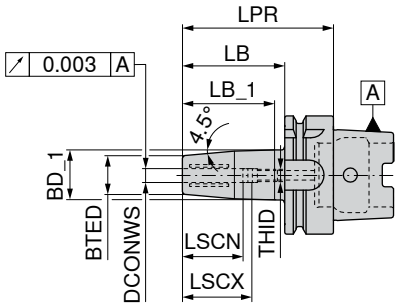
→ 284
Others

Accessories can be found in the clamping technology catalog
→ **Chapter 16, Adapters and accessories**

HyPower – Access 4.5°

- ▲ High pressure chuck with slim contour, original dimensions of a 4.5° shrink contour
- ▲ Especially for reaming and drilling applications
- ▲ Ideal for tool and die production
- ▲ **By request:** Also available with Balluff chip

Scope of supply:
Base body with backstop screw and pressure screw



NEW

AD
G 2.5 $n_{max.}$ 25000

84 255 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
HSK-A 63	6	120	21	27	48.9	94	37	27	M5	**20657**
HSK-A 63	8	120	21	27	48.9	94	37	27	M6	**20857**
HSK-A 63	10	120	24	32	61.6	94	41	31	M8X1	**21057**
HSK-A 63	12	120	24	32	61.6	94	46	36	M10X1	**21257**
HSK-A 63	16	120	27	34	56.2	94	49	39	M12X1	**21657**
HSK-A 63	20	120	33	42	68.9	94	51	41	M16X1	**22057**
HSK-A 100	6	120	21	27	48.9	91	37	27	M5	**20655**
HSK-A 100	8	120	21	27	48.9	91	37	27	M6	**20855**
HSK-A 100	10	120	24	32	61.6	91	41	31	M8X1	**21055**
HSK-A 100	12	120	24	32	61.6	91	46	36	M10X1	**21255**
HSK-A 100	16	120	27	34	56.2	91	49	39	M12X1	**21655**
HSK-A 100	20	120	33	42	68.9	91	51	41	M16X1	**22055**

Clamping key T

80 397 ...

Pressure screw

83 950 ...

Backstop screw with internal cooling

83 950 ...

Spare parts for article number						
84 255 20657	SW5	**050**	M10x10	**55100**	M5x12,5 - SW2,5	**418**
84 255 20857	SW5	**050**	M10x10	**55100**	M6x12,5 - SW3	**419**
84 255 21057	SW5	**050**	M10x10	**55100**	M8x1x13,5 - SW3	**420**
84 255 21257	SW5	**050**	M10x10	**55100**	M10x1x13,5 - SW5	**421**
84 255 21657	SW5	**050**	M10x10	**55100**	M12x1x13,5 - SW5	**422**
84 255 22057	SW5	**050**	M10x10	**55100**	M16x1x13,5 - SW8	**424**
84 255 20655	SW5	**050**	M10x12	**55000**	M5x12,5 - SW2,5	**418**
84 255 20855	SW5	**050**	M10x12	**55000**	M6x12,5 - SW3	**419**
84 255 21055	SW5	**050**	M10x12	**55000**	M8x1x13,5 - SW3	**420**
84 255 21255	SW5	**050**	M10x12	**55000**	M10x1x13,5 - SW5	**421**
84 255 21655	SW5	**050**	M10x12	**55000**	M12x1x13,5 - SW5	**422**
84 255 22055	SW5	**050**	M10x12	**55000**	M16x1x13,5 - SW8	**424**

Accessories

→ 282

Reduction sleeve

→ 156

Coolant transfer pipes

→ 284

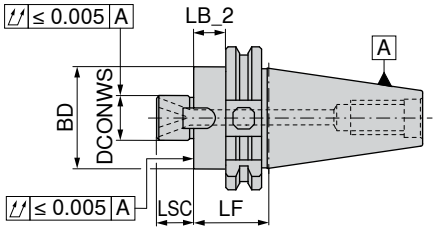
Others

Accessories can be found in the clamping technology catalog →**Chapter 16, Adapters and accessories**

Shell mill adapter with reduced flange diameter

▲ Screwed in drive keys
▲ **By request:** Also available with Balluff chip

Scope of supply:
Base body with retaining screw and drive key



NEW

AD
G 2.5 $n_{max.}$ 25000

	Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm	82 315 ...
Medium length	SK 40	22	81	100	38	19	**22279**
	SK 40	27	81	100	48	21	**22779**
	SK 50	22	81	100	38	19	**22278**
	SK 50	27	81	100	48	21	**22778**
Long	SK 40	22	111	130	38	19	**32279**
	SK 40	27	111	130	48	21	**32779**
	SK 50	22	111	130	38	19	**32278**
	SK 50	27	111	130	48	21	**32778**

These shell mill adapters have been specially developed for MaxiMill 211-KN porcupine cutters.
Now they can be clamped perfectly, due to the adapted flange diameters.

Carrier screws

Drive key

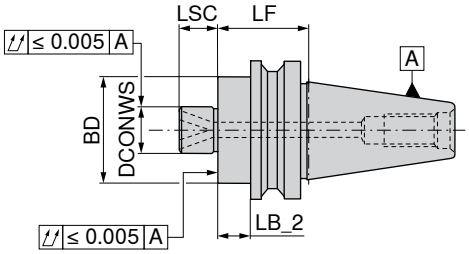
Tightening screw

Spare parts DCONWS		83 950 ...		83 950 ...		83 950 ...
22	M4x8	**51700**	10x7x20,5	**51500**	M10x25	**124**
27	M5x8	**51800**	12x9x24,3	**51600**	M12x30	**125**

Shell mill adapter with reduced flange diameter

▲ Screwed in drive keys
▲ **By request:** Also available with Balluff chip

Scope of supply:
Base body with retaining screw and drive key



NEW

AD
G 2.5 $n_{max.}$ 25000

	Adapter	DCONWS mm	BD mm	LB_2 mm	LF mm	LSC mm	82 315 ...
Medium length	BT 40	22	38	73	100	19	**22269**
	BT 40	27	48	73	100	21	**22769**
	BT 50	22	38	62	100	19	**22268**
	BT 50	27	48	62	100	21	**22768**
Long	BT 40	22	38	103	130	19	**32269**
	BT 40	27	48	103	130	21	**32769**
	BT 50	22	38	92	130	19	**32268**
	BT 50	27	48	92	130	21	**32768**

These shell mill adapters have been specially developed for MaxiMill 211-KN porcupine cutters.
Now they can be clamped perfectly, due to the adapted flange diameters.

Carrier screws

Drive key

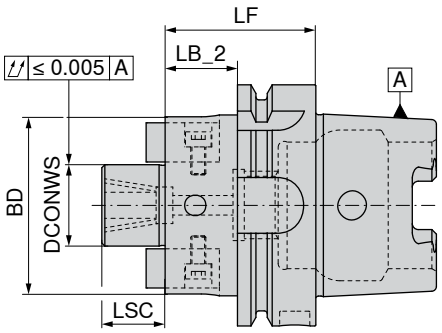
Tightening screw

Spare parts DCONWS		83 950 ...		83 950 ...		83 950 ...
22	M4x8	**51700**	10x7x20,5	**51500**	M10x25	**124**
27	M5x8	**51800**	12x9x24,3	**51600**	M12x30	**125**

Shell mill adapter with reduced flange diameter

▲ Screwed in drive keys
▲ **By request:** Also available with Balluff chip

Scope of supply:
Base body with retaining screw and drive key



NEW

G 2.5 $n_{max.}$ 25000

	Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm	82 315 ...
Medium length	HSK-A 63	22	74	100	38	19	**22257**
	HSK-A 63	27	74	100	48	21	**22757**
	HSK-A 100	22	71	100	38	19	**22255**
	HSK-A 100	27	71	100	48	21	**22755**
Long	HSK-A 63	22	104	130	38	19	**32257**
	HSK-A 63	27	104	130	48	21	**32757**
	HSK-A 100	22	101	130	38	19	**32255**
	HSK-A 100	27	101	130	48	21	**32755**

These shell mill adapters have been specially developed for MaxiMill 211-KN porcupine cutters.
Now they can be clamped perfectly, due to the adapted flange diameters.

Carrier screws

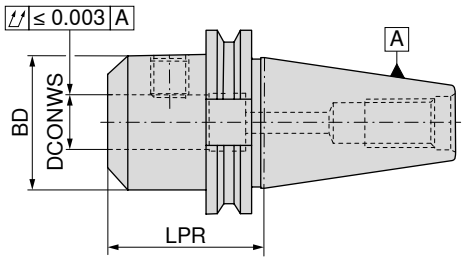
Drive key

Tightening screw

Spare parts DCONWS		83 950 ...		83 950 ...		83 950 ...
22	M4x8	**51700**	10x7x20,5	**51500**	M10x25	**124**
27	M5x8	**51800**	12x9x24,3	**51600**	M12x30	**125**

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ **By request:** Also available with Balluff chip



NEW

AD/Be
G 2.5 $n_{max.}$ 25000

82 404 ...

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	
Short	SK 40	6	50	25	**106**
	SK 40	8	50	28	**108**
	SK 40	10	50	35	**110**
	SK 40	12	50	42	**112**
	SK 40	14	50	44	**114**
	SK 40	16	63	48	**116**
	SK 40	18	63	50	**118**
	SK 40	20	63	52	**120**
	SK 40	25	100	65	**125** [1)]
	SK 40	32	100	72	**13200** [1)]
	SK 50	6	63	25	**30600**
	SK 50	8	63	28	**30800**
	SK 50	10	63	35	**31000**
	SK 50	12	63	42	**31200**
	SK 50	14	63	44	**31400**
	SK 50	16	63	48	**31600**
	SK 50	18	63	50	**31800**
	SK 50	20	63	52	**32000**
	SK 50	25	80	65	**32500** [1)]
	SK 50	32	100	72	**33200** [1)]
	SK 50	40	120	90	**34000**
Medium length	SK 40	40	120	80	**54000** [1)]

1) Version with two clamping screws

Accessories

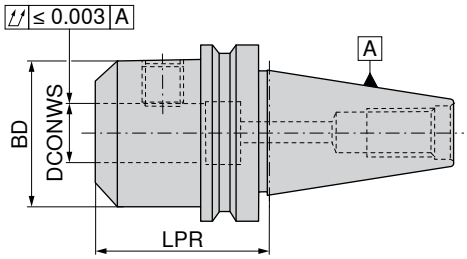
→ 58, 60 Pull studs

→ 284 Others

Accessories can be found in the clamping technology catalog
→ **Chapter 16, Adapters and accessories**

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ **By request:** Also available with Balluff chip



NEW

AD/Be
G 2.5 $n_{max.}$ 25000

82 504 ...

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	
Short	BT 40	6	50	25	**106**
	BT 40	8	50	28	**108**
	BT 40	10	63	35	**110**
	BT 40	12	63	42	**112**
	BT 40	14	63	44	**114**
	BT 40	16	63	48	**116**
	BT 40	18	63	50	**118**
	BT 40	20	63	52	**120**
	BT 40	25	100	65	**125** [1)]
	BT 40	32	100	72	**13200** [1)]
	BT 40	40	120	90	**14000**
	BT 50	6	63	25	**30600**
	BT 50	8	63	28	**30800**
	BT 50	10	80	35	**31000**
	BT 50	12	80	42	**31200**
	BT 50	14	80	44	**31400**
	BT 50	16	80	48	**31600**
	BT 50	18	80	50	**31800**
	BT 50	20	80	52	**32000**
	BT 50	25	100	65	**32500** [1)]
	BT 50	32	105	72	**33200** [1)]
	BT 50	40	120	90	**34000**

1) Version with two clamping screws

Accessories

→ 58, 60

Pull studs

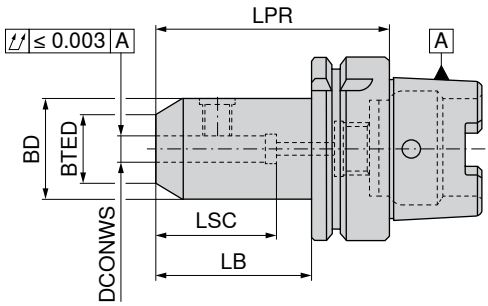
→ 284

Others

Accessories can be found in the clamping technology catalog
→ **Chapter 16, Adapters and accessories**

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ **By request:** Also available with Balluff chip



NEW

G 2.5 $n_{max.}$ 25000

82 404 ...

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	BTED mm	LB mm	LSC mm	
Short	HSK-A 63	6	65	25	15	39	34	**10657**
	HSK-A 63	8	65	28	20	39	34	**10857**
	HSK-A 63	10	65	35	25	39	39	**11057**
	HSK-A 63	12	80	42	30	54	44	**11257**
	HSK-A 63	14	80	44	32	54	44	**11457**
	HSK-A 63	16	80	48	36	54	47	**11657**
	HSK-A 63	18	80	50	38	54	47	**11857**
	HSK-A 63	20	80	52	40	54	49	**12057**
	HSK-A 63	25	110	65	45	84	54	**12557**
	HSK-A 63	32	110	72	52	84	58	**13257**
	HSK-A 63	40	125	80	60	99	71	**14057**
	HSK-A 100	6	80	25	15	51	34	**10655**
	HSK-A 100	8	80	28	20	51	34	**10855**
	HSK-A 100	10	80	35	25	51	39	**11055**
	HSK-A 100	12	80	42	30	51	44	**11255**
	HSK-A 100	14	80	44	32	51	44	**11455**
	HSK-A 100	16	100	48	36	71	47	**11655**
	HSK-A 100	18	100	50	38	71	47	**11855**
	HSK-A 100	20	100	52	40	71	49	**12055**
	HSK-A 100	25	100	65	45	71	54	**12555**
	HSK-A 100	32	100	72	52	71	58	**13255**
	HSK-A 100	40	110	80	60	81	68	**14055**

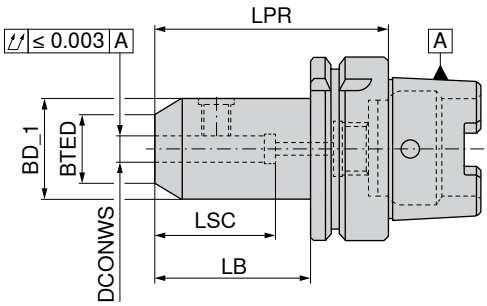
Set Screw

62 950 ...

Spare parts DCONWS	
6	**006**
8	**008**
10	**010**
12	**012**
14	**012**
16	**016**
18	**016**
20	**020**
25	**025**
32	**032**
40	**032**

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ **By request:** Also available with Balluff chip



NEW NEW

	Adapter	DCONWS $_{H5}$ mm	LPR mm	BTED mm	BD_1 mm	LB mm	LSC mm	G 2.5 $n_{max.}$ 25000 **82 740 ...**	G 2.5 $n_{max.}$ 25000 **82 741 ...**
Short	HSK-A 63	40	120	60	80	94	68	**14057**	
	HSK-A 63	40	120	60	80	94	68		**14057**

The M3 screws supplied with WAF 1.5 mm can be used to seal the two additional coolant holes.

Accessories

→ 156

Coolant transfer pipes

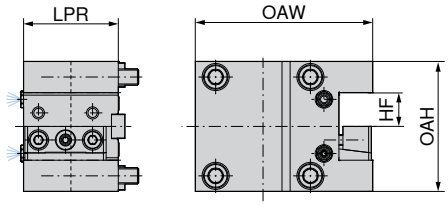
→ 284

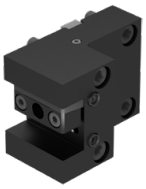
Others

Accessories can be found in the clamping technology catalog
→ **Chapter 16, Adapters and accessories**

HAAS/Doosan – BMT 65 – axial square section tool holder

▲ Directly screwed version





NEW

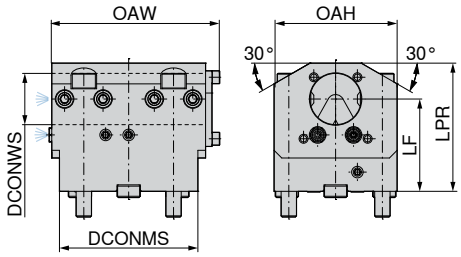
Left

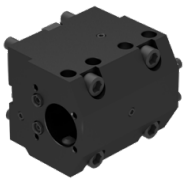
82 483 ...

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	
BMT 65	70 x 73	25	75	97	131	**00008**

HAAS/Doosan – BMT 65 – combi tool holder

▲ Directly screwed version
▲ Double-sided version





NEW

Through coolant

82 483 ...

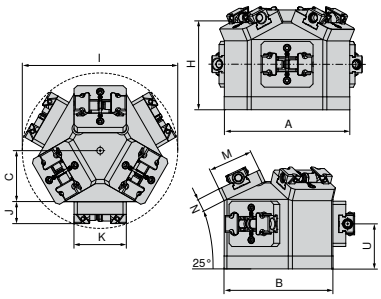
Adapter	Hole pattern	DCONWS mm	LF mm	OAH mm	LPR mm	OAW mm	DCONMS mm	
BMT 65	70 x 73	40	72	96	106	132	103	**03009**

CentriClamp – ZSG mini – 6-sided clamping tower

Scope of supply:

6-sided clamping tower including ZSG mini L-80 mm without system jaws

ZSG mini

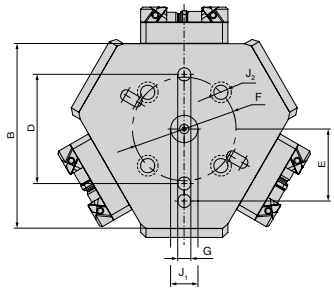


NEW

80 912 ...

A	B	C	H	I	J	K	M	N	U	WT	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	
193,24	169,40	78	135,7	236	33,7	80	70,4	20	70	13.5	**55000**

Underside dimensions of ZSG mini – 6-sided clamping tower

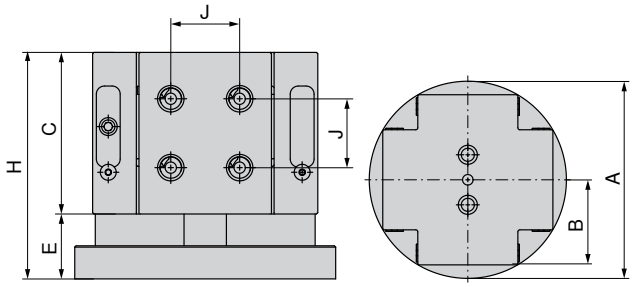


B	$D_{\pm 0.015}$	$E_{\pm 0.015}$	Ø F	G_{H7}	$J_{1\,H7}$	Ø J_2
mm	mm	mm	mm	mm	mm	mm
169,40	100	66	95	12	25	13

MNG mini – 4-sided clamping tower

- ▲ Including 4 x MNG mini zero point clamping systems
- ▲ Order mounting bolts separately
- ▲ Material: Hard-anodized aluminum

MNG mini



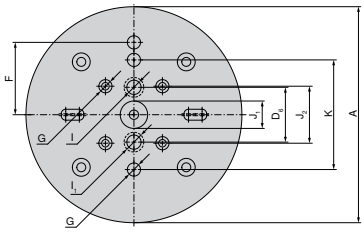
NEW

80 915 ...

A mm	B mm	C mm	E mm	H mm	J ±0.015 mm	WT kg	
197	85	122	49	171	52	12	**54000**

Suitable for: ESG 5 – 80 L-130 / ZSG 4 – 80 L-130 / ZSG mini – 70 L-80 / ZSG mini – 70 L-100

Underside dimensions of MNG mini – 4-sided clamping tower



A mm	D_6 mm	F ±0.015 mm	G H7 mm	I H7 mm	I_1 H7 mm	J_1 H7 mm	J_2 ±0.015 mm	K ±0.015 mm
197	50	66	12	13	19	25	52	100

System accessories overview

Sealing plugs

- ▲ Protective cover to shield changeover interface
- ▲ Price per piece

MNG mini

NEW

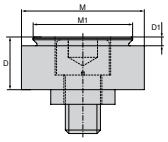
80 915 ...

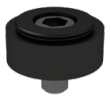
D_1 mm	
16	**51900**

System jaws overview

Insert jaw, round, grip 3 mm

▲ Price per piece
▲ For adapter jaw**80 914 34000**

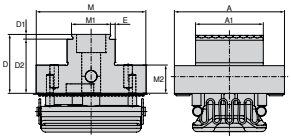


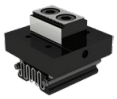


For vise width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NEW	NCG	H6G / -S / -Z	X6G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18	3			42	34		**80 914 34500**											●	

Indexable jaw, fixed VS, grip 3 mm

▲ Price per piece
▲ VS = Larger clamping range

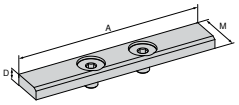




For vise width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	65	40	35	3	32	2,6	64	28	17	**80 914 34400**											●	
90	90		35	3	32	2,6	64	28	17	**80 914 34300**											●	

Support, hard for milling over

▲ Price per piece



For vise width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40		5,4				15			**80 914 51200**											●	
90	90		5,4				15			**80 914 51100**											●	

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We have an ambitious sustainability mission that will affect and change the entire supply chain. But we can only achieve true sustainability together. That's why our mission goes beyond our own scope:

We want to enable our customers to produce more sustainably with our products and services. With our ambitious mission, we want to make an important contribution to tackling the climate crisis.

Mission #1:
Climate neutral by 2025

Mission #2:
Minimise the use of virgin raw materials

connACT
Together for Sustainability

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09/2024 – 99 100 00264

UP2DATE

Robust roughing with turbo feeds

Maximum process security – even for hard-to-reach components.

... OUR NEW HIGHLIGHT PRODUCTS

- **MaxiMill – Tangent** rough milling system, compatible with actively vibration-damped transverse slot shell mill adapter
- **WTX – Micropilot** drill for handling the trickiest jobs on very small components with maximum precision
- **MaxiMill – Slot-SNHX** side and face milling cutter system for extra-soft cuts

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

Tooling a Sustainable Future

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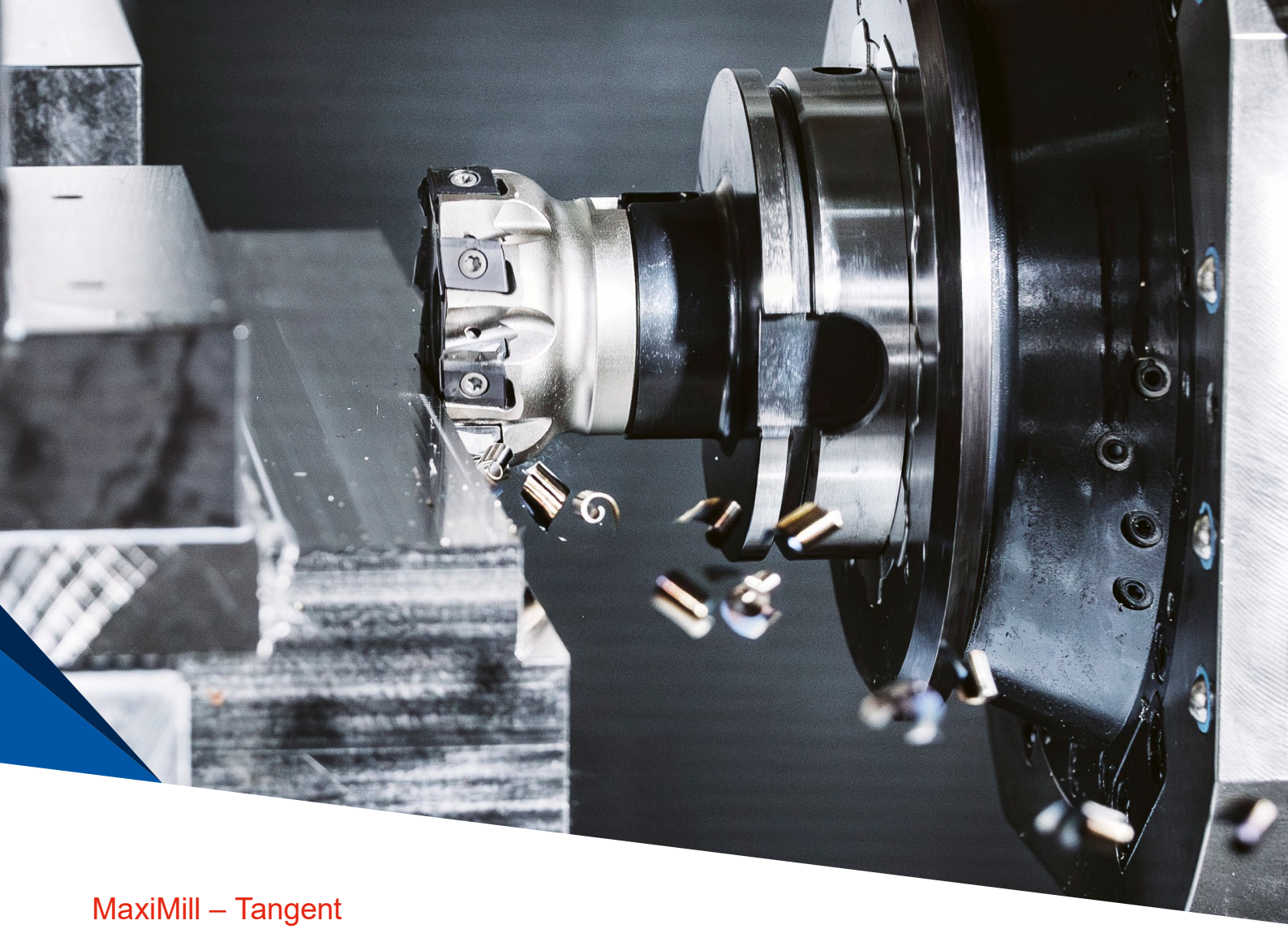


MaxiMill – Tangent

Robust roughing of steel and cast iron

CERATIZIT

Tangential indexable milling cutter with maximum tooth utilization

The MaxiMill – Tangent delivers the best cutting edge stability for turbo feeds

We've all been there. You're trying to machine a component, but interfering contours are making it hard to see what's happening. Face milling cutters are not an option here, especially when long overhangs make stable, low-vibration machining impossible.

While this might sound like a problem with no solution, you just need the right tool – which is where the new **MaxiMill – Tangent** comes in. This tangential indexable milling cutter has got what it takes, especially when machining steel and cast iron parts.

→ **from page 37**
You can find further information on the product here.

cts.ceratizit.com/us/en/maximill-tangent

MaxiMill – Tangent: advantages at a glance

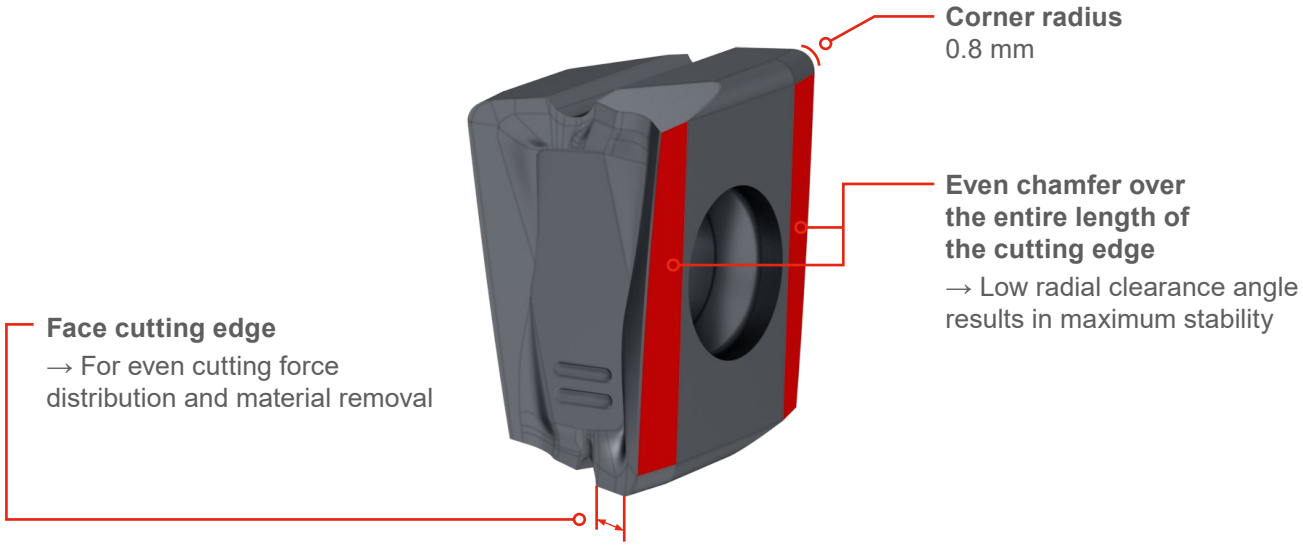
- ▲ Stable, soft-cutting system
- ▲ Robust design for up to 50% higher feed rate per tooth
- ▲ Wide range of holders with different connections:
  G (thread) / A (shell mill adapter) / C (cylindrical shank)
- ▲ Maximum number of teeth on the milling body thanks to tangential clamping
- ▲ Precision-ground indexable inserts and tight manufacturing tolerances for the tool holder result in superb axial and concentric run-out properties
- ▲ Irregular pitch for reduced vibrations
- ▲ Quick tool changes thanks to improved accessibility

... also compatible with actively vibration-damped adapter

→ For maximum process security,
even with hard-to-access components

Ground indexable inserts with extra-robust cutting edges

- ▲ Indexable inserts for wide range of applications **P** / **K** / S / M
- ▲ Four usable cutting edges
- ▲ Chip breakers: -F50 and -M50
- ▲ Precision-ground indexable inserts (size -09 and -13)
- ▲ Maximum depth of cut:
  - With insert size -09 > 8 mm
  - With insert size -13 > 12 mm



Maximum cutting edge stability

For working at high feed rates

Longer tool life

Boosts performance and productivity

"The MaxiMill – Tangent has what it takes. Thanks to its super-stable design, the powerful, four-edged indexable inserts and tangential clamping, we now have a simple, cost-effective way of machining components with interfering contours – with the built-in turbo feed."

Robert Frei, Product Manager Indexable Insert Milling Systems

WTX – Micropilot

Cut down on tool changes, time, and costs – with ultimate precision

Our brand-new WTX – Micropilot puts the impossible in reach: In the past, spot drilling on angled or curved surfaces meant spot-facing each milling cutter first – but now you need only one tool: the WTX – Micropilot. Do you want a 90° countersink at the drill entrance? The WTX – Micropilot gets it done in a single run. And cuts down on tool changes, time and money.

A perfect match for our micro drill, the WTX – Micro for a range from 8xD–30xD, the pilot drill is used for hole depths up to 2.5xD. Thanks to its sophisticated end geometry with a 160° point angle, the tool lets you make a clean plunge during the drilling process and prevents wandering. The special Dragonskin coating guarantees optimum chip clearance and longer tool lives.

WNT

→ **from page 12**
You can find further information on the product here.

cts.ceratizit.com/us/en/wtx-micro

Advantages of the WTX – Micropilot:

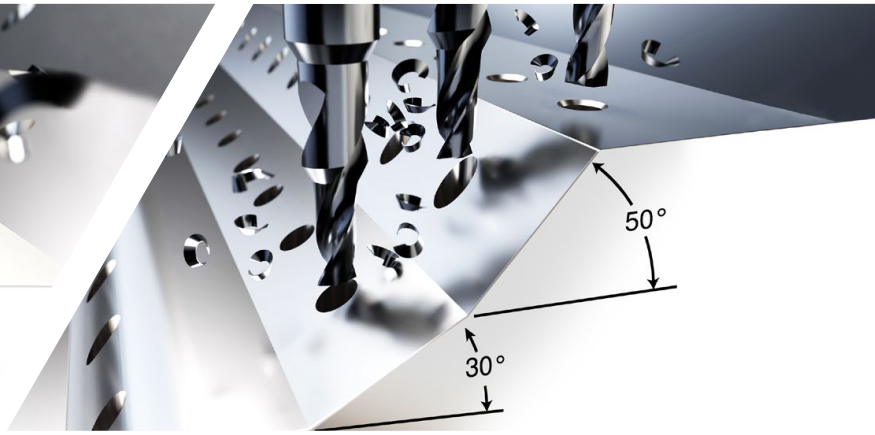
- State of the art: Substrate, geometry, coating
- WTX – Micropilot (pilot drill) and WTX – Micro (deep hole drill) are a perfect match
- Extremely tight tolerances prevent deep hole drill from wandering
- Optimum chip clearance thanks to sophisticated end geometry and DPX74M Dragonskin coating
- Option of 90° countersink at the drill entrance (with straight drilling applications)

Maximum productivity and process security thanks to optimized geometry and high-performance coating

- Direct spot drilling of straight, angled, and curved surfaces with a pitch of up to 50°

No need for an additional tool, so you save time and money, and the process takes two steps instead of three

Direct spot drilling on convex and concave surfaces



Direct spot drilling on angled surfaces up to 50° or 90° countersink in flat drilling applications

MaxiMill – Slot-SNHX

Robust side and face milling cutter system for soft cuts

CERATIZIT

MaxiMill – Slot-SNHX: Slot milling the soft and easy way

Many manufacturers struggle with unstable processes when machining slots in steel, stainless steel, cast iron materials, and aluminum. Soft-cutting side and face milling cutters are ideal in these cases, as this universal solution can adapt to the various challenges at hand while optimizing costs during cutting. The **MaxiMill – Slot-SNHX system** is a great choice in these situations, offering a wide range of tool holders and indexable inserts to create a perfect solution for cutting widths from 6 mm to 16 mm and diameters from 50 mm to 200 mm.

→ **from page 43**
You can find further information on the product here.

cts.ceratizit.com/us/en/maximill-slot-snhx

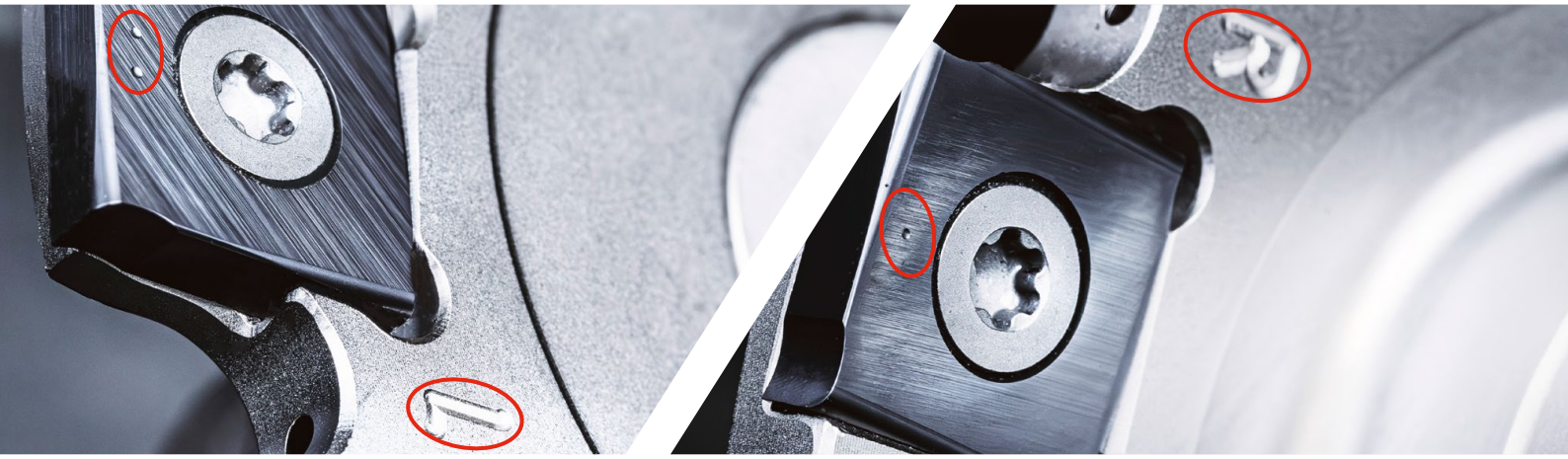
Advantages/benefits

Supports

- ▲ Wide range of tool holders with different connections:
  G (thread) / A (shell mill adapter) / C (cylindrical shank)
- ▲ Cutting widths from 6 mm to 16 mm and diameters from 50 mm to 200 mm
- ▲ Excellent performance and process security with a through-coolant supply
- ▲ Reduced risk of chip jams due to cut distribution
- ▲ Tight manufacturing tolerances for the tool holder eliminate interfering contours on the end
- ▲ System can be easily adapted for special sizes and custom tools

Indexable insert

- ▲ Reliable indexable inserts with wide range of applications **P** / **M** / **K** / N
- ▲ Precision-ground indexable inserts result in superb axial and concentric run-out properties
- ▲ Flat groove base and good tool clearance thanks to ground indexable inserts and adapted position for installing the indexable insert in the tool holder
- ▲ Textured surface for easy identification of holders and inserts
  → incredibly simple installation



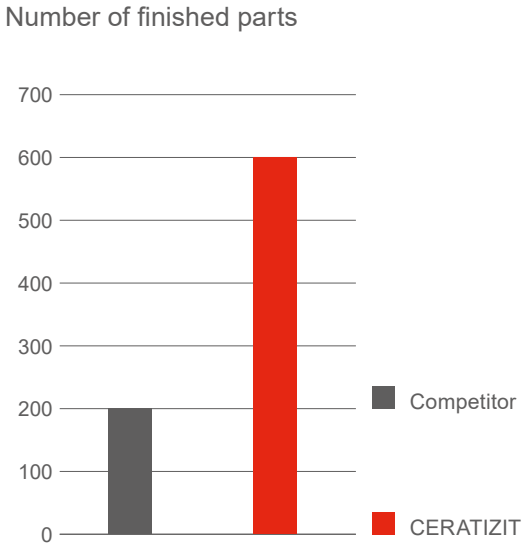
L ●● Left insert

R ● Right insert

Results of tool life testing for new MaxiMill – Slot-SNHX

Application:	Reverse-side machining
Material:	SG-Iron 500 / EN-GJS 500
Tool:	MaxiMill – Slot-SNHX
a_p:	3 mm
a_e:	42 mm
Tool life:	600 pieces

- ▲ Improved handling thanks to large indexable insert clamping screw
- ▲ Softer cuts that beat the competition due to a ground cutting edge
- ▲ Improved tool life and fewer indexable inserts for a streamlined setup



THE RESULTS ARE IN

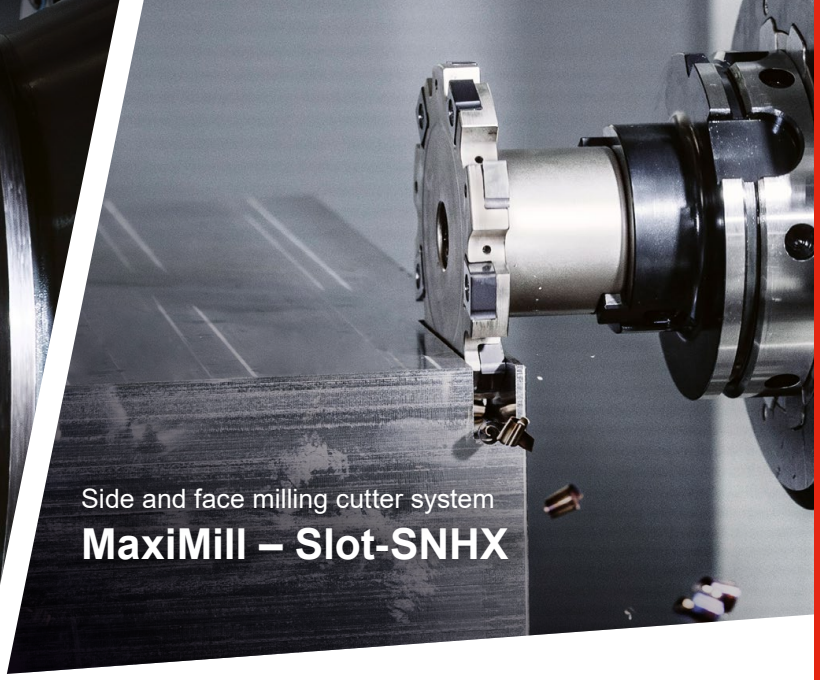
Superior performance, long tool life and simple handling

Pilot drill

WTX – Micropilot

Contents

WNT	**Solid carbide drills**
12–15	**WTX – Micropilot**
WNT	**Circular and thread milling cutters**
16–18	MonoThread – ZSGF
19	Next-level product: MonoThread – SGF UNJF and UNJC
CERATIZIT	**Indexable turning tools**
22–29	MaxiLock-D tool holder with DirectCooling
WNT	**Solid carbide milling cutters**
30–33	Milling cutter upgrade: HPC – UNI type ML



CERATIZIT Indexable milling tools

34–36 MaxiMill – HFCD

37–42 **MaxiMill – Tangent**

43–47 **MaxiMill – Slot-SNHX**

WNT Adapters and accessories

54–56 **Actively vibration-damped shell mill adapter**

WNT Workpiece clamping

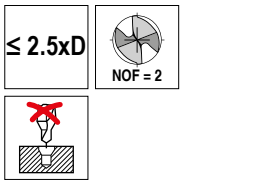
58–60 MNG base plates

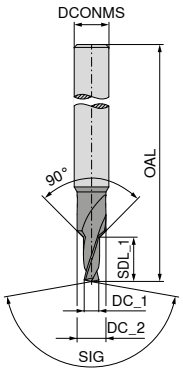
61–65 Addition to the range: MNG Mini

To the products

WTX – 90° pilot drill

- ▲ Specially designed pilot drill for WTX – Micro deep hole drill (8xD–30xD)
- ▲ For direct spot drilling on angled and curved surfaces up to a 50° angle of inclination
- ▲ 90° countersink can be achieved at the drill entrance on flat spot drilling surfaces





NEW

MICRO PILOT

DPX74M

DRAGONSKIN

SIG 160°

Solid carbide

10 692 ...

DC_1 m6 mm	DC_2 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	
0.8	1.7	4	55	2.00	**00800**
0.9	1.7	4	55	2.25	**00900**
1.0	2.0	4	55	2.50	**01000**
1.1	2.0	4	55	2.75	**01100**
1.2	2.0	4	55	3.00	**01200**
1.3	2.5	4	55	3.25	**01300**
1.4	2.5	4	55	3.50	**01400**
1.5	3.0	4	55	3.75	**01500**
1.6	3.0	4	55	4.00	**01600**
1.7	3.0	4	55	4.25	**01700**
1.8	3.5	4	55	4.50	**01800**
1.9	3.5	4	55	4.75	**01900**
2.0	3.5	6	65	5.00	**02000**
2.1	3.5	6	65	5.25	**02100**
2.2	4.5	6	65	5.50	**02200**
2.3	4.5	6	65	5.75	**02300**
2.4	4.5	6	65	6.00	**02400**
2.5	4.5	6	65	6.25	**02500**
2.6	4.5	6	65	6.50	**02600**
2.7	5.0	6	65	6.75	**02700**
2.8	5.0	6	65	7.00	**02800**
2.9	5.0	6	65	7.25	**02900**

P	●
M	○
K	●
N	
S	●
H	
O	

→ v_c Page 13
→ Machining information: Page 14+15

Cutting data standard values for WTX – Micropilot

	Material sub-group	Index	Tensile strength lbf/in²* / HB / HRC	10 692 ... without IK	2.5xD					
					≤ Ø 1	> Ø 1–1.25	> Ø 1.25–1.5	> Ø 1.5–2	> Ø 2–2.5	> Ø 2.5–3
				v_c (m/min)	f (mm/rev)					
P	Unalloyed steel	P.1.1	60900 lbf/in² / 125 HB	70	0.010	0.013	0.015	0.019	0.022	0.025
		P.1.2	92800 lbf/in² / 190 HB	60	0.010	0.013	0.015	0.019	0.022	0.025
		P.1.3	121800 lbf/in² / 250 HB	60	0.010	0.013	0.015	0.019	0.022	0.025
		P.1.4	132000 lbf/in² / 270 HB	60	0.010	0.013	0.015	0.019	0.022	0.025
		P.1.5	146500 lbf/in² / 300 HB	60	0.010	0.013	0.015	0.019	0.022	0.025
	Low-alloy steel	P.2.1	88500 lbf/in² / 180 HB	70	0.010	0.013	0.015	0.019	0.022	0.025
		P.2.2	134900 lbf/in² / 275 HB	60	0.010	0.013	0.015	0.019	0.022	0.025
		P.2.3	146500 lbf/in² / 300 HB	60	0.010	0.013	0.015	0.019	0.022	0.025
		P.2.4	174000 lbf/in² / 375 HB							
	High-alloy steel and high-alloy tool steel	P.3.1	98600 lbf/in² / 200 HB	60	0.010	0.013	0.015	0.019	0.022	0.025
		P.3.2	159500 lbf/in² / 300 HB	50	0.010	0.013	0.015	0.019	0.022	0.025
		P.3.3	188500 lbf/in² / 400 HB							
	Stainless steel	P.4.1	98600 lbf/in² / 200 HB	50	0.005	0.006	0.007	0.010	0.013	0.015
		P.4.2	117500 lbf/in² / 250 HB	35	0.005	0.006	0.007	0.010	0.013	0.015
M	Stainless steel	M.1.1	88500 lbf/in² / 200 HB	40	0.005	0.006	0.007	0.010	0.013	0.015
		M.2.1	300 HB	40	0.005	0.006	0.007	0.010	0.013	0.015
		M.3.1	113100 lbf/in² / 230 HB	40	0.005	0.006	0.007	0.010	0.013	0.015
K	Grey cast iron	K.1.1	88500 lbf/in² / 180 HB	70	0.010	0.013	0.015	0.019	0.022	0.025
		K.1.2	127600 lbf/in² / 260 HB	70	0.010	0.013	0.015	0.019	0.022	0.025
	Spherulitic graphite cast iron	K.2.1	78300 lbf/in² / 160 HB	70	0.010	0.013	0.015	0.019	0.022	0.025
		K.2.2	122600 lbf/in² / 250 HB	70	0.010	0.013	0.015	0.019	0.022	0.025
	Malleable iron	K.3.1	63800 lbf/in² / 130 HB	70	0.010	0.013	0.015	0.019	0.022	0.025
		K.3.2	113100 lbf/in² / 230 HB	70	0.010	0.013	0.015	0.019	0.022	0.025
N	Aluminum wrought alloy	N.1.1	60 HB							
		N.1.2	49300 lbf/in² / 100 HB							
	Cast aluminum alloy	N.2.1	36300 lbf/in² / 75 HB							
		N.2.2	43500 lbf/in² / 90 HB							
		N.2.3	63800 lbf/in² / 130 HB							
	Copper and copper alloys (bronze/brass)	N.3.1	54400 lbf/in² / 110 HB							
		N.3.2	43500 lbf/in² / 90 HB							
		N.3.3	49300 lbf/in² / 100 HB							
	Magnesium alloys	N.4.1	70 HB							
S	Heat-resistant alloys	S.1.1	98600 lbf/in² / 200 HB	15	0.005	0.006	0.007	0.010	0.013	0.015
		S.1.2	137800 lbf/in² / 280 HB	15	0.005	0.006	0.007	0.010	0.013	0.015
		S.2.1	121800 lbf/in² / 250 HB	10	0.005	0.006	0.007	0.010	0.013	0.015
		S.2.2	171100 lbf/in² / 350 HB	10	0.005	0.006	0.007	0.010	0.013	0.015
		S.2.3	156600 lbf/in² / 320 HB	10	0.005	0.006	0.007	0.010	0.013	0.015
	Titanium alloys	S.3.1	5800 lbf/in²	30	0.005	0.006	0.007	0.010	0.013	0.015
		S.3.2	152300 lbf/in²	20	0.005	0.006	0.007	0.010	0.013	0.015
		S.3.3	203100 lbf/in² / 410 HB							
H	Hardened steel	H.1.1	46-55 HRC							
		H.1.2	56-60 HRC							
		H.1.3	61-65 HRC							
		H.1.4	66-70 HRC							
	Chilled iron	H.2.1	400 HB							
	Hardened cast iron	H.3.1	55 HRC							
O	Non-metal materials	O.1.1	≤ 21800 lbf/in²							
		O.1.2	≤ 14500 lbf/in²							
		O.2.1	≤ 145000 lbf/in²							
		O.2.2	≤ 145000 lbf/in²							
		O.3.1								

* Tensile Strength at Rupture (Rm)

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

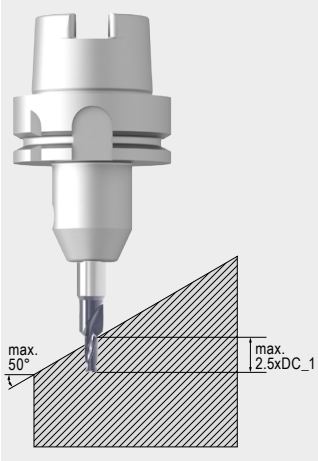
WTX – Micropilot application recommendations

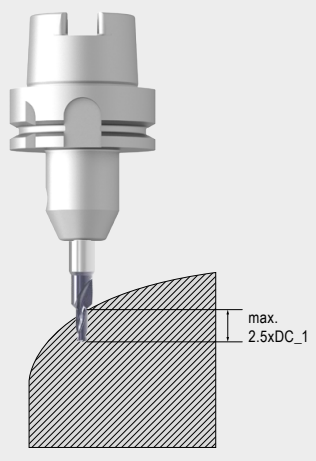
General information

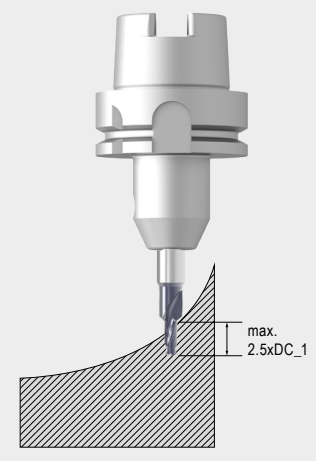
We recommend using the tool with external cooling. Check that the coolant is applied directly at the tool tip, as this will ensure adequate cooling and chip clearance.
Refer to our cutting data recommendations when using the tool.

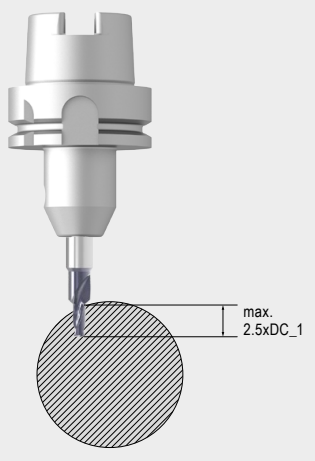
1. Pilot hole on angled or curved surfaces

Produce pilot holes in a single step up to a maximum hole depth of 2.5xD. Angled or curved surfaces can be machined up to a maximum pitch of 50° without prior spot facing. Countersinks cannot be made at the drill entrance on angled or curved surfaces.



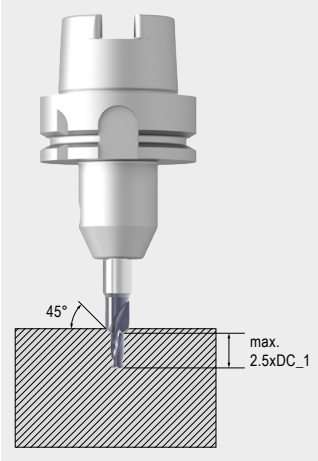






2. Pilot hole with 90° chamfer

Pilot holes can be drilled in a single step. If necessary, a 90° chamfer can also be produced at the drill entrance (for flat spot drilling applications) after reaching a hole depth of 2.5xD.

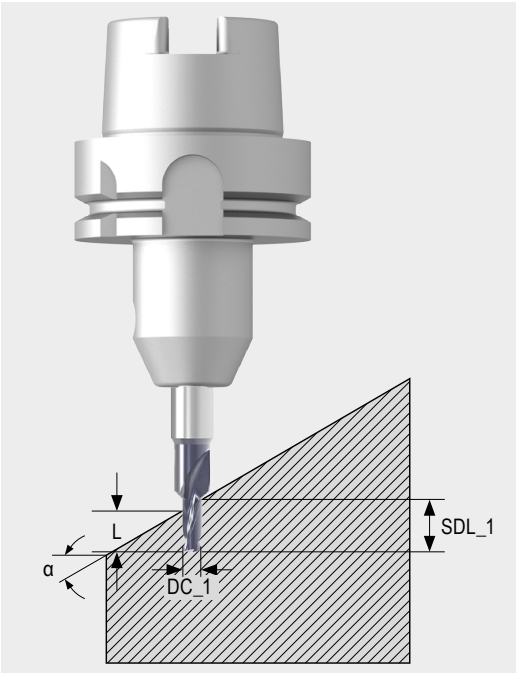


Calculating the pilot hole depth for angled drilling applications

In angled drilling applications, the remaining depth of the pilot hole changes depending on the angle of inclination. This can be calculated using the following formula:

$$L = SDL\_1 - (DC\_1 \times \tan(\alpha))$$

DC_1 = Cutting diameter
SDL_1 = Step length (max. 2.5xDC_1)
α = Angle of inclination of component surface (max. 50°)
L = Remaining pilot hole depth

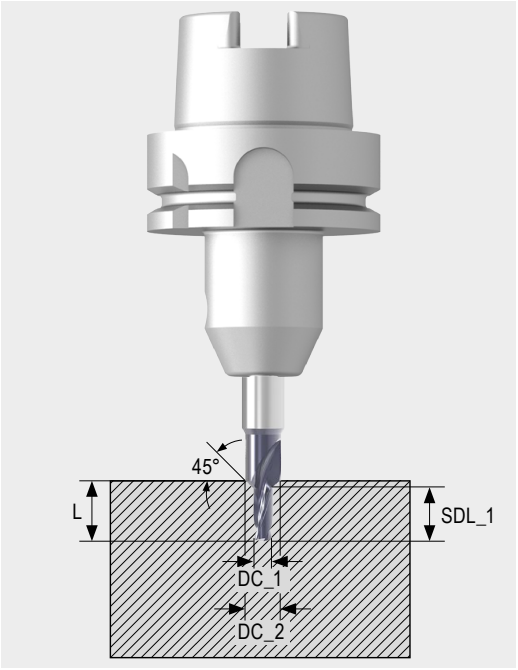


Calculating the maximum hole depth with 90° countersink

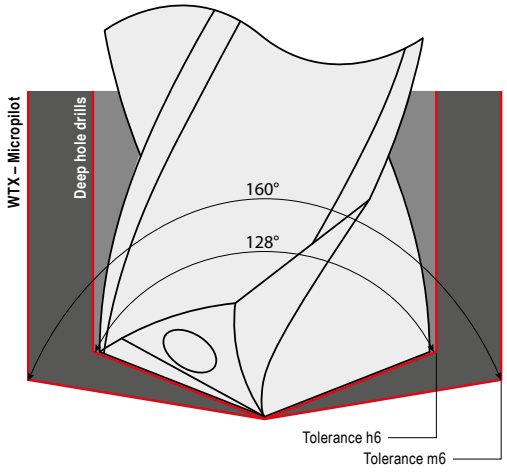
Use the following formula to find the maximum hole depth incl. 90° countersink.

$$L = \left(\frac{DC\_2 - DC\_1}{2}\right) + SDL\_1$$

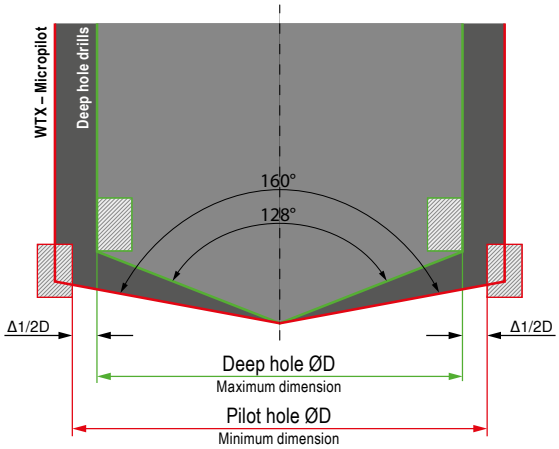
DC_1 = Cutting diameter
DC_2 = Maximum countersink diameter
SDL_1 = Step length (max. 2.5xDC_1)
L = Maximum hole depth including countersink



Tolerances and angles

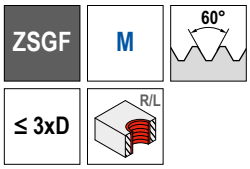


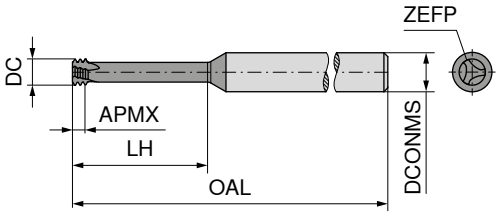
The following must apply to use the pilot and deep hole drill consecutively and without collisions: ΔD = ØD (pilot hole) – ØD (deep hole) > 0



MonoThread – Circular shank thread milling cutter

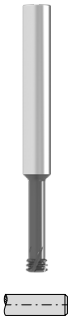
▲ Profile-corrected





NEW

AlTiN



Solid carbide

50 545 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS $_{h6}$ mm	ZEFP	
1.53	M2	0.40	39	0.80	6.0	3	3	**02000**
2.37	M3	0.50	58	1.35	9.5	6	3	**03000**
3.10	M4	0.70	58	1.95	12.5	6	3	**04000**
3.80	M5	0.80	58	2.30	16.0	6	3	**05000**
4.65	M6	1.00	58	2.70	20.0	6	3	**06000**
6.00	M8	1.25	58	3.20	24.0	6	3	**08000**
7.80	M10	1.50	64	3.80	31.5	8	3	**10000**
9.00	M12	1.75	73	4.55	37.8	10	3	**12000**

NEW

50 550 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS $_{h6}$ mm	ZEFP	
1.53	M2	0.40	39	1.00	10.4	3	3	**02000**[1)]
2.37	M3	0.50	39	1.30	12.5	3	3	**03000**
3.10	M4	0.70	58	1.80	16.7	6	3	**04000**
4.00	M5	0.80	58	2.10	20.8	6	3	**05000**
4.80	M6	1.00	58	2.55	25.0	6	3	**06000**
6.40	M8	1.25	64	3.15	33.5	8	3	**08000**
8.00	M10	1.50	76	3.85	41.5	8	3	**10000**

P	●
M	○
K	●
N	●
S	●
H	
O	●

1) 5xD

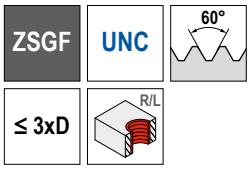
→ v_c/f_z Page 21

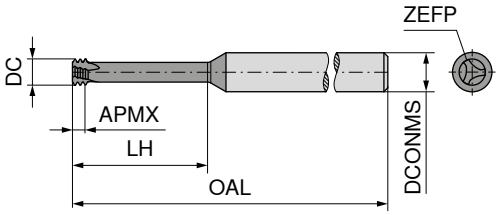
→ **Chapter 7 – Circular and thread milling cutters**

When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or center path feed v_{fm}.

MonoThread – Circular shank thread milling cutter

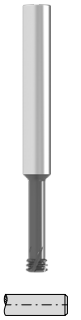
▲ Profile corrected





NEW

AlTiN



Solid carbide

50 557 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS $_{h6}$ mm	ZEFP	
3.678	UNC No.10-No.12	1,058	58	3.17	15.5	6	3	**01000**
4.697	UNC 1/4	1,27	58	3.81	19.0	6	3	**01400**
6.000	UNC 5/16	1,411	58	4.23	23.0	6	3	**51600**
7.345	UNC 3/8	1,588	64	4.76	30.2	8	3	**03800**
7.700	UNC 7/16	1,814	64	5.44	35.2	8	3	**71600**
9.376	UNC 1/2	1,954	73	5.86	40.1	10	3	**01200**
10.920	UNC 9/16	2,117	105	6.35	45.0	12	3	**91600**
11.419	UNC 5/8	2,309	105	6.93	50.0	12	3	**05800**
15.210	UNC 3/4	2,540	105	7.62	59.7	16	4	**03400**

NEW

50 559 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS $_{h6}$ mm	ZEFP	
4.696	UNF 1/4	0,907	58	2.72	19.0	6	3	**01400**
6.217	UNF 5/16, 3/8	1,058	64	3.17	24.0	8	3	**51600**
7.994	UNF 7/16	1,270	64	3.81	34.5	8	3	**71600**
11.993	UNF 5/8	1,411	105	4.23	49.0	12	4	**05800**

P	●
M	○
K	●
N	●
S	●
H	
O	●

→ v_c/f_z Page 21

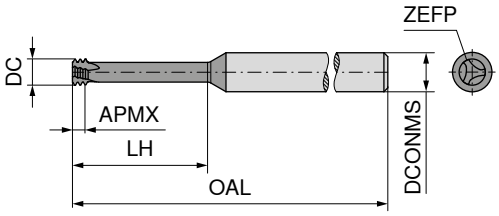
→ **Chapter 7 – Circular and thread milling cutters**
When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or center path feed v_{fm}.

MonoThread – Circular shank thread milling cutter

▲ Profile corrected

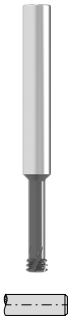
ZSGF | UNC | UNF | 60°

≤ 2xD | R/L



NEW

AlTiN



Solid carbide

50 568 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS $_{h6}$ mm	ZEFP	
1.400	UNC No.1 / UNF No.2	0,397	58	1.19	3.8	6	3	**01200**
1.646	UNC No.2 / UNF No.3	0,454	58	1.36	4.4	6	3	**02300**
1.901	UNC No.3 / UNF No.4	0,529	58	1.59	5.2	6	3	**03400**
2.034	UNC No.4	0,635	58	1.91	6.3	6	3	**04000**
2.416	UNC No.5 / UNF No.6	0,635	58	1.91	7.0	6	3	**05600**

≤ 2xD | G | 55°

NEW

50 569 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS $_{h6}$ mm	ZEFP	
7.790	G1/8	0,907	64	2.72	19.5	8	3	**01800**
10.015	G 1/4-3/8	1,337	73	4.01	30.0	10	4	**01400**
12.013	G 1/2-G7/8	1,814	84	5.44	37.0	12	4	**01200**
15.900	G 1-2	2,309	105	6.93	44.0	16	4	**01000**

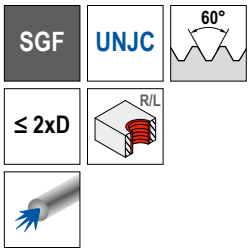
P	●
M	○
K	●
N	●
S	●
H	
O	●

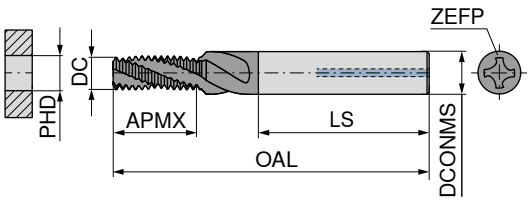
→ v_c/f_z Page 21

→ **Chapter 7 – Circular and thread milling cutters**
When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or center path feed v_{fm}.

MonoThread – Thread milling cutters

▲ Profile-corrected





NEW

AlTiN

Solid carbide

50 524 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	ZEFP	PHD mm	
4.70	UNJC 1/4-20	0.907	55	14.27	36	6	4	5.6	**01400**
6.22	UNJC 5/16-18	1.411	62	16.32	36	8	4	7.0	**05160**
7.79	UNJC 3/8-16	1.588	74	20.01	40	10	4	8.6	**03800**
8.57	UNJC 7/16-14	1.814	79	22.87	45	12	4	10.0	**07160**
9.38	UNJC 1/2-13	1.270	79	26.75	45	12	5	11.5	**01200**

NEW

50 533 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	ZEFP	PHD mm	
2.44	UNJF 6-40	0.635	42	7.42	28	4	3	2.95	**06000**
3.14	UNJF 8-36	0.706	49	8.91	36	6	3	3.50	**08000**
3.95	UNJF 10-32	0.794	55	9.97	36	6	3	4.10	**10000**
4.70	UNJF 1/4-28	0.907	55	14.27	36	6	4	5.60	**01400**
6.22	UNJF 5/16-24	1.058	62	16.59	36	8	4	7.00	**05160**
7.79	UNJF 3/8-24	1.058	74	19.77	40	10	4	8.60	**03800**
9.32	UNJF 7/16-20	1.270	79	22.39	45	12	5	10.00	**07160**
9.38	UNJF 1/2-20	1.270	79	25.34	45	12	5	11.50	**01200**
12.90	UNJF 5/8-18	1.411	102	33.59	48	16	5	14.50	**05800**

P	●
M	●
K	●
N	●
S	●
H	
O	●

→ v_c/f_z Page 21

→ **Chapter 7 – Circular and thread milling cutters**
When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or center path feed v_{fm}.

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength lbf/in²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0.15 % C	Annealed	60900 lbf/in² / 125 HB	1.0401	1015	1.0301	1010
		P.1.2	< 0.45 % C	Annealed	92800 lbf/in² / 190 HB	1.1191	1045	1.0737	12L14
		P.1.3		Tempered	121800 lbf/in² / 250 HB	1.1191	1045	1.0503	1043
		P.1.4	< 0.75 % C	Annealed	132000 lbf/in² / 270 HB	1.1223	1060	1.0535	1055
		P.1.5		Tempered	146500 lbf/in² / 300 HB	1.1223	1060	1.1274	1095
	Low-alloy steel	P.2.1		Annealed	88500 lbf/in² / 180 HB	1.7131	5115	1.6523	8620
		P.2.2		Tempered	134900 lbf/in² / 275 HB	1.7131	5115	1.6582	4340
		P.2.3		Tempered	146500 lbf/in² / 300 HB	1.7225	4142	1.7131	5115
		P.2.4		Tempered	174000 lbf/in² / 375 HB	1.7225	4142	17223	4140
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	98600 lbf/in² / 200 HB	1.4021	420	1.2379	D2
		P.3.2		Hardened and tempered	159500 lbf/in² / 300 HB	1.2343	H11	1.3343	M2
		P.3.3		Hardened and tempered	188500 lbf/in² / 400 HB	1.2343	H11	1.2363	A2
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	98600 lbf/in² / 200 HB	1.4016	430	1.4125	440C
		P.4.2	Martensitic	Tempered	117500 lbf/in² / 250 HB	1.4112	S44003	1.4021	420
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	88500 lbf/in² / 200 HB	1.4301	304	1.4401	316
		M.2.1	Austenitic	Tempered	300 HB	1.4841	314	1.4568	17-7 PH
		M.3.1	Austenitic / ferritic (Duplex)		113100 lbf/in² / 230 HB	1.4462	S32205	1.4410	S32750
K	Grey cast iron	K.1.1	Pearlitic / ferritic		88500 lbf/in² / 180 HB	0.6010	A48-20B	0.6025	A48-40 B
		K.1.2	Pearlitic (martensitic)		127600 lbf/in² / 260 HB	0.6030	A48-45B	0.6040	A48-60 B
	Spherulitic graphite cast iron	K.2.1	Ferritic		78300 lbf/in² / 160 HB	0.7040	60-40-18	0.7050	65-45-12
		K.2.2	Pearlitic		122600 lbf/in² / 250 HB	0.7070	100-70-03	0.7660	A439 Type D2
	Malleable iron	K.3.1	Ferritic		63800 lbf/in² / 130 HB	0.8035	GTW-35-04		
		K.3.2	Pearlitic		113100 lbf/in² / 230 HB	0.8170	70003		
N	Aluminum wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	A91060	3.0255	A91060
		N.1.2	Hardenable		49300 lbf/in² / 100 HB	3.1355	2024	3.1355	2024
	Cast aluminum alloy	N.2.1	≤ 12 % Si, non-hardenable		36300 lbf/in² / 75 HB	3.2581	A04130 / A413-0	3.2581	A04130 / A413-0
		N.2.2	≤ 12 % Si, hardenable		43500 lbf/in² / 90 HB	3.2134	G-AlSi5Cu1Mg		
		N.2.3	> 12 % Si, non-hardenable		63800 lbf/in² / 130 HB		G-AlSi17Cu4Mg		
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		54400 lbf/in² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0380	C37700
		N.3.2	CuZn, CuSnZn		43500 lbf/in² / 90 HB	2.0331	CuZn15	2.0331	C34000
		N.3.3	CuSn, lead-free copper and electrolytic copper		49300 lbf/in² / 100 HB	2.0060	E-Cu57		
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn		
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	98600 lbf/in² / 200 HB	1.4864	X12NiCrSi 36-16	1.4864	330
		S.1.2			137800 lbf/in² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4980	S66286
		S.2.1	Ni or Co basis	Annealed	121800 lbf/in² / 250 HB	2.4856	Inconel 625	2.4812	Hastelloy C
		S.2.2			171100 lbf/in² / 350 HB	2.4952	Nimonic 80A	2.4668	Inconel 718
		S.2.3		Cast	156600 lbf/in² / 320 HB	2.4674	Nimocast PK24	2.4670	Nimocast 713
	Titanium alloys	S.3.1	Pure titanium		5800 lbf/in²	3.7025	Ti99.8		
		S.3.2	Alpha + beta alloys		152300 lbf/in²	3.7165	TiAl6V4		
		S.3.3	Beta alloys		203100 lbf/in² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr		
H	Hardened steel	H.1.1		Hardened and tempered	46-55 HRC				
		H.1.2		Hardened and tempered	56-60 HRC				
		H.1.3		Hardened and tempered	61-65 HRC				
		H.1.4		Hardened and tempered	66-70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 21800 lbf/in²				
		O.1.2	Plastics, thermoplastic		≤ 14500 lbf/in²				
		O.2.1	Aramid fibre-reinforced		≤ 145000 lbf/in²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 145000 lbf/in²				
		O.3.1	Graphite						

*** Tensile Strength at Rupture (Rm)**

Cutting data standard values

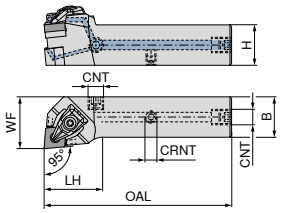
Index	50 545 ..., 50 550 ..., 50 557 ..., 50 559 ..., 50 568 ..., 50 569 ...				50 524 ..., 50 533 ...			
	ZSGF	AlTiN – Performance Solid carbide			SGF	AlTiN – Performance Solid carbide		
		Ø 1.5 – 5.9	Ø 6.0 – 11.9	Ø 12.0 – 20.0		Ø 2.4 – 5.9	Ø 6.0 – 11.9	Ø 12.0 – 20.0
	v_c (m/min)	f_z (mm/tooth)			v_c (m/min)	f_z (mm/tooth)		
P.1.1	60–120	0.04–0.11	0.13–0.17	0.18–0.20	80–150	0.015–0.04	0.04–0.08	0.08–0.15
P.1.2	60–120	0.04–0.11	0.13–0.17	0.18–0.20	80–120	0.015–0.04	0.04–0.08	0.08–0.15
P.1.3	60–120	0.04–0.11	0.13–0.17	0.18–0.20	80–120	0.015–0.04	0.04–0.08	0.08–0.15
P.1.4	60–120	0.04–0.11	0.13–0.17	0.18–0.20	80–120	0.015–0.04	0.04–0.08	0.08–0.15
P.1.5	60–120	0.04–0.11	0.13–0.17	0.18–0.20	60–100	0.01–0.04	0.04–0.06	0.04–0.10
P.2.1	60–90	0.03–0.08	0.09–0.14	0.14–0.18	80–120	0.015–0.04	0.04–0.08	0.08–0.15
P.2.2	60–90	0.03–0.08	0.09–0.14	0.14–0.18	80–100	0.015–0.04	0.04–0.08	0.08–0.15
P.2.3	60–90	0.03–0.08	0.09–0.14	0.14–0.18	80–100	0.010–0.04	0.04–0.08	0.08–0.15
P.2.4	60–90	0.03–0.08	0.09–0.14	0.14–0.18	80–100	0.010–0.04	0.04–0.08	0.08–0.15
P.3.1	50–80	0.03–0.08	0.09–0.14	0.14–0.18	70–90	0.01–0.03	0.03–0.05	0.06–0.12
P.3.2	50–80	0.03–0.08	0.09–0.14	0.14–0.18	60–80	0.006–0.02	0.02–0.04	0.04–0.06
P.3.3	50–80	0.03–0.08	0.09–0.14	0.14–0.18	50–70	0.006–0.02	0.02–0.04	0.04–0.06
P.4.1	50–80	0.03–0.08	0.09–0.14	0.14–0.18	70–90	0.006–0.02	0.02–0.04	0.04–0.06
P.4.2	50–80	0.03–0.08	0.09–0.14	0.14–0.18	60–80	0.006–0.02	0.02–0.04	0.04–0.06
M.1.1	60–90	0.02–0.06	0.06–0.11	0.12–0.13	60–100	0.01–0.04	0.04–0.08	0.08–0.10
M.2.1	60–90	0.02–0.06	0.06–0.11	0.12–0.13	60–100	0.01–0.03	0.03–0.06	0.06–0.10
M.3.1	60–90	0.02–0.06	0.06–0.11	0.12–0.13	60–100	0.01–0.03	0.03–0.06	0.06–0.10
K.1.1	40–80	0.04–0.11	0.13–0.17	0.17–0.18	80–120	0.02–0.06	0.06–0.12	0.10–0.15
K.1.2	40–80	0.04–0.11	0.13–0.17	0.17–0.18	80–120	0.02–0.05	0.05–0.10	0.10–0.12
K.2.1	40–80	0.04–0.11	0.13–0.17	0.17–0.18	80–100	0.02–0.05	0.05–0.10	0.08–0.15
K.2.2	40–80	0.04–0.11	0.13–0.17	0.17–0.18	80–100	0.02–0.05	0.05–0.10	0.08–0.12
K.3.1	40–80	0.04–0.11	0.13–0.17	0.17–0.18	80–100	0.015–0.05	0.05–0.08	0.08–0.12
K.3.2	40–80	0.04–0.11	0.13–0.17	0.17–0.18	80–100	0.015–0.03	0.03–0.08	0.08–0.12
N.1.1	100–200	0.04–0.11	0.13–0.16	0.17–0.18	100–400	0.04–0.09	0.08–0.15	0.12–0.20
N.1.2	100–200	0.04–0.11	0.13–0.16	0.17–0.18	100–400	0.04–0.09	0.08–0.15	0.12–0.20
N.2.1	100–200	0.04–0.1	0.07–0.16	0.17–0.18	100–400	0.04–0.09	0.08–0.15	0.12–0.20
N.2.2	100–200	0.04–0.1	0.07–0.16	0.17–0.18	100–400	0.04–0.09	0.08–0.15	0.12–0.20
N.2.3	60–140	0.04–0.06	0.07–0.11	0.13–0.14	100–250	0.04–0.09	0.08–0.15	0.12–0.20
N.3.1	50–200	0.05–0.16	0.14–0.19	0.19–0.20	100–400	0.04–0.09	0.08–0.15	0.12–0.20
N.3.2	50–200	0.05–0.16	0.14–0.19	0.19–0.20	100–400	0.04–0.09	0.08–0.15	0.12–0.20
N.3.3	50–200	0.05–0.16	0.14–0.19	0.19–0.20	100–400	0.04–0.09	0.08–0.15	0.12–0.20
N.4.1	50–200	0.04–0.11	0.07–0.17	0.17–0.18	100–400	0.04–0.09	0.08–0.15	0.12–0.20
S.1.1	20–40	0.03–0.05	0.06–0.07	0.08	40–100	0.01–0.04	0.04–0.07	0.07–0.12
S.1.2	20–40	0.03–0.05	0.06–0.07	0.08				
S.2.1	20–40	0.03–0.05	0.06–0.07	0.08				
S.2.2	20–40	0.03–0.05	0.06–0.07	0.08				
S.2.3	20–40	0.03–0.05	0.06–0.07	0.08				
S.3.1	20–40	0.03–0.05	0.06–0.07	0.08	40–100	0.01–0.04	0.04–0.07	0.07–0.15
S.3.2	20–40	0.03–0.05	0.06–0.07	0.08				
S.3.3	20–40	0.03–0.05	0.06–0.07	0.08				
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1	100–200	0.06–0.16	0.19–0.22	0.22–0.3	100–400	0.03–0.08	0.08–0.15	0.15–0.20
O.1.2	100–200	0.06–0.16	0.19–0.22	0.22–0.3	100–400	0.03–0.08	0.08–0.15	0.15–0.20
O.2.1	100–200	0.06–0.16	0.19–0.22	0.22–0.3	50–80	0.03–0.08	0.08–0.15	0.15–0.20
O.2.2	100–200	0.06–0.16	0.19–0.22	0.22–0.3	50–80	0.03–0.08	0.08–0.15	0.15–0.20
O.3.1	60–140	0.05–0.15	0.14–0.20	0.20–0.25				

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approximately **±20%** according to the usage conditions.

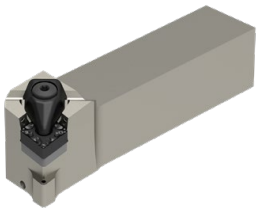
MaxiLock-D – DCLN 95° DC – tool holder with top clamping

Scope of supply:

Tool holder with Torx key



Illustrations show right-hand versions



										NEW	NEW
										Left	Right
										70 510 ...	**70 510 ...**
Designation	H	B	OAL	LH	WF	CRNT	CNT	Tightening torque	Indexable insert		
	mm	mm	mm	mm	mm			Nm			
DCLN R/L 2020 X09 DC	20	20	94	25	25	M6	G1/8"	2	CN.. 0903	**52000**	**52001**
DCLN R/L 2020 X12 DC	20	20	101	32	25	M6	G1/8"	4	CN.. 1204	**62000**	**62001**
DCLN R/L 2525 X12 DC	25	25	116	32	32	M6	G1/8"	4	CN.. 1204	**62500**	**62501**
DCLN R/L 3225 X12 DC	32	25	132	32	32	M6	G1/8"	4	CN.. 1204	**63200**	**63201**
DCLN R/L 2525 X16 DC	25	25	122	38	32	M6	G1/8"	6.5	CN.. 1606	**72500**	**72501**
DCLN R/L 3232 X16 DC	32	32	142	42	40	M6	G1/8"	6.5	CN.. 1606	**73200**	**73201**
DCLN R/L 3232 X19 DC	32	32	142	42	40	M6	G1/8"	6.5	CN.. 1906	**83200**	**83201**
DCLN R/L 4040 X19 DC	40	40	167	42	50	M6	G1/8"	6.5	CN.. 1906	**94000**	**94001**

Clamping screw

Carbide seat C

Set Screw

			70 950 ...		**70 950 ...**		**70 950 ...**
Spare parts for article number							
70 510 52000 / 70 510 52001	M3x7 - IP	**819**		**848**	M6x6		**86700**
70 510 62000 / 70 510 62001	M4,5x12 - IP	**820**		**810**	M6x6		**86700**
70 510 62500 / 70 510 62501	M4,5x12 - IP	**820**		**810**	M6x6		**86700**
70 510 63200 / 70 510 63201	M4,5x12 - IP	**820**		**810**	M6x6		**86700**
70 510 72500 / 70 510 72501	M5x14 - IP	**821**		**814**	M6x6		**86700**
70 510 73200 / 70 510 73201	M5x14 - IP	**821**		**814**	M6x6		**86700**
70 510 83200 / 70 510 83201	M5x14 - IP	**821**		**816**	M6x6		**86700**
70 510 94000 / 70 510 94001	M5x14 - IP	**821**		**816**	M6x6		**86700**

XPress range

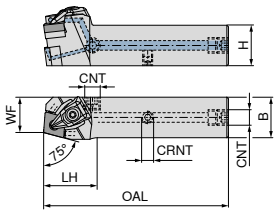
Screwdriver

Coolant screw plug

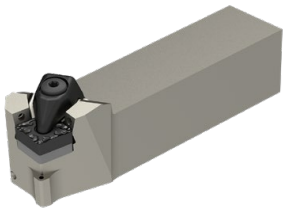
	70 950 ...		**80 950 ...**			**70 950 ...**	
Spare parts for article number							
70 510 52000 / 70 510 52001	**823**	T09 - IP	**126**	G 1/8"		**294**	
70 510 62000 / 70 510 62001	**824**	T15 - IP	**128**	G 1/8"		**294**	
70 510 62500 / 70 510 62501	**824**	T15 - IP	**128**	G 1/8"		**294**	
70 510 63200 / 70 510 63201	**824**	T15 - IP	**128**	G 1/8"		**294**	
70 510 72500 / 70 510 72501	**825**	T20 - IP	**129**	G 1/8"		**294**	
70 510 73200 / 70 510 73201	**825**	T20 - IP	**129**	G 1/8"		**294**	
70 510 83200 / 70 510 83201	**826**	T20 - IP	**129**	G 1/8"		**294**	
70 510 94000 / 70 510 94001	**826**	T20 - IP	**129**	G 1/8"		**294**	

MaxiLock-D – DCBN 75° DC – tool holder with top clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions



Designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	Tightening torque Nm	Indexable insert	NEW Left 70 507 ...	NEW Right 70 507 ...
DCBN R/L 2525 X12 DC	25	25	114	30	22	M6	G1/8"	4	CN.. 1204	**82500**	**82501**
DCBN R/L 2525 X16 DC	25	25	120	36	22	M6	G1/8"	6.5	CN.. 1606	**62500**	**62501**

Clamping screw

Carbide seat C

Set Screw

Spare parts for article number	70 950 ...		70 950 ...		70 950 ...	
70 507 82500 / 70 507 82501	M4.5x12 - IP	**820**		**810**	M6x6	**86700**
70 507 62500 / 70 507 62501	M5x14 - IP	**821**		**814**	M6x6	**86700**

XPress range

Screwdriver

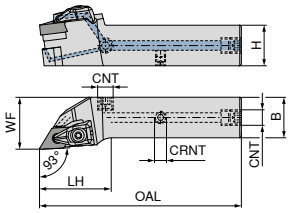
Coolant screw plug

Spare parts for article number	70 950 ...		80 950 ...		70 950 ...	
70 507 82500 / 70 507 82501		**824**	T15 - IP	**128**	G 1/8"	**294**
70 507 62500 / 70 507 62501		**825**	T20 - IP	**129**	G 1/8"	**294**

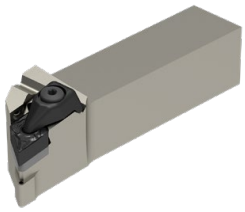
MaxiLock-D – DDJN 93° DC – tool holder with top clamping

Scope of supply:

Tool holder with Torx key



Illustrations show right-hand versions



Designation	H	B	OAL	LH	WF	CRNT	CNT	Tightening torque	Indexable insert	NEW Left	NEW Right
	mm	mm	mm	mm	mm			Nm		70 546 ...	70 546 ...
DDJN R/L 2020 X11 DC	20	20	99	30	25	M6	G1/8"	2	DN.. 1104	**82000**	**82001**
DDJN R/L 2525 X11 DC	25	25	114	30	32	M6	G1/8"	2	DN.. 1104	**82500**	**82501**
DDJN R/L 2020 X15 DC	20	20	109	40	25	M6	G1/8"	4	DN.. 1504 / 1506	**72000**	**72001**
DDJN R/L 2525 X15 DC	25	25	124	40	32	M6	G1/8"	4	DN.. 1504 / 1506	**72500**	**72501**
DDJN R/L 3225 X15 DC	32	25	140	40	32	M6	G1/8"	4	DN.. 1504 / 1506	**73200**	**73201**

When working with DN.. 1504 indexable inserts, use insert seat with article no.**70 950 40000**.

Clamping screw

Carbide seat D

Set Screw

Spare parts for article number		70 950 ...		70 950 ...		70 950 ...
70 546 82000 / 70 546 82001	M3x7 - IP	**819**		**808**	M6x6	**86700**
70 546 82500 / 70 546 82501	M3x7 - IP	**819**		**808**	M6x6	**86700**
70 546 72000 / 70 546 72001	M4.5x12 - IP	**820**		**811**	M6x6	**86700**
70 546 72500 / 70 546 72501	M4.5x12 - IP	**820**		**811**	M6x6	**86700**
70 546 73200 / 70 546 73201	M4.5x12 - IP	**820**		**811**	M6x6	**86700**

XPress range

Screwdriver

Coolant screw plug

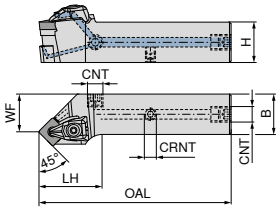
Spare parts for article number		70 950 ...		80 950 ...		70 950 ...
70 546 82000 / 70 546 82001	**835**	T09 - IP	**126**	G 1/8"	**294**	
70 546 82500 / 70 546 82501	**835**	T09 - IP	**126**	G 1/8"	**294**	
70 546 72000 / 70 546 72001	**824**	T15 - IP	**128**	G 1/8"	**294**	
70 546 72500 / 70 546 72501	**824**	T15 - IP	**128**	G 1/8"	**294**	
70 546 73200 / 70 546 73201	**824**	T15 - IP	**128**	G 1/8"	**294**	

MaxiLock-D – DSSN 45° DC – tool holder with top clamping

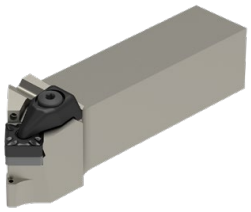
Scope of supply:

Tool holder with Torx key

Direct Cooling



Illustrations show right-hand versions



										NEW		NEW	
										Left		Right	
										70 517 ...		**70 517 ...**	
Designation	H	B	OAL	LH	WF	CRNT	CNT	Tightening torque	Indexable insert				
	mm	mm	mm	mm	mm			Nm					
DSSN R/L 2020 X12 DC	20	20	104	35	16.7	M6	G1/8"	4	SN.. 1204		**62000**		**62001**
DSSN R/L 2525 X12 DC	25	25	119	35	24.2	M6	G1/8"	4	SN.. 1204		**62500**		**62501**
DSSN R/L 3225 X12 DC	32	25	135	35	24.2	M6	G1/8"	4	SN.. 1204		**63200**		**63201**

Clamping screw

Carbide seat S

Set Screw

		70 950 ...		**70 950 ...**		**70 950 ...**
Spare parts for article number						
70 517 62000 / 70 517 62001	M4,5x12 - IP	**820**	**813**	M6x6		**86700**
70 517 62500 / 70 517 62501	M4,5x12 - IP	**820**	**813**	M6x6		**86700**
70 517 63200 / 70 517 63201	M4,5x12 - IP	**820**	**813**	M6x6		**86700**

XPress range

Screwdriver

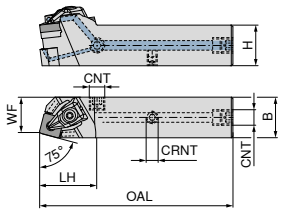
Coolant screw plug

		70 950 ...		**80 950 ...**		**70 950 ...**
Spare parts for article number						
70 517 62000 / 70 517 62001		**824**	T15 - IP	**128**	G 1/8"	**294**
70 517 62500 / 70 517 62501		**824**	T15 - IP	**128**	G 1/8"	**294**
70 517 63200 / 70 517 63201		**824**	T15 - IP	**128**	G 1/8"	**294**

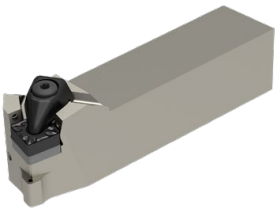
MaxiLock-D – DSBN 75° DC – tool holder with top clamping

Scope of supply:

Tool holder with Torx key



Illustrations show right-hand versions



NEW

Right

70 522 ...

Designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	Tightening torque Nm	Indexable insert	
DSBN R 2020 X12 DC	20	20	104	35	17.2	M6	G1/8"	4	SN.. 1204	**62001**
DSBN R 2525 X12 DC	25	25	119	35	22.2	M6	G1/8"	4	SN.. 1204	**62501**
DSBN R 2525 X15 DC	25	25	127	33	22.3	M6	G1/8"	6.5	SN.. 1506	**72501**
DSBN R 3232 X15 DC	32	32	142	42	26.1	M6	G1/8"	6.5	SN.. 1506	**73201**
DSBN R 3232 X19 DC	32	32	148	48	27.3	M6	G1/8"	6.5	SN.. 1906	**83201**
DSBN R 4040 X19 DC	40	40	173	48	35.3	M6	G1/8"	6.5	SN.. 1906	**84001**

Clamping screw

Carbide seat S

Set Screw

Spare parts for article number						
	70 950 ...		**70 950 ...**		**70 950 ...**	
70 522 62001	M4,5x12 - IP	**820**		**813**	M6x6	**86700**
70 522 62501	M4,5x12 - IP	**820**		**813**	M6x6	**86700**
70 522 72501	M5x14 - IP	**821**		**833**	M6x6	**86700**
70 522 73201	M5x14 - IP	**821**		**833**	M6x6	**86700**
70 522 83201	M5x14 - IP	**821**		**817**	M6x6	**86700**
70 522 84001	M5x14 - IP	**821**		**817**	M6x6	**86700**

XPress range

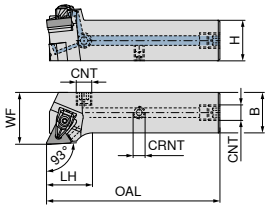
Screwdriver

Coolant screw plug

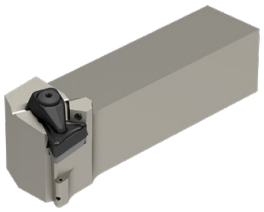
Spare parts for article number						
	70 950 ...		**80 950 ...**		**70 950 ...**	
70 522 62001	**824**	T15 - IP	**128**	G 1/8"	**294**
70 522 62501	**824**	T15 - IP	**128**	G 1/8"	**294**
70 522 72501	**825**	T20 - IP	**129**	G 1/8"	**294**
70 522 73201	**825**	T20 - IP	**129**	G 1/8"	**294**
70 522 83201	**826**	T20 - IP	**129**	G 1/8"	**294**
70 522 84001	**826**	T20 - IP	**129**	G 1/8"	**294**

MaxiLock-D – DTJN 93° DC – tool holder with top clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions



										NEW		NEW
										Left		Right
										70 601 ...		**70 601 ...**
Designation	H	B	OAL	LH	WF	CRNT	CNT	Tightening torque	Indexable insert			
	mm	mm	mm	mm	mm			Nm				
DTJN R/L 2020 X16 DC	20	20	92	23	25	M6	G1/8"	2	TNM. 1604	**82000**		**82001**
DTJN R/L 2525 X16 DC	25	25	107	23	32	M6	G1/8"	2	TNM. 1604	**82500**		**82501**

Clamping screw

Carbide seat T

Set Screw

		70 950 ...		**70 950 ...**		**70 950 ...**
Spare parts for article number						
70 601 82000 / 70 601 82001	M3x7 - IP	**819**		**847**	M6x6	**86700**
70 601 82500 / 70 601 82501	M3x7 - IP	**819**		**847**	M6x6	**86700**

XPress range

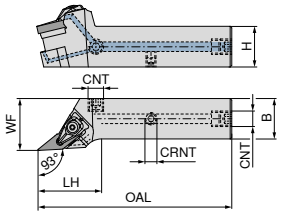
Screwdriver

Coolant screw plug

		70 950 ...		**80 950 ...**		**70 950 ...**
Spare parts for article number						
70 601 82000 / 70 601 82001		**823**	T09 - IP	**126**	G 1/8"	**294**
70 601 82500 / 70 601 82501		**823**	T09 - IP	**126**	G 1/8"	**294**

MaxiLock-D – DVJN 93° DC – tool holder with top clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions

										NEW		NEW
										Left		Right
										70 511 ...		**70 511 ...**
Designation	H	B	OAL	LH	WF	CRNT	CNT	Tightening torque	Indexable insert			
	mm	mm	mm	mm	mm			Nm				
DVJN R/L 2020 X16 DC	20	20	104	35	25	M6	G1/8"	2	VN.. 1604	**62000**		**62001**
DVJN R/L 2525 X16 DC	25	25	119	35	32	M6	G1/8"	2	VN.. 1604	**62500**		**62501**

Clamping screw

Carbide seat V

Set Screw

		70 950 ...		**70 950 ...**		**70 950 ...**
Spare parts for article number						
70 511 62000 / 70 511 62001	M3x7 - IP	**819**		**806**	M6x6	**86700**
70 511 62500 / 70 511 62501	M3x7 - IP	**819**		**806**	M6x6	**86700**

XPress range

Screwdriver

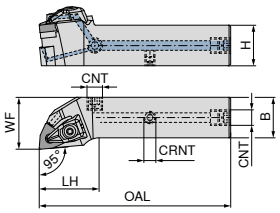
Coolant screw plug

		70 950 ...		**80 950 ...**		**70 950 ...**
Spare parts for article number						
70 511 62000 / 70 511 62001		**835**	T09 - IP	**126**	G 1/8"	**294**
70 511 62500 / 70 511 62501		**835**	T09 - IP	**126**	G 1/8"	**294**

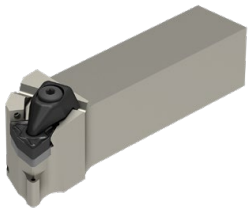
MaxiLock-D – DWLN 95° DC – tool holder with top clamping

Scope of supply:

Tool holder with Torx key



Illustrations show right-hand versions



										NEW		NEW
										Left		Right
										70 547 ...		**70 547 ...**
Designation	H	B	OAL	LH	WF	CRNT	CNT	Tightening torque	Indexable insert			
	mm	mm	mm	mm	mm			Nm				
DWLN R/L 2020 X06 DC	20	20	94	25	25	M6	G1/8"	2	WN.. 0604	**62000**		**62001**
DWLN R/L 2525 X06 DC	25	25	109	25	32	M6	G1/8"	2	WN.. 0604	**62500**		**62501**
DWLN R/L 2020 X08 DC	20	20	100	31	25	M6	G1/8"	4	WN.. 0804	**72000**		**72001**
DWLN R/L 2525 X08 DC	25	25	118	34	32	M6	G1/8"	4	WN.. 0804	**72500**		**72501**

Clamping screw

Carbide seat W

Set Screw

Spare parts for article number						
		70 950 ...		**70 950 ...**		**70 950 ...**
70 547 62000 / 70 547 62001	M3x7 - IP	**819**	**807**	M6x6	**86700**	
70 547 62500 / 70 547 62501	M3x7 - IP	**819**	**807**	M6x6	**86700**	
70 547 72000 / 70 547 72001	M4.5x12 - IP	**820**	**812**	M6x6	**86700**	
70 547 72500 / 70 547 72501	M4.5x12 - IP	**820**	**812**	M6x6	**86700**	

XPress range

Screwdriver

Coolant screw plug

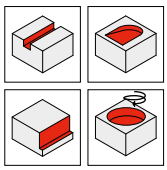
Spare parts for article number						
		70 950 ...		**80 950 ...**		**70 950 ...**
70 547 62000 / 70 547 62001	**823**	T09 - IP	**126**	G 1/8"	**294**	
70 547 62500 / 70 547 62501	**823**	T09 - IP	**126**	G 1/8"	**294**	
70 547 72000 / 70 547 72001	**824**	T15 - IP	**128**	G 1/8"	**294**	
70 547 72500 / 70 547 72501	**824**	T15 - IP	**128**	G 1/8"	**294**	

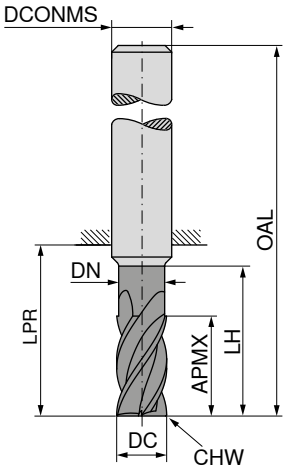
End mill

N

λ_s = 35°
γ_s = 38°
γ_s = 9°

HPC





NEW

Ti1000

≈DIN 6527

54 071 ...

DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
6	13	5.8	21	21	57	6	0.1	4	**06300**
8	21	7.7	27	27	63	8	0.2	4	**08300**
10	22	9.7	32	32	72	10	0.2	4	**10300**
12	26	11.6	38	38	83	12	0.3	4	**12300**
14	26	11.6	38	38	83	14	0.3	4	**14300**
16	36	15.5	44	44	92	16	0.3	4	**16300**
18	36	17.5	44	44	92	18	0.3	4	**18300**
20	41	19.5	54	54	104	20	0.3	4	**20300**

P	●
M	●
K	●
N	○
S	○
H	
O	

→ v_c/f_z Page 32+33

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength lbf/in²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0.15 % C	Annealed	60900 lbf/in² / 125 HB	1.0401	1015	1.0301	1010
		P.1.2	< 0.45 % C	Annealed	92800 lbf/in² / 190 HB	1.1191	1045	1.0737	12L14
		P.1.3		Tempered	121800 lbf/in² / 250 HB	1.1191	1045	1.0503	1043
		P.1.4	< 0.75 % C	Annealed	132000 lbf/in² / 270 HB	1.1223	1060	1.0535	1055
		P.1.5		Tempered	146500 lbf/in² / 300 HB	1.1223	1060	1.1274	1095
	Low-alloy steel	P.2.1		Annealed	88500 lbf/in² / 180 HB	1.7131	5115	1.6523	8620
		P.2.2		Tempered	134900 lbf/in² / 275 HB	1.7131	5115	1.6582	4340
		P.2.3		Tempered	146500 lbf/in² / 300 HB	1.7225	4142	1.7131	5115
		P.2.4		Tempered	174000 lbf/in² / 375 HB	1.7225	4142	17223	4140
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	98600 lbf/in² / 200 HB	1.4021	420	1.2379	D2
		P.3.2		Hardened and tempered	159500 lbf/in² / 300 HB	1.2343	H11	1.3343	M2
		P.3.3		Hardened and tempered	188500 lbf/in² / 400 HB	1.2343	H11	1.2363	A2
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	98600 lbf/in² / 200 HB	1.4016	430	1.4125	440C
		P.4.2	Martensitic	Tempered	117500 lbf/in² / 250 HB	1.4112	S44003	1.4021	420
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	88500 lbf/in² / 200 HB	1.4301	304	1.4401	316
		M.2.1	Austenitic	Tempered	300 HB	1.4841	314	1.4568	17-7 PH
		M.3.1	Austenitic / ferritic (Duplex)		113100 lbf/in² / 230 HB	1.4462	S32205	1.4410	S32750
K	Grey cast iron	K.1.1	Pearlitic / ferritic		88500 lbf/in² / 180 HB	0.6010	A48-20B	0.6025	A48-40 B
		K.1.2	Pearlitic (martensitic)		127600 lbf/in² / 260 HB	0.6030	A48-45B	0.6040	A48-60 B
	Spherulitic graphite cast iron	K.2.1	Ferritic		78300 lbf/in² / 160 HB	0.7040	60-40-18	0.7050	65-45-12
		K.2.2	Pearlitic		122600 lbf/in² / 250 HB	0.7070	100-70-03	0.7660	A439 Type D2
	Malleable iron	K.3.1	Ferritic		63800 lbf/in² / 130 HB	0.8035	GTW-35-04		
		K.3.2	Pearlitic		113100 lbf/in² / 230 HB	0.8170	70003		
N	Aluminum wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	A91060	3.0255	A91060
		N.1.2	Hardenable		49300 lbf/in² / 100 HB	3.1355	2024	3.1355	2024
	Cast aluminum alloy	N.2.1	≤ 12 % Si, non-hardenable		36300 lbf/in² / 75 HB	3.2581	A04130 / A413-0	3.2581	A04130 / A413-0
		N.2.2	≤ 12 % Si, hardenable		43500 lbf/in² / 90 HB	3.2134	G-AlSi5Cu1Mg		
		N.2.3	> 12 % Si, non-hardenable		63800 lbf/in² / 130 HB		G-AlSi17Cu4Mg		
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		54400 lbf/in² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0380	C37700
		N.3.2	CuZn, CuSnZn		43500 lbf/in² / 90 HB	2.0331	CuZn15	2.0331	C34000
		N.3.3	CuSn, lead-free copper and electrolytic copper		49300 lbf/in² / 100 HB	2.0060	E-Cu57		
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn		
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	98600 lbf/in² / 200 HB	1.4864	X12NiCrSi 36-16	1.4864	330
		S.1.2			137800 lbf/in² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4980	S66286
		S.2.1	Ni or Co basis	Annealed	121800 lbf/in² / 250 HB	2.4856	Inconel 625	2.4812	Hastelloy C
		S.2.2			171100 lbf/in² / 350 HB	2.4952	Nimonic 80A	2.4668	Inconel 718
		S.2.3		Cast	156600 lbf/in² / 320 HB	2.4674	Nimocast PK24	2.4670	Nimocast 713
	Titanium alloys	S.3.1	Pure titanium		5800 lbf/in²	3.7025	Ti99.8		
		S.3.2	Alpha + beta alloys		152300 lbf/in²	3.7165	TiAl6V4		
		S.3.3	Beta alloys		203100 lbf/in² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr		
H	Hardened steel	H.1.1		Hardened and tempered	46-55 HRC				
		H.1.2		Hardened and tempered	56-60 HRC				
		H.1.3		Hardened and tempered	61-65 HRC				
		H.1.4		Hardened and tempered	66-70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 21800 lbf/in²				
		O.1.2	Plastics, thermoplastic		≤ 14500 lbf/in²				
		O.2.1	Aramid fibre-reinforced		≤ 145000 lbf/in²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 145000 lbf/in²				
		O.3.1	Graphite						

*** Tensile Strength at Rupture (Rm)**

Cutting data standard values for end mills

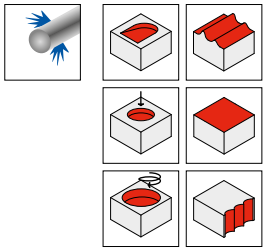
Index	Short/long version		54 071 ...															
			Ø DC (mm) =															
			3			4			5			6			8			
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0.1–0.2 x DC	a_e 0.3–0.4 x DC	a_e 0.6–1.0 x DC	a_e 0.1–0.2 x DC	a_e 0.3–0.4 x DC	a_e 0.6–1.0 x DC	a_e 0.1–0.2 x DC	a_e 0.3–0.4 x DC	a_e 0.6–1.0 x DC	a_e 0.1–0.2 x DC	a_e 0.3–0.4 x DC	a_e 0.6–1.0 x DC	a_e 0.1–0.2 x DC	a_e 0.3–0.4 x DC	a_e 0.6–1.0 x DC
			f_z (mm)															
P.1.1	210	1.0	0.028	0.022	0.014	0.038	0.030	0.019	0.049	0.039	0.025	0.060	0.048	0.030	0.080	0.064	0.040	
P.1.2	200	1.0	0.028	0.022	0.014	0.038	0.030	0.019	0.049	0.039	0.025	0.060	0.048	0.030	0.080	0.064	0.040	
P.1.3	200	1.0	0.028	0.022	0.014	0.038	0.030	0.019	0.049	0.039	0.025	0.060	0.048	0.030	0.080	0.064	0.040	
P.1.4	190	1.0	0.028	0.022	0.014	0.038	0.030	0.019	0.049	0.039	0.025	0.060	0.048	0.030	0.080	0.064	0.040	
P.1.5	190	1.0	0.028	0.022	0.014	0.038	0.030	0.019	0.049	0.039	0.025	0.060	0.048	0.030	0.080	0.064	0.040	
P.2.1	200	1.0	0.028	0.022	0.014	0.038	0.030	0.019	0.049	0.039	0.025	0.060	0.048	0.030	0.080	0.064	0.040	
P.2.2	190	1.0	0.022	0.018	0.011	0.030	0.024	0.015	0.038	0.030	0.019	0.046	0.037	0.023	0.062	0.050	0.031	
P.2.3	180	1.0	0.028	0.022	0.014	0.038	0.030	0.019	0.049	0.039	0.025	0.060	0.048	0.030	0.080	0.064	0.040	
P.2.4	170	1.0	0.022	0.018	0.011	0.030	0.024	0.015	0.038	0.030	0.019	0.046	0.037	0.023	0.062	0.050	0.031	
P.3.1	180	1.0	0.028	0.022	0.014	0.038	0.030	0.019	0.049	0.039	0.025	0.060	0.048	0.030	0.080	0.064	0.040	
P.3.2	170	1.0	0.028	0.022	0.014	0.038	0.030	0.019	0.049	0.039	0.025	0.060	0.048	0.030	0.080	0.064	0.040	
P.3.3	140	1.0	0.028	0.022	0.014	0.038	0.030	0.019	0.049	0.039	0.025	0.060	0.048	0.030	0.080	0.064	0.040	
P.4.1	100	1.0	0.017	0.014	0.009	0.024	0.019	0.012	0.031	0.025	0.016	0.038	0.030	0.019	0.052	0.042	0.026	
P.4.2	80	1.0	0.017	0.014	0.009	0.024	0.019	0.012	0.031	0.025	0.016	0.038	0.030	0.019	0.052	0.042	0.026	
M.1.1	100	1.0	0.017	0.014	0.009	0.024	0.019	0.012	0.031	0.025	0.016	0.038	0.030	0.019	0.052	0.042	0.026	
M.2.1	100	1.0	0.017	0.014	0.009	0.024	0.019	0.012	0.031	0.025	0.016	0.038	0.030	0.019	0.052	0.042	0.026	
M.3.1	100	1.0	0.017	0.014	0.009	0.024	0.019	0.012	0.031	0.025	0.016	0.038	0.030	0.019	0.052	0.042	0.026	
K.1.1	200	1.0	0.037	0.030	0.019	0.048	0.038	0.024	0.060	0.048	0.030	0.070	0.056	0.035	0.094	0.075	0.047	
K.1.2	180	1.0	0.037	0.030	0.019	0.048	0.038	0.024	0.060	0.048	0.030	0.070	0.056	0.035	0.094	0.075	0.047	
K.2.1	190	1.0	0.028	0.022	0.014	0.038	0.030	0.019	0.049	0.039	0.025	0.060	0.048	0.030	0.080	0.064	0.040	
K.2.2	170	1.0	0.028	0.022	0.014	0.038	0.030	0.019	0.049	0.039	0.025	0.060	0.048	0.030	0.080	0.064	0.040	
K.3.1	180	1.0	0.028	0.022	0.014	0.038	0.030	0.019	0.049	0.039	0.025	0.060	0.048	0.030	0.080	0.064	0.040	
K.3.2	160	1.0	0.028	0.022	0.014	0.038	0.030	0.019	0.049	0.039	0.025	0.060	0.048	0.030	0.080	0.064	0.040	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	350	1.0	0.037	0.030	0.019	0.048	0.038	0.024	0.060	0.048	0.030	0.070	0.056	0.035	0.094	0.075	0.047	
N.3.2	350	1.0	0.037	0.030	0.019	0.048	0.038	0.024	0.060	0.048	0.030	0.070	0.056	0.035	0.094	0.075	0.047	
N.3.3	280	1.0	0.037	0.030	0.019	0.048	0.038	0.024	0.060	0.048	0.030	0.070	0.056	0.035	0.094	0.075	0.047	
N.4.1																		
S.1.1	30	1.0	0.015	0.012	0.008	0.020	0.016	0.010	0.025	0.020	0.013	0.030	0.024	0.015	0.040	0.032	0.020	
S.1.2	30	1.0	0.015	0.012	0.008	0.020	0.016	0.010	0.025	0.020	0.013	0.030	0.024	0.015	0.040	0.032	0.020	
S.2.1	30	1.0	0.015	0.012	0.008	0.020	0.016	0.010	0.025	0.020	0.013	0.030	0.024	0.015	0.040	0.032	0.020	
S.2.2	30	1.0	0.015	0.012	0.008	0.020	0.016	0.010	0.025	0.020	0.013	0.030	0.024	0.015	0.040	0.032	0.020	
S.2.3	30	1.0	0.015	0.012	0.008	0.020	0.016	0.010	0.025	0.020	0.013	0.030	0.024	0.015	0.040	0.032	0.020	
S.3.1	90	1.0	0.028	0.022	0.014	0.038	0.030	0.019	0.049	0.039	0.025	0.060	0.048	0.030	0.080	0.064	0.040	
S.3.2	50	1.0	0.017	0.014	0.009	0.024	0.019	0.012	0.031	0.025	0.016	0.038	0.030	0.019	0.052	0.042	0.026	
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

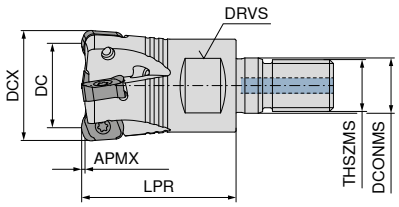
Plunging angle for ramping and helical milling = 3°

Index	54 071 ...												● 1st choice ○ Suitable		
	Ø DC (mm) =														
	10			12			16			20					
	a_e 0.1–0.2 x DC	a_e 0.3–0.4 x DC	a_e 0.6–1.0 x DC	a_e 0.1–0.2 x DC	a_e 0.3–0.4 x DC	a_e 0.6–1.0 x DC	a_e 0.1–0.2 x DC	a_e 0.3–0.4 x DC	a_e 0.6–1.0 x DC	a_e 0.1–0.2 x DC	a_e 0.3–0.4 x DC	a_e 0.6–1.0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)														
P.1.1	0.100	0.080	0.050	0.120	0.096	0.060	0.150	0.120	0.075	0.170	0.136	0.085	●	○	○
P.1.2	0.100	0.080	0.050	0.120	0.096	0.060	0.150	0.120	0.075	0.170	0.136	0.085	●	○	○
P.1.3	0.100	0.080	0.050	0.120	0.096	0.060	0.150	0.120	0.075	0.170	0.136	0.085	●	○	○
P.1.4	0.100	0.080	0.050	0.120	0.096	0.060	0.150	0.120	0.075	0.170	0.136	0.085	●	○	○
P.1.5	0.100	0.080	0.050	0.120	0.096	0.060	0.150	0.120	0.075	0.170	0.136	0.085	●	○	○
P.2.1	0.100	0.080	0.050	0.120	0.096	0.060	0.150	0.120	0.075	0.170	0.136	0.085	●	○	○
P.2.2	0.078	0.062	0.039	0.094	0.075	0.047	0.118	0.094	0.059	0.134	0.107	0.067	●	○	○
P.2.3	0.100	0.080	0.050	0.120	0.096	0.060	0.150	0.120	0.075	0.170	0.136	0.085	●	○	○
P.2.4	0.078	0.062	0.039	0.094	0.075	0.047	0.118	0.094	0.059	0.134	0.107	0.067	●	○	○
P.3.1	0.100	0.080	0.050	0.120	0.096	0.060	0.150	0.120	0.075	0.170	0.136	0.085	●	○	○
P.3.2	0.100	0.080	0.050	0.120	0.096	0.060	0.150	0.120	0.075	0.170	0.136	0.085	●	○	○
P.3.3	0.100	0.080	0.050	0.120	0.096	0.060	0.150	0.120	0.075	0.170	0.136	0.085	●	○	○
P.4.1	0.066	0.053	0.033	0.080	0.064	0.040	0.101	0.081	0.051	0.115	0.092	0.058	●		
P.4.2	0.066	0.053	0.033	0.080	0.064	0.040	0.101	0.081	0.051	0.115	0.092	0.058	●		
M.1.1	0.066	0.053	0.033	0.080	0.064	0.040	0.101	0.081	0.051	0.115	0.092	0.058	●		
M.2.1	0.066	0.053	0.033	0.080	0.064	0.040	0.101	0.081	0.051	0.115	0.092	0.058	●		
M.3.1	0.066	0.053	0.033	0.080	0.064	0.040	0.101	0.081	0.051	0.115	0.092	0.058	●		
K.1.1	0.116	0.093	0.058	0.140	0.112	0.070	0.173	0.138	0.087	0.196	0.157	0.098	●	○	○
K.1.2	0.116	0.093	0.058	0.140	0.112	0.070	0.173	0.138	0.087	0.196	0.157	0.098	●	○	○
K.2.1	0.100	0.080	0.050	0.120	0.096	0.060	0.150	0.120	0.075	0.170	0.136	0.085	●	○	○
K.2.2	0.100	0.080	0.050	0.120	0.096	0.060	0.150	0.120	0.075	0.170	0.136	0.085	●	○	○
K.3.1	0.100	0.080	0.050	0.120	0.096	0.060	0.150	0.120	0.075	0.170	0.136	0.085	●	○	○
K.3.2	0.100	0.080	0.050	0.120	0.096	0.060	0.150	0.120	0.075	0.170	0.136	0.085	●	○	○
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
N.3.1	0.116	0.093	0.058	0.140	0.112	0.070	0.173	0.138	0.087	0.196	0.157	0.098	●		
N.3.2	0.116	0.093	0.058	0.140	0.112	0.070	0.173	0.138	0.087	0.196	0.157	0.098	●		
N.3.3	0.116	0.093	0.058	0.140	0.112	0.070	0.173	0.138	0.087	0.196	0.157	0.098	●		
N.4.1															
S.1.1	0.050	0.040	0.025	0.060	0.048	0.030	0.075	0.060	0.038	0.084	0.067	0.042	●		
S.1.2	0.050	0.040	0.025	0.060	0.048	0.030	0.075	0.060	0.038	0.084	0.067	0.042	●		
S.2.1	0.050	0.040	0.025	0.060	0.048	0.030	0.075	0.060	0.038	0.084	0.067	0.042	●		
S.2.2	0.050	0.040	0.025	0.060	0.048	0.030	0.075	0.060	0.038	0.084	0.067	0.042	●		
S.2.3	0.050	0.040	0.025	0.060	0.048	0.030	0.075	0.060	0.038	0.084	0.067	0.042	●		
S.3.1	0.100	0.080	0.050	0.120	0.096	0.060	0.150	0.120	0.075	0.170	0.136	0.085	●		
S.3.2	0.066	0.053	0.033	0.080	0.064	0.040	0.101	0.081	0.051	0.115	0.092	0.058	●		
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

MaxiMill – HFCD high-feed screw-in cutter

▲ Programmed radius r3D = 2.0 mm





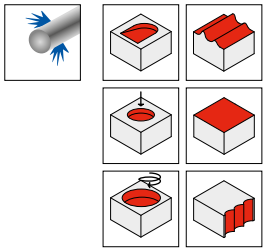
NEW

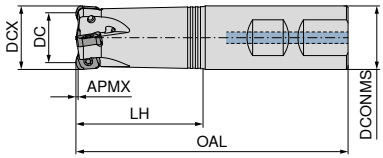
50 357 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	Tightening torque Nm	Indexable insert	
GHFCD.16.R.02-06	10	16	2	0.8	27	8.5	M8	10	23500	1,2	XNEU 06T3..	**01602**
GHFCD.20.R.03-06	14	20	3	0.8	33	10.5	M10	15	20200	1,2	XNEU 06T3..	**02003**
GHFCD.25.R.04-06	19	25	4	0.8	35	12.5	M12	17	18100	1,2	XNEU 06T3..	**02504**
GHFCD.32.R.05-06	26	32	5	0.8	35	17.0	M16	24	17300	1,2	XNEU 06T3..	**03205**
GHFCD.35.R.06-06	29	35	6	0.8	35	17.0	M16	24	16100	1,2	XNEU 06T3..	**03506**
GHFCD.42.R.06-06	36	42	6	0.8	35	17.0	M16	24	14100	1,2	XNEU 06T3..	**04206**

MaxiMill – HFCD high-feed end mill

▲ Programmed radius r3D = 2.0 mm





NEW

50 356 ...

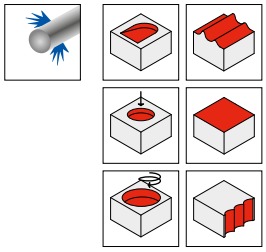
NEW

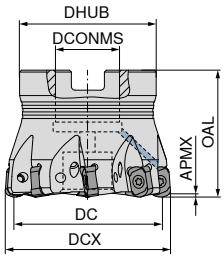
50 356 ...

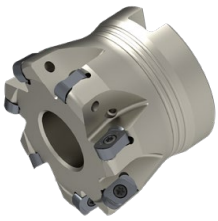
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS $_{h6}$ mm	RPMX 1/min.	Tightening torque Nm	Indexable insert			
CHFCD.16.R.02-06-B-40	10	16	2	0.8	89	40	16	21700	1,2	XNEU 06T3..			**11602**
CHFCD.16.R.02-06-A-40	10	16	2	0.8	89	40	16	21700	1,2	XNEU 06T3..	**01602**		
CHFCD.16.R.02-06-A-40-200	10	16	2	0.8	200	40	16	12300	1,2	XNEU 06T3..	**21602**		
CHFCD.20.R.03-06-B-50	14	20	3	0.8	101	50	20	17000	1,2	XNEU 06T3..			**12003**
CHFCD.20.R.03-06-A-50	14	20	3	0.8	101	50	20	17000	1,2	XNEU 06T3..	**02003**		
CHFCD.20.R.03-06-A-50-225	14	20	3	0.8	225	50	20	8700	1,2	XNEU 06T3..	**22003**		
CHFCD.25.R.04-06-B-50	19	25	4	0.8	107	50	25	15400	1,2	XNEU 06T3..			**12504**
CHFCD.25.R.04-06-A-50	19	25	4	0.8	107	50	25	15400	1,2	XNEU 06T3..	**02504**		
CHFCD.25.R.04-06-A-50-225	19	25	4	0.8	225	50	25	7100	1,2	XNEU 06T3..	**22504**		
CHFCD.32.R.05-06-B25-50	26	32	5	0.8	107	50	25	14400	1,2	XNEU 06T3..			**13205**
CHFCD.32.R.05-06-A25-50	26	32	5	0.8	107	50	25	14400	1,2	XNEU 06T3..	**03205**		
CHFCD.32.R.05-06-A25-50-225	26	32	5	0.8	225	50	25	6400	1,2	XNEU 06T3..	**23205**		

MaxiMill – HFCD high-feed face mill

▲ Programmed radius r3D = 2.0 mm







NEW

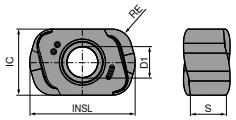
50 358 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	RPMX 1/min.	Tightening torque Nm	Indexable insert	
AHFCD.32.R.05-06	26	32	5	0.8	40	16	38	17300	1,2	XNEU 06T3..	**03205**
AHFCD.35.R.05-06	29	35	5	0.8	40	16	38	16100	1,2	XNEU 06T3..	**03505**
AHFCD.40.R.06-06	34	40	6	0.8	40	16	38	14600	1,2	XNEU 06T3..	**04006**
AHFCD.42.R.06-06	36	42	6	0.8	40	16	38	14100	1,2	XNEU 06T3..	**04206**
AHFCD.50.R.07-06	44	50	7	0.8	40	22	43	12500	1,2	XNEU 06T3..	**05007**
AHFCD.52.R.08-06	46	52	8	0.8	40	22	43	12200	1,2	XNEU 06T3..	**05208**
AHFCD.63.R.09-06	57	63	9	0.8	40	22	48	10800	1,2	XNEU 06T3..	**06309**
AHFCD.66.R.10-06	60	66	10	0.8	40	22	48	10500	1,2	XNEU 06T3..	**06610**

Spare parts	TORX® interchangeable blade	Screwdriver	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Indexable insert					
XNEU 06T3..	**033**	**110**	**303**	**13800**	**192**

XNEU

Designation	IC mm	D1 mm	INSL mm	r3D mm	S mm
XNEU 06T3..	6.05	2.8	9.65	2	3.0



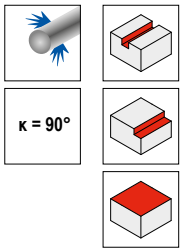
XNEU

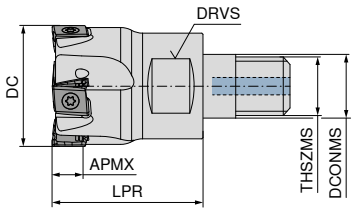
		NEW	NEW	NEW	NEW	NEW
		-M50 CTCP230	-M50 CTPP235	-F50 CTPM240	-M50 CTPM240	-F50 CTPM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		XNEU	XNEU	XNEU	XNEU	XNEU
		51 261 ...	51 261 ...	51 260 ...	51 261 ...	51 260 ...
ISO	RE mm					
06T318SER	1.8	01800	11800	41800	41800	41801
P		●	●	○	○	●
M			○	●	●	●
K		○	○			
N						
S						
H						
O						

XNEU

		NEW	NEW	NEW	NEW	NEW
		-F50 CTCM245	-R50 CTCK215	-R50 CTPK220	-F40 CTC5240	-F40 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		XNEU	XNEU	XNEU	XNEU	XNEU
		51 260 ...	51 262 ...	51 262 ...	51 259 ...	51 259 ...
ISO	RE mm					
06T318ER	1.8				11801	51801
06T318SER	1.8	91801	51800	61800		
P		●				
M		●				
K			●	●		
N						
S		○			●	●
H						
O						

MaxiMill – Tangent-09 screw-in cutter



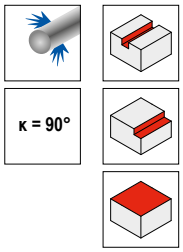


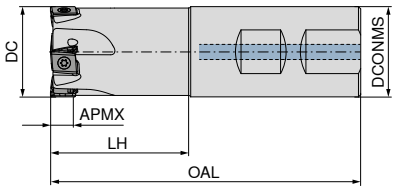
NEW

50 355 ...

Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	Tightening torque Nm	Indexable insert	
GTANG.25.R.03-09-M12	25	3	8	35	12.5	M12	17	39600	2.2	LN.U 0904	**02503**
GTANG.25.R.04-09-M12	25	4	8	35	12.5	M12	17	39600	2.2	LN.U 0904	**02504**
GTANG.32.R.04-09-M16	32	4	8	40	17.0	M16	24	35000	2.2	LN.U 0904	**03204**
GTANG.32.R.05-09-M16	32	5	8	40	17.0	M16	24	35000	2.2	LN.U 0904	**03205**

MaxiMill – Tangent-09 end mill



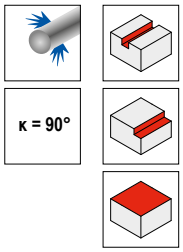


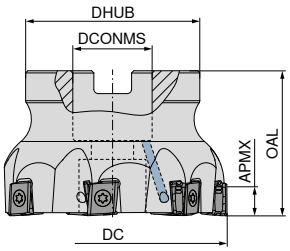
NEW

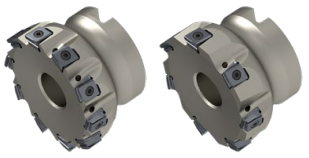
50 354 ...

Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS h6 mm	RPMX 1/min.	Tightening torque Nm	Indexable insert	
CTANG.25.R.03-09-B-43-100	25	3	8	100	43	25	39600	2.2	LN.U 0904	**02503**
CTANG.25.R.04-09-B-43-100	25	4	8	100	43	25	39600	2.2	LN.U 0904	**02504**
CTANG.32.R.04-09-B-49-110	32	4	8	110	49	32	35000	2.2	LN.U 0904	**03204**
CTANG.32.R.05-09-B-49-110	32	5	8	110	49	32	35000	2.2	LN.U 0904	**03205**
CTANG.40.R.04-09-B32-49-110	40	4	8	110	49	32	31300	2.2	LN.U 0904	**04004**
CTANG.40.R.06-09-B32-49-110	40	6	8	110	49	32	31300	2.2	LN.U 0904	**04006**

MaxiMill – Tangent-09 face mill







NEW NEW

Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	Tightening torque Nm	Indexable insert	50 353 ...	50 353 ...
ATANG.40.R.04-09-A16	40	4	8	40	38	16	31300	2.2	LN.U 0904		**04004**
ATANG.40.R.06-09-A16	40	6	8	40	38	16	31300	2.2	LN.U 0904	**04006**	
ATANG.50.R.05-09-A22	50	5	8	40	43	22	28000	2.2	LN.U 0904		**05005**
ATANG.50.R.07-09-A22	50	7	8	40	43	22	28000	2.2	LN.U 0904	**05007**	
ATANG.63.R.07-09-A22	63	7	8	40	48	22	25000	2.2	LN.U 0904		**06307**
ATANG.63.R.10-09-A22	63	10	8	40	48	22	25000	2.2	LN.U 0904	**06310**	
ATANG.80.R.08-09-A27	80	8	8	50	58	27	21000	2.2	LN.U 0904		**08008**
ATANG.80.R.11-09-A27	80	11	8	50	58	27	21000	2.2	LN.U 0904	**08011**	

Screwdriver

Molykote

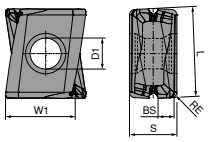
Clamping screw

Torque screwdriver

Spare parts Indexable insert	80 950 ...	70 950 ...	70 950 ...	80 950 ...
LN.U 0904	**119**	**303**	**710**	**193**

LNHU

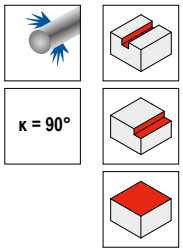
Designation	D1 mm	L mm	BS mm	S mm	W1 mm
LNHU 0904..	3.45	9.3	1	4.8	8

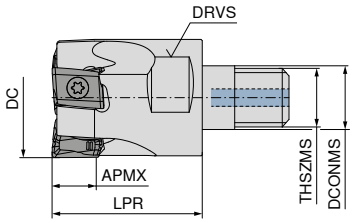


LNHU

		NEW	NEW	NEW	NEW	NEW	NEW	NEW
		-M50 CTCP230	**-M50** CTPP235	**-M50** CTPM240	**-M50** CTCM245	**-M50** CTCK215	**-M50** CTPK220	**-F40** CTC5240
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		LNHU	LNHU	LNHU	LNHU	LNHU	LNHU	LNHU
		51 257 ...	**51 257 ...**	**51 257 ...**	**51 257 ...**	**51 257 ...**	**51 257 ...**	**51 258 ...**
ISO	RE mm							
090404	0.4	**00400**	**10400**	**40400**	**40401**	**50400**	**60400**	**10401**
P		●	●	○	●			
M			○	●	●			
K		○	○			●	●	
N								
S					○			●
H								
O								

MaxiMill – Tangent-13 screw-in cutter



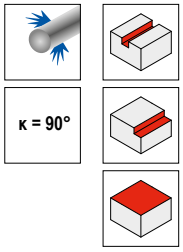


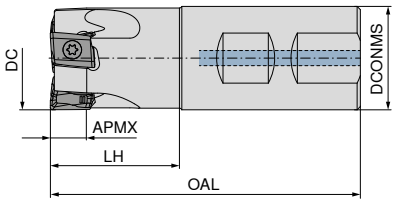
NEW

50 352 ...

Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	Tightening torque Nm	Indexable insert	
GTANG.32.R.03-13-M16	32	3	12	35	17	M16	24	25000	5.0	LN.U 1306	**03203**
GTANG.40.R.04-13-M16	40	4	12	40	17	M16	27	22500	5.0	LN.U 1306	**04004**

MaxiMill – Tangent-13 end mill



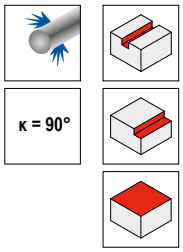


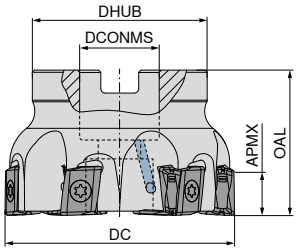
NEW

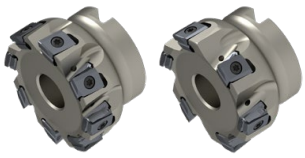
50 351 ...

Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS $_{h6}$ mm	RPMX 1/min.	Tightening torque Nm	Indexable insert	
CTANG.32.R.03-13-B32-40	32	3	12	96	40	32	25000	5.0	LN.U 1306	**03203**
CTANG.40.R.04-13-B32-50	40	4	12	110	50	32	22500	5.0	LN.U 1306	**04004**

MaxiMill – Tangent-13 face mill







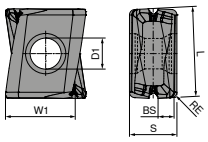
NEW NEW

Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	Tightening torque Nm	Indexable insert	50 350 ...	50 350 ...
ATANG.40.R.04-13-A16	40	4	12	40	38	16	22500	5.0	LN.U 1306		**04004**
ATANG.40.R.05-13-A16	40	5	12	40	38	16	22500	5.0	LN.U 1306	**04005**	
ATANG.40.R.05-13-A22	40	5	12	40	38	22	22500	5.0	LN.U 1306	**14005**	
ATANG.50.R.05-13-A22	50	5	12	40	43	22	20200	5.0	LN.U 1306		**05005**
ATANG.50.R.06-13-A22	50	6	12	40	43	22	20200	5.0	LN.U 1306	**05006**	
ATANG.50.R.06-13-A27	50	6	12	45	48	27	20200	5.0	LN.U 1306	**15006**	
ATANG.63.R.06-13-A22	63	6	12	40	48	22	18000	5.0	LN.U 1306		**06306**
ATANG.63.R.08-13-A22	63	8	12	40	48	22	18000	5.0	LN.U 1306	**06308**	
ATANG.63.R.08-13-A27	63	8	12	45	48	27	18000	5.0	LN.U 1306	**16308**	
ATANG.80.R.07-13-A27	80	7	12	50	58	27	15900	5.0	LN.U 1306		**08007**
ATANG.80.R.10-13-A27	80	10	12	50	58	27	15900	5.0	LN.U 1306	**08010**	
ATANG.100.R.09-13-A32	100	9	12	50	78	32	14200	5.0	LN.U 1306		**10009**
ATANG.100.R.13-13-A32	100	13	12	50	78	32	14200	5.0	LN.U 1306	**10013**	
ATANG.125.R.11-13-A40	125	11	12	63	88	40	12700	5.0	LN.U 1306		**12511**
ATANG.125.R.16-13-A40	125	16	12	63	88	40	12700	5.0	LN.U 1306	**12516**	

Spare parts	TORX® interchangeable blade	Screwdriver	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Indexable insert					
LN.U 1306	**054**	**120**	**303**	**134**	**193**

LNHU

Designation	D1 mm	L mm	BS mm	S mm	W1 mm
LNHU 1306..	4.5	13.3	1.5	7.0	10.2



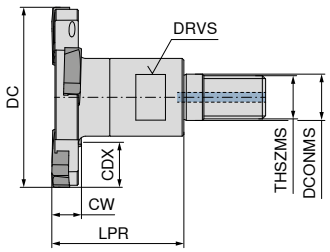
LNHU

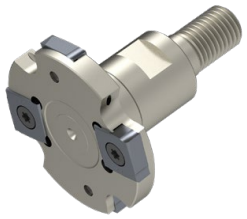
		NEW	NEW	NEW	NEW	NEW	NEW	NEW
		-M50 CTCP230	**-M50** CTPP235	**-F50** CTPM240	**-F50** CTCM245	**-M50** CTCK215	**-M50** CTPK220	**-F50** CTC5240
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		LNHU	LNHU	LNHU	LNHU	LNHU	LNHU	LNHU
		51 255 ...	**51 255 ...**	**51 256 ...**	**51 256 ...**	**51 255 ...**	**51 255 ...**	**51 256 ...**
ISO	RE mm							
130608	0.8	**00800**	**10800**	**40800**	**40801**	**50800**	**60800**	**10801**
P		●	●	○	●			
M			○	●	●			
K		○	○			●	●	
N								
S					○			●
H								
O								

MaxiMill – Slot-SNHX screw-in multipurpose milling cutter

Direct Cooling

κ = 90°





NEW

50 373 ...

Designation	DC mm	CW mm	CDX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	ZNF	Indexable insert	
GSLOT.50.R.04-SN13-06-DC-M12	50	6	13	35	12.5	M12	17	4	SNHX 1303..	**05006**
GSLOT.63.R.06-SN13-06-DC-M12	63	6	18	35	12.5	M12	17	6	SNHX 1303..	**06306**
GSLOT.80.R.08-SN13-06-DC-M16	80	6	21	35	17.0	M16	24	8	SNHX 1303..	**08006**
GSLOT.50.R.04-SN13-08-DC-M12	50	8	13	35	12.5	M12	17	4	SNHX 1304..	**05008**
GSLOT.63.R.06-SN13-08-DC-M12	63	8	18	35	12.5	M12	17	6	SNHX 1304..	**06308**
GSLOT.80.R.08-SN13-08-DC-M16	80	8	21	35	17.0	M16	24	8	SNHX 1304..	**08008**

Clamping screw

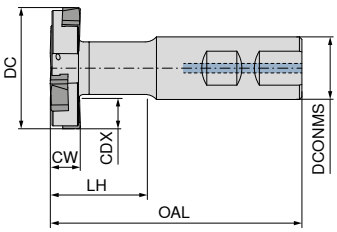
50 950 ...

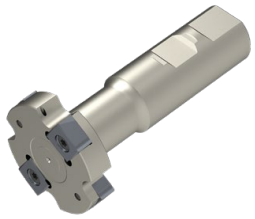
Spare parts for article number	
50 373 05006 / 50 373 06306	**00500**
50 373 05008 / 50 373 06308	**00600**
50 373 08006	**00500**
50 373 08008	**00600**

MaxiMill – Slot-SNHX cylindrical shank saw

Direct Cooling

κ = 90°





NEW

50 372 ...

Designation	DC mm	CW mm	CDX mm	OAL mm	LH mm	DCONMS mm	ZNF	Indexable insert	
CSLOT.50.R.04-SN13-06-DC-B20-42	50	6	13	95	42	20	4	SNHX 1303..	**05006**
CSLOT.63.R.06-SN13-06-DC-B25-41	63	6	18	100	41	25	6	SNHX 1303..	**06306**
CSLOT.80.R.08-SN13-06-DC-B32-48	80	6	22	110	48	32	8	SNHX 1303..	**08006**
CSLOT.100.R.10-SN13-06-DC-B40-52	100	6	29	125	52	40	10	SNHX 1303..	**10006**
CSLOT.50.R.04-SN13-08-DC-B20-42	50	8	13	95	42	20	4	SNHX 1304..	**05008**
CSLOT.63.R.06-SN13-08-DC-B25-41	63	8	18	100	41	25	6	SNHX 1304..	**06308**
CSLOT.80.R.08-SN13-08-DC-B32-48	80	8	22	110	48	32	8	SNHX 1304..	**08008**
CSLOT.100.R.10-SN13-08-DC-B40-52	100	8	29	125	52	40	10	SNHX 1304..	**10008**
CSLOT.50.R.04-SN13-10-DC-B20-42	50	10	13	95	42	20	4	SNHX 1305..	**05010**
CSLOT.63.R.06-SN13-10-DC-B25-41	63	10	18	100	41	25	6	SNHX 1305..	**06310**
CSLOT.80.R.08-SN13-10-DC-B32-48	80	10	22	110	48	32	8	SNHX 1305..	**08010**
CSLOT.100.R.10-SN13-10-DC-B40-52	100	10	29	125	52	40	10	SNHX 1305..	**10010**
CSLOT.50.R.04-SN13-12-DC-B20-42	50	12	13	95	42	20	4	SNHX 1307..	**05012**
CSLOT.63.R.06-SN13-12-DC-B25-41	63	12	18	100	41	25	6	SNHX 1307..	**06312**
CSLOT.80.R.08-SN13-12-DC-B32-48	80	12	22	110	48	32	8	SNHX 1307..	**08012**
CSLOT.100.R.10-SN13-12-DC-B40-52	100	12	29	125	52	40	10	SNHX 1307..	**10012**

Clamping screw

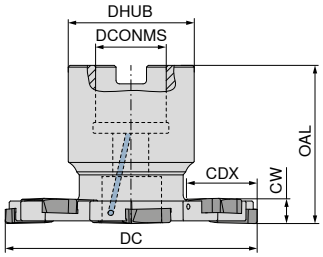
50 950 ...

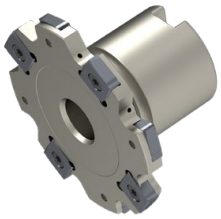
Spare parts for article number	
50 372 05006 / 50 372 06306	**00500**
50 372 05008 / 50 372 06308	**00600**
50 372 05010 / 50 372 06310	**00700**
50 372 05012 / 50 372 06312	**00800**
50 372 08006 / 50 372 10006	**00500**
50 372 08008 / 50 372 10008	**00600**
50 372 08010 / 50 372 10010	**00700**
50 372 08012 / 50 372 10012	**00800**

MaxiMill – Slot-SNHX side and face milling cutter

Direct Cooling

κ = 90°





NEW

Designation	DC mm	CW mm	CDX mm	OAL mm	DCONMS mm	DHUB mm	ZNF	Indexable insert	50 374 ...
ASLOT.80.R.08-SN13-06-DC-A22	80	6	22.0	50	22	40	8	SNHX 1303..	08006
ASLOT.100.R.10-SN13-06-DC-A27	100	6	25.0	50	27	48	10	SNHX 1303..	10006
ASLOT.125.R.12-SN13-06-DC-A32	125	6	31.5	50	32	58	12	SNHX 1303..	12506
ASLOT.160.R.16-SN13-06-DC-A40	160	6	41.5	50	40	70	16	SNHX 1303..	16006
ASLOT.200.R.18-SN13-06-DC-A40	200	6	52.0	50	40	88	18	SNHX 1303..	20006
ASLOT.80.R.08-SN13-08-DC-A22	80	8	22.0	50	22	40	8	SNHX 1304..	08008
ASLOT.100.R.10-SN13-08-DC-A27	100	8	25.0	50	27	48	10	SNHX 1304..	10008
ASLOT.125.R.12-SN13-08-DC-A32	125	8	31.5	50	32	58	12	SNHX 1304..	12508
ASLOT.160.R.16-SN13-08-DC-A40	160	8	41.5	50	40	70	16	SNHX 1304..	16008
ASLOT.200.R.18-SN13-08-DC-A40	200	8	52.0	50	40	88	18	SNHX 1304..	20008
ASLOT.80.R.08-SN13-10-DC-A22	80	10	22.0	50	22	40	8	SNHX 1305..	08010
ASLOT.100.R.10-SN13-10-DC-A27	100	10	25.0	50	27	48	10	SNHX 1305..	10010
ASLOT.125.R.12-SN13-10-DC-A32	125	10	31.5	50	32	58	12	SNHX 1305..	12510
ASLOT.160.R.16-SN13-10-DC-A40	160	10	41.5	50	40	70	16	SNHX 1305..	16010
ASLOT.200.R.18-SN13-10-DC-A40	200	10	52.0	50	40	88	18	SNHX 1305..	20010
ASLOT.80.R.08-SN13-12-DC-A22	80	12	22.0	50	22	40	8	SNHX 1307..	08012
ASLOT.100.R.10-SN13-12-DC-A27	100	12	25.0	50	27	48	10	SNHX 1307..	10012
ASLOT.125.R.12-SN13-12-DC-A32	125	12	31.5	50	32	58	12	SNHX 1307..	12512
ASLOT.160.R.16-SN13-12-DC-A40	160	12	41.5	50	40	70	16	SNHX 1307..	16012
ASLOT.200.R.18-SN13-12-DC-A40	200	12	52.0	50	40	88	18	SNHX 1307..	20012
ASLOT.80.R.08-SN13-14-DC-A22	80	14	22.0	50	22	40	8	SNHX 1309..	08014
ASLOT.100.R.10-SN13-14-DC-A27	100	14	25.0	50	27	48	10	SNHX 1309..	10014
ASLOT.125.R.12-SN13-14-DC-A32	125	14	31.5	50	32	58	12	SNHX 1309..	12514
ASLOT.160.R.16-SN13-14-DC-A40	160	14	41.5	50	40	70	16	SNHX 1309..	16014
ASLOT.200.R.18-SN13-14-DC-A40	200	14	52.0	50	40	88	18	SNHX 1309..	20014
ASLOT.80.R.08-SN13-16-DC-A22	80	16	22.0	50	22	40	8	SNHX 1309..	08016
ASLOT.100.R.10-SN13-16-DC-A27	100	16	25.0	50	27	48	10	SNHX 1309..	10016
ASLOT.125.R.12-SN13-16-DC-A32	125	16	31.5	50	32	58	12	SNHX 1309..	12516
ASLOT.160.R.16-SN13-16-DC-A40	160	16	41.5	50	40	70	16	SNHX 1309..	16016
ASLOT.200.R.18-SN13-16-DC-A40	200	16	52.0	50	40	88	18	SNHX 1309..	20016

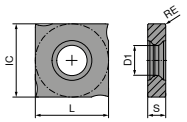
Clamping screw

Clamping screw

Spare parts for article number	50 950 ...	50 950 ...
50 374 08006	01000	00500
50 374 08008	01000	00600
50 374 08010	01000	00700
50 374 08012	01000	00800
50 374 08014 / 50 374 08016	01000	00900
50 374 10006	01100	00500
50 374 10008	01100	00600
50 374 10010	01100	00700
50 374 10012	01100	00800
50 374 10014 / 50 374 10016	01100	00900
50 374 12506	01200	00500
50 374 12508	01200	00600
50 374 12510	01200	00700
50 374 12512	01200	00800
50 374 12514 / 50 374 12516	01200	00900
50 374 16006 / 50 374 20006	01300	00500
50 374 16008 / 50 374 20008	01300	00600
50 374 16010 / 50 374 20010	01300	00700
50 374 16012 / 50 374 20012	01300	00800
50 374 16014 / 50 374 16016	01300	00900
50 374 20014 / 50 374 20016	01300	00900

SNHX

Designation	IC mm	D1 mm	L mm	S mm
SNHX 1303..	13	5.3	13	3.2
SNHX 1304..	13	5.3	13	4.5
SNHX 1305..	13	5.3	13	5.4
SNHX 1307..	13	5.3	13	7.0
SNHX 1309..	13	5.3	13	9.0



SNHX

		NEW	NEW	NEW	NEW	NEW
		CTPP235	CTPP235	CTPP235	CTPP235	CTPP235
		SNHX	SNHX	SNHX	SNHX	SNHX
		51 263 ...	51 264 ...	51 265 ...	51 266 ...	51 267 ...
ISO	RE mm					
130308EL	0.8	10800				
130308ER	0.8	11800				
130408EL	0.8		10800			
130408ER	0.8		11800			
130508EL	0.8			10800		
130508ER	0.8			11800		
130708EL	0.8				10800	
130708ER	0.8				11800	
130908EL	0.8					10800
130908ER	0.8					11800
P		●	●	●	●	●
M		○	○	○	○	○
K		○	○	○	○	○
N						
S						
H						
O						

SNHX

		NEW	NEW	NEW	NEW	NEW
		CTPM240	CTPM240	CTPM240	CTPM240	CTPM240
		SNHX	SNHX	SNHX	SNHX	SNHX
		51 263 ...	51 264 ...	51 265 ...	51 266 ...	51 267 ...
ISO	RE mm					
130308EL	0.8	40800				
130308ER	0.8	41800				
130408EL	0.8		40800			
130408ER	0.8		41800			
130508EL	0.8			40800		
130508ER	0.8			41800		
130708EL	0.8				40800	
130708ER	0.8				41800	
130908EL	0.8					40800
130908ER	0.8					41800
P		○	○	○	○	○
M		●	●	●	●	●
K						
N						
S						
H						
O						

SNHX

		NEW	NEW	NEW	NEW	NEW
		CTPK220	CTPK220	CTPK220	CTPK220	CTPK220
		SNHX	SNHX	SNHX	SNHX	SNHX
		51 263 ...	51 264 ...	51 265 ...	51 266 ...	51 267 ...
ISO	RE mm					
130308EL	0.8	60800				
130308ER	0.8	61800				
130408EL	0.8		60800			
130408ER	0.8		61800			
130508EL	0.8			60800		
130508ER	0.8			61800		
130708EL	0.8				60800	
130708ER	0.8				61800	
130908EL	0.8					60800
130908ER	0.8					61800
P						
M						
K		●	●	●	●	●
N						
S						
H						
O						

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength lbf/in²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0.15 % C	Annealed	60900 lbf/in² / 125 HB	1.0401	1015	1.0301	1010
		P.1.2	< 0.45 % C	Annealed	92800 lbf/in² / 190 HB	1.1191	1045	1.0737	12L14
		P.1.3		Tempered	121800 lbf/in² / 250 HB	1.1191	1045	1.0503	1043
		P.1.4	< 0.75 % C	Annealed	132000 lbf/in² / 270 HB	1.1223	1060	1.0535	1055
		P.1.5		Tempered	146500 lbf/in² / 300 HB	1.1223	1060	1.1274	1095
	Low-alloy steel	P.2.1		Annealed	88500 lbf/in² / 180 HB	1.7131	5115	1.6523	8620
		P.2.2		Tempered	134900 lbf/in² / 275 HB	1.7131	5115	1.6582	4340
		P.2.3		Tempered	146500 lbf/in² / 300 HB	1.7225	4142	1.7131	5115
		P.2.4		Tempered	174000 lbf/in² / 375 HB	1.7225	4142	17223	4140
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	98600 lbf/in² / 200 HB	1.4021	420	1.2379	D2
		P.3.2		Hardened and tempered	159500 lbf/in² / 300 HB	1.2343	H11	1.3343	M2
		P.3.3		Hardened and tempered	188500 lbf/in² / 400 HB	1.2343	H11	1.2363	A2
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	98600 lbf/in² / 200 HB	1.4016	430	1.4125	440C
		P.4.2	Martensitic	Tempered	117500 lbf/in² / 250 HB	1.4112	S44003	1.4021	420
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	88500 lbf/in² / 200 HB	1.4301	304	1.4401	316
		M.2.1	Austenitic	Tempered	300 HB	1.4841	314	1.4568	17-7 PH
		M.3.1	Austenitic / ferritic (Duplex)		113100 lbf/in² / 230 HB	1.4462	S32205	1.4410	S32750
K	Grey cast iron	K.1.1	Pearlitic / ferritic		88500 lbf/in² / 180 HB	0.6010	A48-20B	0.6025	A48-40 B
		K.1.2	Pearlitic (martensitic)		127600 lbf/in² / 260 HB	0.6030	A48-45B	0.6040	A48-60 B
	Spherulitic graphite cast iron	K.2.1	Ferritic		78300 lbf/in² / 160 HB	0.7040	60-40-18	0.7050	65-45-12
		K.2.2	Pearlitic		122600 lbf/in² / 250 HB	0.7070	100-70-03	0.7660	A439 Type D2
	Malleable iron	K.3.1	Ferritic		63800 lbf/in² / 130 HB	0.8035	GTW-35-04		
		K.3.2	Pearlitic		113100 lbf/in² / 230 HB	0.8170	70003		
N	Aluminum wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	A91060	3.0255	A91060
		N.1.2	Hardenable		49300 lbf/in² / 100 HB	3.1355	2024	3.1355	2024
	Cast aluminum alloy	N.2.1	≤ 12 % Si, non-hardenable		36300 lbf/in² / 75 HB	3.2581	A04130 / A413-0	3.2581	A04130 / A413-0
		N.2.2	≤ 12 % Si, hardenable		43500 lbf/in² / 90 HB	3.2134	G-AlSi5Cu1Mg		
		N.2.3	> 12 % Si, non-hardenable		63800 lbf/in² / 130 HB		G-AlSi17Cu4Mg		
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		54400 lbf/in² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0380	C37700
		N.3.2	CuZn, CuSnZn		43500 lbf/in² / 90 HB	2.0331	CuZn15	2.0331	C34000
		N.3.3	CuSn, lead-free copper and electrolytic copper		49300 lbf/in² / 100 HB	2.0060	E-Cu57		
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn		
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	98600 lbf/in² / 200 HB	1.4864	X12NiCrSi 36-16	1.4864	330
		S.1.2			137800 lbf/in² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4980	S66286
		S.2.1	Ni or Co basis	Annealed	121800 lbf/in² / 250 HB	2.4856	Inconel 625	2.4812	Hastelloy C
		S.2.2			171100 lbf/in² / 350 HB	2.4952	Nimonic 80A	2.4668	Inconel 718
		S.2.3		Cast	156600 lbf/in² / 320 HB	2.4674	Nimocast PK24	2.4670	Nimocast 713
	Titanium alloys	S.3.1	Pure titanium		5800 lbf/in²	3.7025	Ti99.8		
		S.3.2	Alpha + beta alloys		152300 lbf/in²	3.7165	TiAl6V4		
		S.3.3	Beta alloys		203100 lbf/in² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr		
H	Hardened steel	H.1.1		Hardened and tempered	46-55 HRC				
		H.1.2		Hardened and tempered	56-60 HRC				
		H.1.3		Hardened and tempered	61-65 HRC				
		H.1.4		Hardened and tempered	66-70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 21800 lbf/in²				
		O.1.2	Plastics, thermoplastic		≤ 14500 lbf/in²				
		O.2.1	Aramid fibre-reinforced		≤ 145000 lbf/in²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 145000 lbf/in²				
		O.3.1	Graphite						

*** Tensile Strength at Rupture (Rm)**

Cutting data standard values for MaxiMill – Slot-SNHX

Index	CTPP235		CTPM240		CTPK220	
	DRAGONSKIN					
	Cutting material **hard** (v_c↑) → **tough** (v_c↓)					
	v_c (m/min)					
P.1.1	**246**	**137**	226	141		
P.1.2	**208**	**121**	188	126		
P.1.3	**172**	**106**	152	112		
P.1.4	**160**	**101**	140	107		
P.1.5	**143**	**94**	123	100		
P.2.1	**214**	**123**	194	128		
P.2.2	**157**	**100**	137	106		
P.2.3	**143**	**94**	123	100		
P.2.4	**98**	**76**	78	83		
P.3.1	**121**	**97**	126	105		
P.3.2	**108**	**83**	112	95		
P.3.3	**96**	**69**	98	85		
P.4.1	**121**	**97**	126	105		
P.4.2	**114**	**90**	119	100		
M.1.1	121	97	**126**	**105**		
M.2.1	108	83	**112**	**95**		
M.3.1	117	93	**121**	**102**		
K.1.1	160	110			**320**	**190**
K.1.2	150	110			**170**	**100**
K.2.1	150	110			**210**	**130**
K.2.2	150	110			**140**	**90**
K.3.1					**200**	**120**
K.3.2					**170**	**100**
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Average chip thickness

h_m in mm

$$h_m = \frac{f_z}{2} \sqrt{\frac{a_e}{DC}}$$

Feed per tooth

f_z in mm

$$f_z = h_m \sqrt{\frac{DC}{a_e}}$$

Feed rate

v_f in mm/min

$$v_f = f_z \times ZNF \times n$$

DC = Ø of the side and face milling cutter

ZNF = Number of teeth on milling cutter

Reference tool 50 374 12506 – ASLOT.125.R.12-SN13-06-DC-A32

	a_e	10	20	30
	h_m	f_z in mm		
P	**0.11**	0.39	0.28	0.22
M	**0.08**	0.28	0.20	0.16
K	**0.13**	0.46	0.33	0.27
N				
S				
H				
O				

ASLOT.125.R.12-SN13-06-DC-A32

Number of teeth on tool (Z)	**12**
Effective number of teeth (Z/2)	**6**

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approximately **±20%** according to the usage conditions.

Cutting data standard values

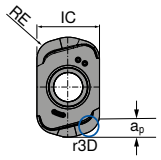
Index	CTCP230		CTPP235		CTPM240		CTPM245		CTCM245		CTCK215		CTC5240		CTCS245	
	DRAGONSKIN															
	Cutting material **hard** (v_c↑) → **tough** (v_c↓)															
	v_c (m/min)															
P.1.1	**286**	**150**	**246**	**137**	226	141	244	139	279	134						
P.1.2	**242**	**133**	**208**	**121**	188	126	207	124	242	119						
P.1.3	**202**	**118**	**172**	**106**	152	112	173	109	208	104						
P.1.4	**189**	**112**	**160**	**101**	140	107	161	104	196	99						
P.1.5	**169**	**105**	**143**	**94**	123	100	144	97	179	92						
P.2.1	**249**	**136**	**214**	**123**	194	128	212	126	247	121						
P.2.2	**185**	**111**	**157**	**100**	137	106	158	103	193	98						
P.2.3	**169**	**105**	**143**	**94**	123	100	144	97	179	92						
P.2.4	**118**	**85**	**98**	**76**	78	83	101	78	136	73						
P.3.1	**140**	**87**	**121**	**97**	126	105	155	107	175	122						
P.3.2	**90**	**55**	**108**	**83**	112	95	143	93	163	108						
P.3.3	**40**	**22**	**96**	**69**	98	85	131	79	151	94						
P.4.1	**140**	**87**	**121**	**97**	126	105	155	107	175	122						
P.4.2	**115**	**71**	**114**	**90**	119	100	149	100	169	115						
M.1.1			121	97	**126**	**105**	**155**	**107**	**175**	**122**						
M.2.1			108	83	**112**	**95**	**143**	**93**	**163**	**108**						
M.3.1			117	93	**121**	**102**	**152**	**103**	**172**	**118**						
K.1.1	310	190	160	110							**360**	**210**				
K.1.2	160	100	150	110							**220**	**130**				
K.2.1	200	120	150	110							**230**	**140**				
K.2.2	130	80	150	110							**160**	**100**				
K.3.1	190	115									**250**	**150**				
K.3.2	160	100									**210**	**130**				
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1										80				**80**		**64**
S.1.2										70				**70**		**56**
S.2.1										35				**35**		**28**
S.2.2										25				**25**		**20**
S.2.3										30				**30**		**24**
S.3.1										80				**80**		**64**
S.3.2										50				**50**		**40**
S.3.3										40				**40**		**32**
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

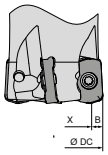
The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approximately **±20%** according to the usage conditions.

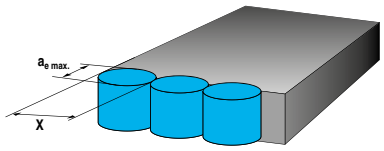
MaxiMill HFCD-06 system

Machining strategy

Programmed radius r3D = 2.0 mm







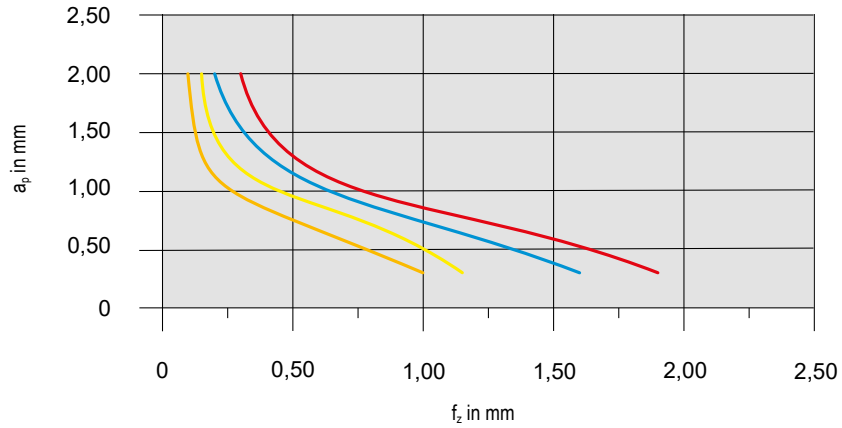
Cutting depth and remaining material			Cutting width for flat surfaces			Engagement when plunging				
IC in inch	RE in inch	$a_{p\ max.}$ in mm	DCX in inch	X in inch	B in inch	$a_{e\ max.}$ in inch	f_z in mm			X
							initial	min.	max.	
6,05	1,8	0,8	16–66	DCX–(2 x B)	4,3	5,3	0,10	0,08	0,15	<0,7 x DCX

	Circular		
	Circular bore milling (helical plunging into solid material)		
DCX mm	$D_{min.}$ mm	$D_{max.}$ mm	$\alpha_{R\ max.}$ °
16	29	31	1,2°
20	36	39	1°
25	45	49	0,9°
32	59	63	0,65°
35	64	69	0,6°
40	74	79	0,5°
42	78	83	0,45°
50	94	99	0,35°
52	98	103	0,35°
63	120	125	0,3°
66	126	131	0,25°

	Axial	Angled
	Plunging	
DCX mm	$X_{max.}$ mm	$\alpha_{R\ max.}$ °
16	0,2	1,5°
20		1,4°
25		1,1°
32		0,9°
35		0,7°
40		0,65°
42	0,25	0,6°
50		0,5°
52		0,45°
63		0,4°
66		0,35°

Starting parameters

XNEU 06



Material			Indexable insert		v_c in ft/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**XNEU 06T318SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XNEU 06T318SR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XNEU 06T318SR-R50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XNEU 06T318ER-F40**	**CTC5240**	35	Emulsion

Detailed information on the cutting speed for individual cutting materials can be found on → page 49+50

From v_c > 1300 SFM, the tool must be balanced!

System MaxiMill – Tangent-09

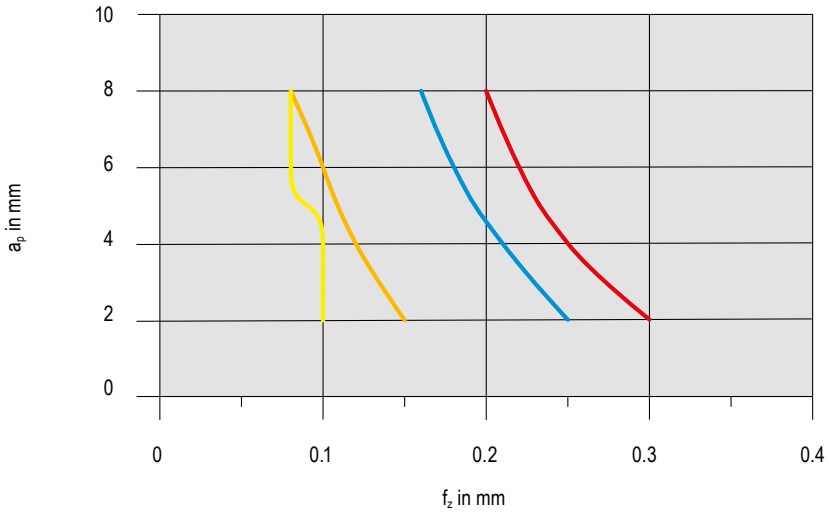
Machining strategy

LNHU 09 – DC/a_e Ratio (Dry machining at $a_{p\ max.}$)

DC	ZNF	5 %	10 %	15 %	20 %	25 %	30 %	35 %	40 %	45 %	50 %	55 %	60 %	65 %	70 %	75 %	80 %	85 %	90 %	95 %	100 %
25	3	P																			
		M																			
		K																			
	4	P																			
		M																			
		K																			
32	4	P																			
		M																			
		K																			
	5	P																			
		M																			
		K																			
40	4	P																			
		M																			
		K																			
	6	P																			
		M																			
		K																			
50	5	P																			
		M																			
		K																			
	7	P																			
		M																			
		K																			
63	7	P																			
		M																			
		K																			
	10	P																			
		M																			
		K																			
80	8	P																			
		M																			
		K																			
	11	P																			
		M																			
		K																			

Starting parameters

LNHU 09



Material			Indexable insert		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**LNHU 090404-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**LNHU 090404-M50**	**CTPM240**	120	Emulsion
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**LNHU 090404-M50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**LNHU 090404-F40**	**CTC5240**	35	Emulsion

Detailed information on the cutting speed for individual cutting materials can be found on → page 49+50

From v_c > 1300 SFM, the tool must be balanced!

System MaxiMill – Tangent-13

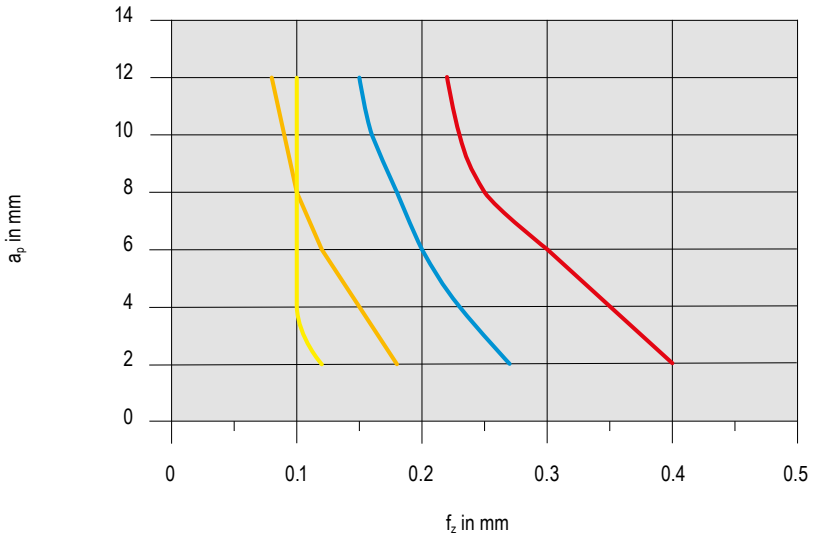
Machining strategy

LNHU 13 – DC/a_e Ratio (Dry machining at $a_{p\ max.}$)

DC	ZNF	5 %	10 %	15 %	20 %	25 %	30 %	35 %	40 %	45 %	50 %	55 %	60 %	65 %	70 %	75 %	80 %	85 %	90 %	95 %	100 %
32	3	P																			
		M																			
		K																			
40	4	P																			
		M																			
		K																			
	5	P																			
		M																			
		K																			
50	5	P																			
		M																			
		K																			
	6	P																			
		M																			
		K																			
63	6	P																			
		M																			
		K																			
	8	P																			
		M																			
		K																			
80	7	P																			
		M																			
		K																			
	10	P																			
		M																			
		K																			
100	9	P																			
		M																			
		K																			
	13	P																			
		M																			
		K																			
125	11	P																			
		M																			
		K																			
	16	P																			
		M																			
		K																			

Starting parameters

LNHU 13



Material			Indexable insert		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**LNHU 130608-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**LNHU 130608-F50**	**CTPM240**	120	Emulsion
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**LNHU 130608-M50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**LNHU 130608-F50**	**CTC5240**	35	Emulsion

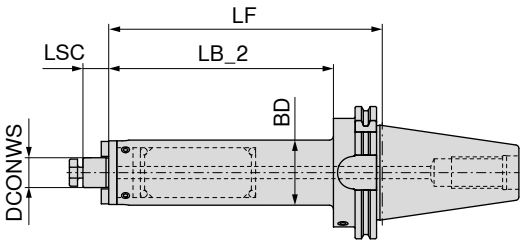
Detailed information on the cutting speed for individual cutting materials can be found on → page 49+50

From v_c > 1300 SFM, the tool must be balanced!

Actively vibration-damped shell mill adapter

- ▲ The specially mounted damping core enables perfect machining results even with longer tool overhangs
- ▲ Reduction in machining times due to optimum machining parameters
- ▲ Damped machining and therefore perfect surface qualities
- ▲ Protection of the machine spindle and increased tool life
- ▲ Screwed in drive keys
- ▲ **By request:**Also available with Balluff chip

Scope of supply:
Base body with retaining screw and drive key



NEW

AD
G 2.5 $n_{max.}$ 25000

84 752 ...

Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm	
SK 40	16	180.9	200	39	17	**51679**
SK 40	22	180.9	200	48	19	**52279**
SK 50	16	180.9	200	39	17	**51678**
SK 50	22	180.9	200	48	19	**52278**
SK 50	27	180.9	200	58	21	**52778**

Carrier screws

Drive key

Retaining screws

Tightening screw

Spare parts DCONWS		**83 950 ...**		**83 950 ...**		**83 367 ...**		**83 950 ...**
16	M3x8	**296**	8x9x17.5	**120**	M8	**016**	M8x25	**113**
22	M4x12	**297**	10x11x20.5	**121**	M10	**022**	M10x25	**124**
27	M5x12	**136**	12x13x24.3	**122**	M12	**027**	M12x30	**125**

Accessories

→ 58, 60
Pull studs

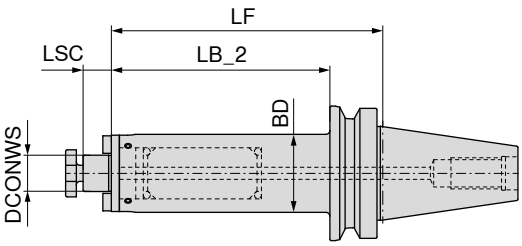
→ 284
Others

Accessories can be found in the clamping technology catalog
→ **Chapter 16, Adapters and accessories**

Actively vibration-damped shell mill adapter

- ▲ The specially mounted damping core enables perfect machining results even with longer tool overhangs
- ▲ Reduction in machining times due to optimum machining parameters
- ▲ Damped machining and therefore perfect surface qualities
- ▲ Protection of the machine spindle and increased tool life
- ▲ Screwed in drive keys
- ▲ **By request:**Also available with Balluff chip

Scope of supply:
Base body with retaining screw and drive key



NEW

AD
G 2.5 $n_{max.}$ 25000

84 752 ...

Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm	
BT 40	16	173.0	200	39	17	**51669**
BT 40	22	173.0	200	48	19	**52269**
BT 50	16	162.5	200	39	17	**51668**
BT 50	22	162.0	200	48	19	**52268**
BT 50	27	162.0	200	58	21	**52768**

Carrier screws

Drive key

Retaining screws

Tightening screw

Spare parts DCONWS	**83 950 ...**		**83 950 ...**		**83 367 ...**		**83 950 ...**	
16	M3x8	**296**	8x9x17,5	**120**	M8	**016**	M8x25	**113**
22	M4x12	**297**	10x11x20,5	**121**	M10	**022**	M10x25	**124**
27	M5x12	**136**	12x13x24,3	**122**	M12	**027**	M12x30	**125**

Accessories

→ 110+111
Pull studs

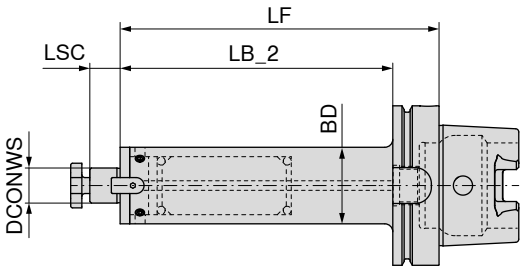
→ 284
Others

Accessories can be found in the clamping technology catalog
→ **Chapter 16, Adapters and accessories**

Actively vibration-damped shell mill adapter

- ▲ The specially mounted damping core enables perfect machining results even with longer tool overhangs
- ▲ Reduction in machining times due to optimum machining parameters
- ▲ Damped machining and therefore perfect surface qualities
- ▲ Protection of the machine spindle and increased tool life
- ▲ Screwed in drive keys
- ▲ **By request:**Also available with Balluff chip

Scope of supply:
Base body with retaining screw and drive key



NEW

AD
G 2.5 $n_{max.}$ 25000

Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm	84 752 ...
HSK-A 63	16	174	200	39	17	**51657**
HSK-A 63	22	174	200	48	19	**52257**
HSK-A 100	16	171	200	39	17	**51655**
HSK-A 100	22	171	200	48	19	**52255**
HSK-A 100	27	171	200	58	21	**52755**

Carrier screws

Drive key

Retaining screws

Tightening screw

Spare parts DCONWS	83 950 ...	83 950 ...	83 367 ...	83 950 ...
16	**296**	**120**	**016**	**113**
22	**297**	**121**	**022**	**124**
27	**136**	**122**	**027**	**125**

Accessories

→ 156
Pull studs

→ 284
Others

Accessories can be found in the clamping technology catalog
→ **Chapter 16, Adapters and accessories**

Sustainability is not a goal, it’s a mission.

We have an ambitious sustainability mission that will affect and change the entire supply chain. But we can only achieve true sustainability together. That's why our mission goes beyond our own scope:

We want to enable our customers to produce more sustainably with our products and services. With our ambitious mission, we want to make an important contribution to tackling the climate crisis.

Mission #1:
Climate neutral by 2025

Mission #2:
Minimize the use of virgin raw materials

connACT
Together for Sustainability

cutting.tools/us/en/sustainability

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

Tooling a Sustainable Future

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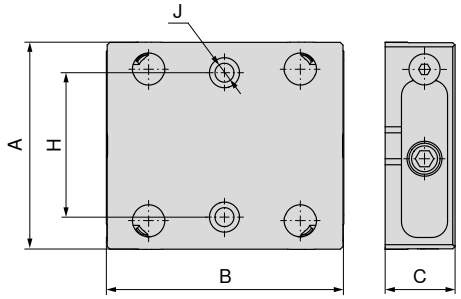
CERATIZIT GROUP

MNG mini – base plate, rectangular, 52 x 52 mm

▲ Order mounting bolts separately

MNG mini | **52 x 52**



NEW

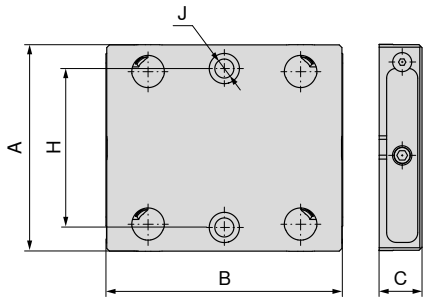
80 915 ...

Size	A mm	B mm	C ±0.005 mm	H ±0.01 mm	J F7 mm	WT kg	
52 x 52	80	100	27	50	12	1.36	**75200**

MNG mini – base plate, rectangular, 96 x 96 mm

▲ Order mounting bolts separately

MNG mini | **96 x 96**



NEW

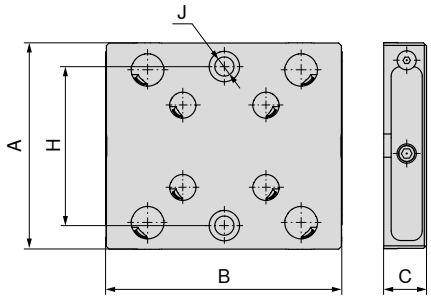
80 915 ...

Size	A mm	B mm	C ±0.005 mm	H ±0.01 mm	J F7 mm	WT kg	
96 x 96	130	148	27	100	12	3.59	**79600**

MNG mini – combi insert, 52 x 52 mm and 96 x 96 mm

▲ Order mounting bolts separately

MNG mini | **52 x 52** | **96 x 96**



NEW

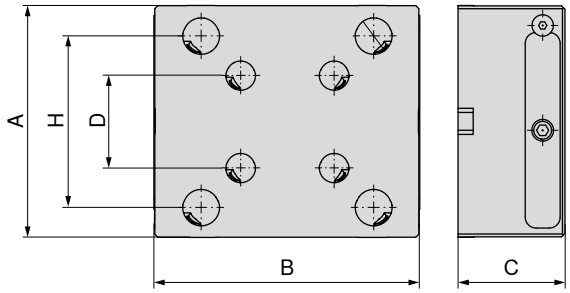
80 915 ...

Size	A mm	B mm	C ±0.005 mm	H ±0.01 mm	J F7 mm	WT kg	
52 x 52 / 96 x 96	130	148	27	100	12	3.43	**75900**

MNG mini – combi 5-axis increase, 52 x 52 mm and 96 x 96 mm

▲ Order mounting bolts separately

MNG mini | **52 x 52** | **96 x 96**

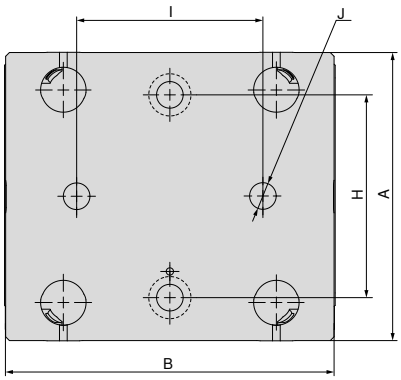


NEW

80 915 ...

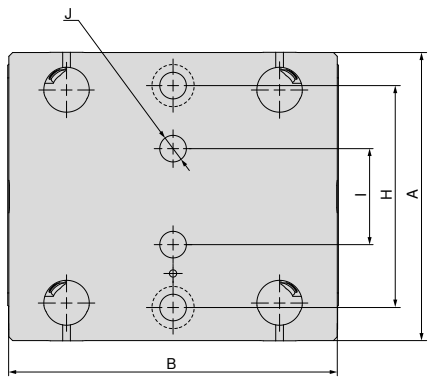
A mm	B mm	C mm	D mm	H mm	
130	148	60	52	96	**56000**
130	148	100	52	96	**51000**

Underside dimensions of MNG mini



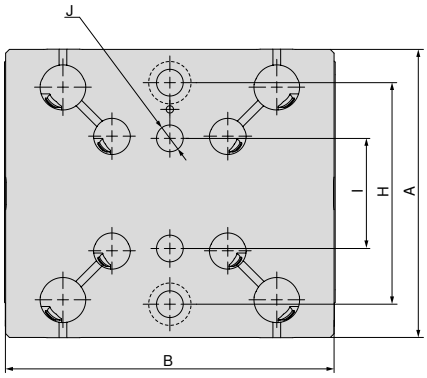
Base plate, rectangular, 52 x 52 mm

A mm	B mm	H mm	$I_{\pm 0.01}$ mm	J_{H7} mm
80	100	50	40	12



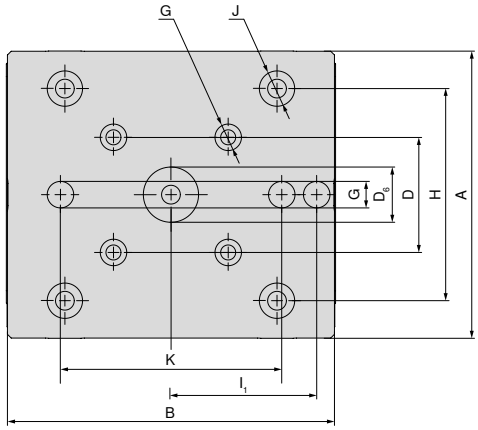
Base plate, rectangular, 96 x 96 mm

A mm	B mm	H mm	$I_{\pm 0.01}$ mm	J_{H7} mm
130	148	100	50	12



Combi insert, 1-sided, 52 x 52 mm and 96 x 96 mm

A mm	B mm	H mm	$I_{\pm 0.01}$ mm	J_{H7} mm
130	148	100	50	12



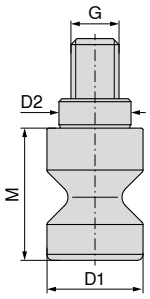
Combi 5-axis increase, 52 x 52 mm and 96 x 96 mm

A mm	B mm	D mm	$D_{6\,H7}$ mm	G_{H7} mm	H mm	$I_{1\,\pm 0.01}$ mm	J_{H7} mm	K mm
130	148	52	25	12	96	66	16	100

MNG mini mounting bolt set

Scope of supply:
Set includes four mounting bolts

MNG mini | **96 x 96**



NEW

80 915 ...

$D_{1\ h6}$ mm	$D_{2\ h6}$ mm	M mm	G mm	TQX Nm	Clamping force kN	for	
20	16	22	M10	18	15	96 x 96	**51100**

Expansion tool

MNG mini

NEW

80 915 ...

D_1 mm	M mm	
15	40	**51300**

Clamping screw set for T-slot for MNG mini

Scope of supply:
Clamping screw with T-nut

MNG mini

NEW

80 915 ...

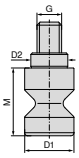
For slot width mm	G	
14	M12	**62400**
16	M12	**62600**
18	M12	**62800**

Mounting bolt set – LANG/HWR

Scope of supply:

Set includes four mounting bolts

MNG mini



NEW

TQX Nm	Clamping force kN	$D_{1\ h6}$ mm	$D_{2\ h6}$ mm	M mm	for	80 915 ...
18	15	15	12	22	52 x 52	**51500**
18	15	19	16	22	96 x 96	**51400**

Alignment/centering set for T-slots

▲ A = distance between slots

Scope of supply:

1 Terminal block, 2 T-nuts, 2 screws, 2 washers for width 12 mm (0.4724 in), without clamping strip!

MNG mini

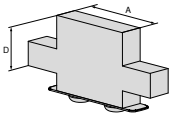
NEW

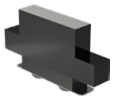
For slot width mm	A mm	G	80 915 ...
12	35	M10	**82200**
14	35	M10	**82400**
16	35	M10	**82600**
18	40	M10	**82800**

Workpiece supports overview – Verso

Workpiece support, offset

▲ Price per two pieces

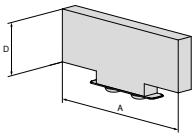


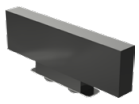


For vise width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NEW	NCG	H5G / -S / -Z	X6G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40		22								**80 914 70300**										●	

Workpiece support, offset

▲ Price per two pieces



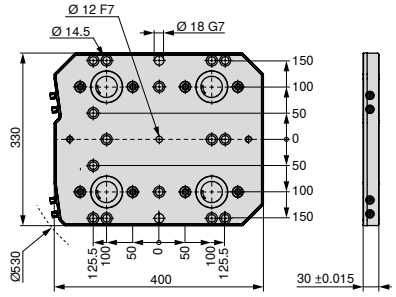


For vise width	A	A_1	D	D_1	D_2	E	M	M_1	M_2		NEW	NCG	H5G / -S / -Z	X6G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		22								**80 914 72500**										●	

MNG – base plate with 4 indexes, 330 x 400 mm

- ▲ MNG – mechanical zero point clamping system
- ▲ Stainless and vacuum-hardened
- ▲ Insertion force of 20 kN on each clamping bolt
- ▲ 15 x mounting holes for M12, for T-slot spread 50, 63, 100, 125 mm
- ▲ 2 x locating holes Ø18 G7 for positioning
- ▲ 1 x locating hole Ø12 F7 for positioning

MNG



NEW

80 899 ...

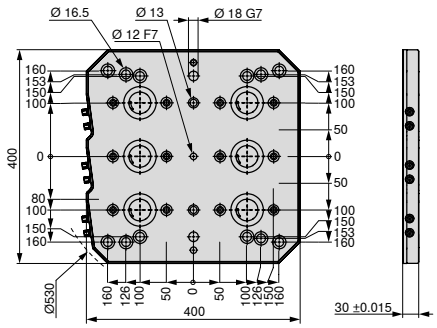
Size	WT kg	
330x400 mm	28	**64200**[1)]

1) Not in stock

MNG – base plate with 6 indexes, 400 x 400 mm

- ▲ MNG – mechanical zero point clamping system
- ▲ Stainless and vacuum-hardened
- ▲ Insertion force of 20 kN on each clamping bolt
- ▲ 14 x mounting holes for M16, for T-slot spread 63, 80, 100, 125 mm
- ▲ 2 x mounting holes for M12
- ▲ 2 x locating holes Ø18 G7 for positioning
- ▲ 1 x locating hole Ø12 F7 for positioning

MNG



NEW

80 899 ...

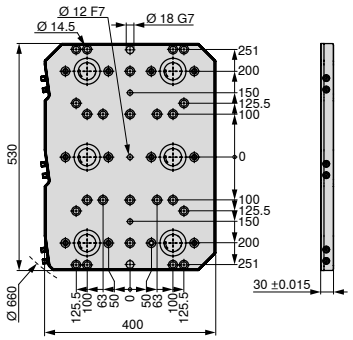
Size	WT kg	
400x400 mm	33	**64300**[1)]

1) Not in stock

MNG – base plate with 6 indexes, 400 x 530 mm

- ▲ MNG – mechanical zero point clamping system
- ▲ Stainless and vacuum-hardened
- ▲ Insertion force of 20 kN on each clamping bolt
- ▲ 24 x mounting holes for M12, for T-slot spread 63, 100, 125 mm
- ▲ 2 x locating holes Ø18 G7 for positioning
- ▲ 1 x locating hole Ø12 F7 for positioning

MNG



NEW

80 899 ...

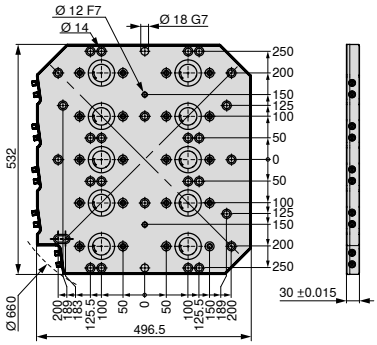
Size	WT kg	
400x530 mm	45	**64400**[1)]

1) Not in stock

MNG – base plate with 10 indexes, 496.5 x 532 mm

- ▲ MNG – mechanical zero point clamping system
- ▲ Stainless and vacuum-hardened
- ▲ Insertion force of 20 kN on each clamping bolt
- ▲ 27 x mounting holes for M12, for T-slot spread 50, 63, 100, 125 mm and 45° star slots
- ▲ 2 x locating holes Ø18 G7 for positioning
- ▲ 1 x locating hole Ø12 F7 for positioning

MNG



NEW

80 899 ...

Size	WT kg	
496.5x532 mm	54	**64500**[1)]

1) Not in stock

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